

KAKAO CORP. AND SUBSIDIARIES

Consolidated Financial Statements

December 31, 2020

(With Independent Auditors' Report Thereon)

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Independent Auditors' Report

Based on a report originally issued in Korean

To the The Board of Directors and Shareholders
Kakao Corp.:

Opinion

We have audited the consolidated financial statements of Kakao Corp. and its subsidiaries (the "Group") which comprise the consolidated statement of financial position as of December 31, 2020, and the consolidated statements of comprehensive income, changes in equity and cash flows for the year then ended and notes to the consolidated financial statements, including significant accounting policies and other explanatory information.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2020, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with Korean International Financial Reporting Standards (K-IFRS).

Basis for Opinion

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

Emphasis of Matter

Without modifying our opinion, we draw attention to Note 3 to the consolidated financial statements.

Uncertainty due to the COVID-19 impact

The assumptions used in performing the impairment test of cash generating units containing goodwill and the estimates resulted thereon may vary depending on the future duration and magnitude of the COVID-19 pandemic. It is highly uncertain to predict the future duration and magnitude of the COVID-19 and due to these uncertainties, the ultimate impact may differ from estimates reflected in the Group's financial position and financial performance of the consolidated financial statements. Our opinion is not modified by this matter.

Key Audit Matters

Key audit matters are those matters that, in our professional judgement, 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

Why the matter was decided as the key audit matter

In 2020, the amount of revenue generated from Search and Moment advertising services is ~~¥~~ 559.3 billion, which covers significant proportion of the Group's revenue. And we also considered the complexity of calculating the amount. Revenue recognition from Search and Moment advertising depends on the terms of the contracts with a number of advertisers and advertising agencies, and the amount of revenue from Search and Moment advertising of the Group is determined and recorded in a financial system through a complex process based on large volume of data including a number of customer information and various contract terms aggregated in the IT system (Note 2). There is a potential risk that the amount of revenue was improperly recognized due to such complex process and large volume of data. As a result, we identified recognition of the revenue from Search and Moment advertising as a key audit matter.

How the matter was addressed in our audit

The primary audit procedures we performed to address this key audit matter included:

- Reviewing accounting policies on recognition of revenue from Search and Moment advertising, and identifying and testing certain controls over the revenue recognition process
- Testing general IT controls for the operating system (program change, security, computer operation, and other)
- Testing controls for monitoring the amounts not charged to customers in the operating system
- Testing IT application controls for determining the amounts charged to customers in the operating system by independent reperformance
- Testing general IT controls whether approvals were obtained before the data change
- Performing reconciliation between the amount of revenue recorded in the operating system and that recognized in the financial accounting system
- For selected samples, examining the accuracy of amount recognized as revenue by inspecting relevant documents

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

Why the matter was decided as the key audit matter

As of December 31, 2020, goodwill of cash-generating unit of internet portal service and other services amounts to ~~¥~~ 1,081,856 million and goodwill of cash-generating units of music service amounts to ~~¥~~ 500,575 million (Note 19). The Group performed the impairment tests on the forementioned goodwill by calculating value-in-use based on the discounted cash flow (Note 3). We determined accounting for the forementioned goodwill as a key audit matter due to its significant magnitude, and due to the significant judgements required for the Group's managements in determining the assumptions such as discount rate, growth rate and future cash flow forecasts to estimate the value-in-use.

How the matter was addressed in our audit

The primary audit procedures we performed to address this key audit matter included:

- Obtaining an understanding of the Group's policy, procedures and internal controls in relation to accounting for impairment on goodwill
- Evaluating the adequacy of valuation model used by management to estimate value-in-use
- Evaluating the eligibility and independence of an external specialist utilized by the Group
- Assessing internal controls on management's review and approval in relation to future cash flow estimates for impairment tests
- Evaluating whether future cash flow is reasonably estimated based on a business plan reported to management
- Evaluating the appropriateness of key assumptions used to estimate value-in-use
- Evaluating the results of management's sensitivity analysis on the discount rates and the terminal growth rates performed to assess the impact of changes in key assumptions on the impairment tests

Other Matters

The procedures and practices utilized in the Republic of Korea to audit such consolidated financial statements may differ from those generally accepted and applied in other countries.

The accompanying consolidated statement of financial position of the Group as of December 31, 2019, and the related consolidated statements of comprehensive loss, changes in equity and cash flows for the year then ended, were audited by other auditors in accordance with Korean Standards on Auditing, whose report thereon dated March 17, 2020, expressed an unqualified opinion.

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 K-IFRS, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

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

Auditors' 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 auditors' 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 KSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in 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 KSAs, we exercise professional judgement 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 Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, then we are required to draw attention in our auditors' 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 auditors' report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible

for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

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

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

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 auditors' 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 auditors' report is Chang-Bum Ahn.

KPMG Samjony Accounting Corp.

Seoul, Korea
March 17, 2021

This report is effective as of March 17, 2021, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that the above audit report has not been updated to reflect the impact of such subsequent events or circumstances, if any.

KAKAO CORP. AND SUBSIDIARIES
Consolidated Statements of Financial Position
As of December 31, 2020 and 2019

(in millions of Korean won)

	Notes	2020	2019
Assets			
Current assets			
Cash and cash equivalents	4,78,37	₩ 2,877,514	1,918,225
Short-term financial instruments	4,5,7,8	694,069	207,767
Financial assets at fair value through profit or loss	4,5,7,10	134,503	49,512
Derivative financial assets	4,5,7,10,26	312	1,112
Trade receivables	4,5,7,10	247,374	157,221
Other current financial assets	4,5,7,10	225,055	252,486
Inventories	15	45,814	49,450
Assets held for sale		5,748	-
Other current assets	14	232,535	193,921
		<u>4,462,924</u>	<u>2,829,694</u>
Non-current assets			
Long-term financial instruments	4,5,7,8	10,174	50,062
Financial assets at fair value through profit or loss	4,5,7,10	303,222	127,148
Financial assets at fair value through other comprehensive income	4,5,7,10	702,575	419,265
Investments in associates and joint venture	16	1,504,418	978,944
Other non-current financial assets	4,5,7,10	121,291	92,355
Property and equipment	17	430,668	349,818
Intangible assets	19	3,351,553	3,548,416
Investment property	18	-	2,843
Right-of-use assets	20	345,325	227,458
Other non-current assets	14	166,487	50,548
Deferred income tax assets	24	51,683	60,703
		<u>6,987,396</u>	<u>5,907,561</u>
Assets of financial services business			
Cash and cash equivalents	8	16,803	-
Deposits	4,5,7,8	19,829	-
Financial assets at fair value through profit or loss	4,5,7,10	386,625	-
Property and equipment	17	5,850	-
Intangible assets	19	36,034	-
Right-of-use assets	20	3,533	-
Other financial assets	4,5,7,10	29,164	-
Other assets	14	5,812	-
		<u>503,650</u>	<u>-</u>
Total assets		<u>₩ 11,953,970</u>	<u>8,737,256</u>

See accompanying notes to the consolidated financial statements.

KAKAO CORP. AND SUBSIDIARIES
Consolidated Statements of Financial Position, Continued
As of December 31, 2020 and 2019

(in millions of Korean won)

	Notes	2020	2019
Liabilities			
Current Liabilities			
Trade and other payables	4,712	₩ 835,983	578,567
Short-term borrowings	4,721	188,419	448,596
Deposits received	4,713	302,038	299,564
Other current financial liabilities	4,5,713	33,859	25,256
Income tax payable		112,124	68,348
Provisions	25	5,858	7,081
Derivative financial liabilities	5,726	16,919	18,290
Short-term lease liabilities	4,20	78,895	68,077
Other current liabilities	14	1,355,495	919,543
		<u>2,929,590</u>	<u>2,433,322</u>
Non-current liabilities			
Non-current trade and other payables	4,712	40,882	32,872
Long-term borrowings	4,721	409,801	72,269
Non-current provisions	25	19,594	14,844
Long-term lease liabilities	4,20	273,311	164,989
Net defined benefit liabilities	22	10,313	3,555
Other long-term employee benefits liabilities	23	53,832	43,592
Non-current derivative financial liabilities	5,726	20,887	7,372
Deferred income tax liabilities	24	248,960	141,056
Other non-current financial liabilities	4,5,713	58,188	62,843
Other non-current liabilities	14	30,330	20,424
		<u>1,166,098</u>	<u>563,816</u>
Liabilities of financial services business			
Deposits received	4,713	377,849	-
Net defined benefit liabilities	22	192	-
Other long-term employee benefit liabilities	23	264	-
Provisions	25	229	-
Lease liabilities	4,20	3,304	-
Other financial liabilities	4,5,713	41,401	-
Other liabilities	14	7,314	-
		<u>430,553</u>	<u>-</u>
Total liabilities		<u>₩ 4,526,241</u>	<u>2,997,138</u>
Equity			
Share capital	1,27	₩ 44,301	43,161
Share premium	27	5,833,100	5,043,199
Other components of equity	29	18,617	7,238
Accumulated other comprehensive income(loss)	30	86,577	(16,393)
Retained earnings	31	316,325	148,154
Equity attributable to owners of the Parent Company		<u>6,298,920</u>	<u>5,225,359</u>
Non-controlling interests		<u>1,128,809</u>	<u>514,759</u>
Total equity		<u>7,427,729</u>	<u>5,740,118</u>
Total liabilities and equity		<u>₩ 11,953,970</u>	<u>8,737,256</u>

See accompanying notes to the consolidated financial statements.

KAKAO CORP. AND SUBSIDIARIES
Consolidated Statements of Comprehensive Income
For the years ended December 31, 2020 and 2019

	Note	2020	2019
<i>(in millions of Korean won, except per share amounts)</i>			
Revenue	6	₩ 4,156,816	3,070,111
Operating expenses	32	3,700,960	2,863,325
Bad debt expense		2,942	1,811
Other operating expenses		3,698,018	2,861,514
Operating profit		455,856	206,786
Other non-operating income	33	352,352	73,755
Other non-operating expenses	33	546,064	521,412
Finance income	34	216,105	70,386
Interest income		23,454	31,700
Other finance income		192,651	38,686
Finance costs	34	72,670	44,000
Share of income of associates and joint venture	16	68,921	11,490
Share of loss of associates and joint venture	16	60,229	31,261
Profit (loss) before income tax		414,271	(234,257)
Income tax expense	24	240,912	107,668
Profit (loss) for the year		173,359	(341,925)
Profit (loss) attributable to:			
Equity holders of the Parent Company		155,624	(301,003)
Non-controlling interest		17,735	(40,922)
Other comprehensive income (loss)			
Items not to be reclassified subsequently to profit or loss:			
Remeasurement of net defined benefit liabilities		(1,362)	(6,452)
Gain (loss) on valuation of equity instruments at fair value through other comprehensive income		157,537	(532)
Revaluation surplus		958	222
Items to be reclassified subsequently to profit or loss:			
Share of other comprehensive income (loss) of associates, net of tax		682	(3,547)
Foreign currency translation adjustments, net of tax		2,407	6,151
Other comprehensive income (loss) for the year, net of tax		160,222	(4,158)
Total comprehensive income (loss) for the year		₩ 333,581	(346,082)
Total comprehensive income (loss) for the year is attributable to:			
Equity holders of the Parent Company		₩ 281,553	(304,258)
Non-controlling interest		52,028	(41,825)
Earnings (loss) per share to the equity holders of the Parent Company (in Korean won)			
Basic earnings (loss) per share	35	₩ 1,838	(3,776)
Diluted earnings (loss) per share	35	1,799	(3,776)

See accompanying notes to the consolidated financial statements.

KAKAO CORP. AND SUBSIDIARIES
Consolidated Statements of Changes in Equity
For the years ended December 31, 2020 and 2019

	Note	Attributable to equity holders of the Parent Company					Total	Non-controlling interest	Total equity
		Share capital	Share premium	Other components of equity	Accumulated other comprehensive income (loss)	Retained earnings			
<i>(in millions of Korean won)</i>									
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 :									
Loss for the year		-	-	-	-	(301,003)	(301,003)	(40,922)	(341,925)
Foreign currency translation 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 comprehensive income	30	-	-	-	217	-	217	(749)	(532)
Reclassification of gain on valuation of financial instruments at fair value through other comprehensive income	30	-	-	-	(5,809)	5,809	-	-	-
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)
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	-	-	-	32,536	-	32,536
Cash dividends and distribution of investments	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

See accompanying notes to the consolidated financial statements.

KAKAO CORP. AND SUBSIDIARIES
Consolidated Statements of Changes in Equity, Continued
For the years ended December 31, 2020 and 2019

(in millions of Korean won)	Note	Attributable to equity holders of the Parent Company					Total	Non-controlling interest	Total equity
		Share capital	Share premium	Other components of equity	Accumulated other comprehensive income (loss)	Retained earnings			
Balance at January 1, 2020		₩ 43,161	5,043,199	7,238	(16,393)	148,154	5,225,359	514,759	5,740,118
Comprehensive income :									
Profit for the year		-	-	-	-	155,624	155,624	17,735	173,359
Foreign currency translation adjustments, net of tax	30	-	-	-	3,016	-	3,016	(609)	2,407
Share of other comprehensive loss of associates, net of tax	30	-	-	-	949	-	949	(267)	682
Gain (loss) on valuation of financial instruments at fair value through other comprehensive income	30	-	-	-	121,990	-	121,990	35,547	157,537
Reclassification of gain on valuation of financial instruments at fair value through other comprehensive income	30	-	-	-	(22,729)	22,729	-	-	-
Changes in revaluation surplus	30	-	-	-	831	-	831	127	958
Reclassification of revaluation surplus		-	-	-	(230)	230	-	-	-
Remeasurement of employee benefits	22,30	-	-	-	(857)	-	(857)	(505)	(1,362)
Total comprehensive income for the year		-	-	-	102,970	178,583	281,553	52,028	333,581
Transactions with equity holders:									
Exercise of stock options	27,28	338	83,374	(10,286)	-	-	73,426	5,915	79,341
Share-based compensation	28	-	-	18,443	-	-	18,443	15,800	34,243
Conversion of convertible bonds	21,27	802	189,374	-	-	-	190,176	-	190,176
Exchange of exchangeable bond		-	262,872	3,222	-	-	266,094	-	266,094
Cash dividends	36	-	-	-	-	(10,412)	(10,412)	-	(10,412)
Change in ownership interest over subsidiaries		-	254,281	-	-	-	254,281	522,637	776,918
Change in scope of consolidation		-	-	-	-	-	-	17,670	17,670
Total transactions with equity holders		1,140	789,901	11,379	-	(10,412)	792,008	562,022	1,354,030
Balance at December 31, 2020		₩ 44,301	5,833,100	18,617	86,577	316,325	6,298,920	1,128,809	7,427,729

See accompanying notes to the consolidated financial statements.

KAKAO CORP. AND SUBSIDIARIES
Consolidated Statements of Cash Flows
For the years ended December 31, 2020 and 2019

(in millions of Korean won)

	Note	2020	2019
Cash flows from operating activities			
Cash generated from operations	37	₩ 1,024,983	831,143
Interest received		20,642	38,171
Interest paid		(11,451)	(11,381)
Dividend received		14,376	5,329
Income tax paid		(77,453)	(110,595)
Net cash inflow from operating activities		971,097	752,667
Cash flows from investing activities			
Decrease (increase) in short-term financial instruments		(472,169)	593,555
Decrease (increase) in long-term financial instruments		(109)	1
Purchase of property and equipment		(183,147)	(106,364)
Disposal of property and equipment		14,300	7,109
Disposal of investment property		31,415	-
Purchase of intangible assets		(86,882)	(62,337)
Disposal of intangible assets		6,268	7,011
Acquisition of financial assets at fair value through profit or loss		(265,746)	(88,952)
Disposal of financial assets at fair value through profit or loss		165,361	168,679
Acquisition of financial assets at fair value through other comprehensive income		(159,065)	(331,689)
Disposal of financial assets at fair value through other comprehensive income		67,567	3,910
Acquisition of associates and joint ventures		(190,460)	(453,986)
Disposal of associates and joint ventures		130,930	38,965
Acquisition of subsidiaries, net of cash acquired		(264,795)	(111,221)
Disposal of subsidiaries, net of cash transferred		(13,023)	(27,227)
Increase in other financial assets		(7,110)	(23,716)
Decrease in other financial assets		7,502	5,626
Increase in other non-current financial assets		(34,760)	(35,430)
Decrease in other non-current financial assets		9,376	2,414
Other cash outflow from investing activities		(16,152)	(536)
Net cash outflow from investing activities		(1,260,698)	(414,187)
Cash flows from financing activities			
Proceeds from short-term borrowings		184,356	326,171
Repayments of short-term borrowings		(76,077)	(454,379)
Proceeds from long-term borrowings		387,523	38,043
Repayments of long-term borrowings		(844)	(1,124)
Principal elements of lease payments		(71,123)	(43,045)
Proceeds from issues of shares		-	299,936
Exercise of stock options		79,341	31,108
Payments of dividends		(10,413)	(10,253)
Acquisition of non-controlling interests		(1,207)	-
Distribution of investments		(2,850)	-
Capital contribution from non-controlling interest shareholders		825,506	135,218
Other cash flows from financing activities		(8,852)	529
Net cash inflow from financing activities		₩ 1,305,361	322,204

See accompanying notes to the consolidated financial statements.

KAKAO CORP. AND SUBSIDIARIES
 Consolidated Statements of Cash Flows
 For the years ended December 31, 2020 and 2019

(in millions of Korean won)

	Note	2020	2019
Net increase in cash and cash equivalents	₩	976,092	660,684
Effect of exchange rate changes on cash and cash equivalents		(39,669)	10,528
Cash and cash equivalents at the beginning of year		1,918,225	1,247,013
Cash and cash equivalents at the end of year	₩	<u>2,894,317</u>	<u>1,918,225</u>

See accompanying notes to the consolidated financial statements.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
For the years ended December 31, 2020 and 2019

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 115 entities.

(1) Description of the Parent Company

General information about Kakao Corp. and its subsidiaries (collectively, the "Group") 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 of December 31, 2020, the Parent Company's share capital amounted to ₩ 44,301 million and the Parent Company's shareholders are as follows:

	Number of shares (in shares)	Percentage of ownership (%)
Kim Bum Soo	12,500,631	14.1
K Cube Holdings Co., Ltd.	9,929,467	11.2
National Pension Service	7,550,417	8.5
MAXIMO PTE. LTD.	5,599,849	6.3
Other related parties	111,932	0.1
Others	50,319,768	57.0
	<hr/>	<hr/>
	86,012,064	97.2
Treasury shares	2,489,934	2.8
	<hr/>	<hr/>
	88,501,998	100.0

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
For the years ended December 31, 2020 and 2019

1. General Information, Continued

(2) Consolidated subsidiaries

1) Details of the consolidated subsidiaries as of December 31, 2020, are as follows:

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

Subsidiaries	Share Capital	Primary Business	Location	Fiscal Year End	Number of shares (in shares)	Percentage of ownership (%)
Daum Global Holdings	₩ 2,554	Holding company	Korea	December 31	510,810	100.0
Kakao Commerce Corp.	2,641	Wholesale and retail sales and services	Korea	December 31	26,306,544	99.6
PATH MOBILE INC. PTE. LTD.	59,734	Service operations	Singapore	December 31	82,284,405	100.0
PT. Path Mobile Indonesia ³³	11,214	Service operations	Indonesia	December 31	9,903,818	100.0
KAKAO BRAIN Corp.	213	Software development	Korea	December 31	400,000	93.9
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}	22,500	Investment/Holding company	Korea	December 31	83	36.7
Kakao digital contents Fund ^{6,27}	34,874	Investment/Holding company	Korea	December 31	141	40.4
Kakao Game Growth Share Fund ⁶	30,000	Investment/Holding company	Korea	December 31	300	100.0
KAKAO_CCVC Jeju Creative Economy Innovative Fund	2,000	Investment/Holding company	Korea	December 31	190	95.0
Beijing KAKAO Co., Ltd.	20,483	Software development and services	China	December 31	18,839,700	100.0
KnWorks Co., Ltd. (formerly, DK Service)	1,611	Service operations	Korea	December 31	322,136	100.0
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
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 Investment Co., Ltd.	22,016	Investment/Holding company	Korea	December 31	2,201,614	100.0
TNK Factory ⁴	1,180	Mobile advertisement platform operations	Korea	December 31	2,360,390	71.5
K Venture Group CO., LTD. ⁴	100	Investment/Holding company	Korea	December 31	10,000	100.0
KI SG PTE. LTD ⁴	1,313	Holding company	Singapore	December 31	1,100,000	100.0
Kids Note Co., Ltd. ⁴	117	Software development and information services	Korea	December 31	23,596	64.3
AWINS ⁵	136	Wholesale toys and hobbies and playthings	Korea	December 31	22,487	82.5
KAKAO JAPAN Corp.	51,984	Software development and services	Japan	December 31	876,620	98.0
DK CORPORATION ³	587	Advertising agency and others	Japan	December 31	386	100.0
Piccomics corp. ³	1,749	production and others	Japan	December 31	31,000	100.0
KAKAO G Corp.	10,065	Software development and services	Japan	December 31	10,000,000	100.0
Ground X Corp. ²⁴	6,063	Software development	Japan	December 31	9,446,389	94.5
Panzea Pte. Ltd. ²⁴	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
Ground 1 Corp. ³¹	4,967	Wholesale and retail sales and e-commerce	Korea	December 31	10,000,000	100.0

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
For the years ended December 31, 2020 and 2019

1. General Information, Continued

(2) Consolidated subsidiaries, continued

1) Details of the consolidated subsidiaries as of December 31, 2020, are as follows, continued:

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

Subsidiaries	Share Capital	Primary Business	Location	Fiscal Year End	Number of shares (in shares)	Percentage of ownership (%)
Kakao Mobility Corp. ²⁸	₩ 5,273	Software development and services	Korea	December 31	36,498,000	69.2
KM Solution Corp. ²¹	35	Services	Korea	December 31	6,909	100.0
CMNP Corp. ²¹	589	Transportation service	Korea	December 31	1,177,000	100.0
TJ Partners Corp. ²¹	762	Transportation service	Korea	December 31	1,524,000	100.0
Myvalet ²¹	111	Services	Korea	December 31	11,111	100.0
U-camp Corp. ^{1,32}	30	Chauffeur service	Korea	December 31	60,000	100.0
KM ONE Corp. ²²	69	Taxi service	Korea	December 31	138,000	100.0
KM Two Corp. ²²	82	Taxi service	Korea	December 31	164,000	100.0
KM Three Corp. ²²	80	Taxi service	Korea	December 31	160,000	100.0
KM Four Corp. ²²	71	Taxi service	Korea	December 31	142,000	100.0
KM Five Corp. ²²	71	Taxi service	Korea	December 31	142,000	100.0
KM SIX Corp. ²²	93	Taxi service	Korea	December 31	186,000	100.0
KM Seven Corp. ²²	61	Taxi service	Korea	December 31	122,000	100.0
Donggo Taxi Corp. ²²	103	Taxi service	Korea	December 31	20,696	100.0
Jinhwa Corp. ²²	693	Taxi service	Korea	December 31	138,671	100.0
Kakao Page Corp. ²⁸	9,763	Software development and services	Korea	December 31	12,355,363	63.4
SamyangCNC Co.,Ltd. ⁸	50	Publishing and e-commerce	Korea	December 31	7,000	70.0
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
NeoBazar Inc. ³⁰	1,115	Software development and services	Korea	December 31	204,627	90.0
PT. Neo Bazar Indonesia ⁹	1,814	Software development and services	Indonesia	December 31	1,597	99.8
RS MEDIA Co., Ltd. ⁸	325	Electronic publication and services	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
Feelyeon Management ⁸	22	Electronic publication and services	Korea	December 31	3,447	80.0
Intime ⁸	200	Publishing, video production, broadcasting communication and information service	Korea	December 31	28,000	70.0
BATTLE ENTERTAINMENT CORP. ⁸	200	Electronic publication and services	Korea	December 31	28,051	71.6
PAGE LAB Inc. ⁸	4	Publishing, video production, broadcasting communication and information service	Korea	December 31	632	79.0
KWBOOKS ⁸	100	Publishing	Korea	December 31	10,200	51.0
Kakao PAGE PTE. LTD. ⁸	825	Mobile marketing service	Singapore	December 31	985,443	100.0
Kakao M Corp. ²⁸	4,481	Manufactures and services	Korea	December 31	6,927,740	77.3

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
For the years ended December 31, 2020 and 2019

1. General Information, Continued

(2) Consolidated subsidiaries, continued

1) Details of the consolidated subsidiaries as of December 31, 2020, are as follows, continued:

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

Subsidiaries	Share Capital	Primary Business	Location	Fiscal Year End	Number of shares (in shares)	Percentage of ownership (%)
STARSHIP ENTERTAINMENT CORP. ¹⁷	₩ 62	Record production and entertainment management	Korea	December 31	7,464	59.7
Play M Entertainment Corp. ¹⁷	50	Record production and entertainment management	Korea	December 31	10,000	100.0
Cre.ker Entertainment Co., Ltd. ¹⁷	4,240	Entertainment management	Korea	December 31	832,000	98.1
GRAYGO ¹⁷	461	Advertising agency	Korea	December 31	778,950	84.5
Mega Monster Corporations ³⁴	256	Broadcast programs production	Korea	December 31	481,729	94.1
J,WIDE-COMPANY ¹⁷	53	Entertainment management	Korea	December 31	105,883	100.0
BH Entertainment ¹⁷	574	Entertainment management	Korea	December 31	114,815	100.0
READY ENTERTAINMENT ¹⁷	450	Entertainment management	Korea	December 31	90,000	100.0
READY ENTERTAINMENT (Shanghai) CO., LTD. ²⁰	83	Entertainment	China	December 31	500,000	100.0
SOOP ENTERTAINMENT CO., LTD. ¹⁷	1,372	Entertainment management	Korea	December 31	274,429	100.0
E&T Story Entertainment ¹⁷	25	Entertainment management	Korea	December 31	50,000	100.0
AWESOMEENT CO. LTD.. ¹⁷	547	Entertainment management	Korea	December 31	109,490	100.0
moonlight film ^{17,27}	1	Movies production	Korea	December 31	820	41.0
sanai pictures ¹⁷	2	Movies production	Korea	December 31	1,620	81.0
VAST.CO.,Ltd. ¹⁷	50	Entertainment management	Korea	December 31	10,000	100.0
FLEX M Corp ¹⁷	50	Entertainment management	Korea	December 31	100,000	100.0
Baram Pictures Corp. ¹⁷	100	Broadcast programs production	Korea	December 31	20,000	100.0
Logos Film Corporation ¹⁷	50	Broadcast programs production	Korea	December 31	10,000	100.0
STORY & PICTURES MEDIA ¹⁷	100	Broadcast programs production	Korea	December 31	20,000	100.0
Shanghai Ready Entertainment Co.,Ltd. ^{1,20}	100	Entertainment management	China	December 31	59,000	100.0
HongKong TXKP Limited ^{1,8}	-	Electronic publication and services	Hong Kong	December 31	1	100.0
HIGHLINE ENTERTAINMENT ¹⁸	100	Entertainment management	Korea	December 31	154,000	77.0
SHOWNOTE Inc. ¹⁸	324	Performance planning	Korea	December 31	64,883	100.0
Mezondbaha Corp. ¹⁹	10	Entertainment management	Korea	December 31	2,000	100.0
Kakao Games Corp. ^{27,28}	7,412	Game development and services	Korea	December 31	33,730,000	45.6
NGLE CORPORATION ¹²	205	Software development and services	Korea	December 31	210,000	51.2

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
For the years ended December 31, 2020 and 2019

1. General Information, Continued

(2) Consolidated subsidiaries, continued

1) Details of the consolidated subsidiaries as of December 31, 2020, are as follows, continued:

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

Subsidiaries	Share Capital	Primary Business	Location	Fiscal Year End	Number of shares (in shares)	Percentage of ownership (%)
Friendsgames Co.,Ltd. ¹¹	₩ 795	Game development and services	Korea	December 31	6,937,430	82.4
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 VX ¹¹	14,678	Software development and services	Korea	December 31	2,935,686	82.2
TAESIK MAUMGOLF CO.,LTD. ¹⁵	578	Retail service	China	December 31	500,000	100.0
GSWING SPORTING GOODS CO., LTD. ¹⁵	574	Retail service	China	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
SONNORI CORP. ¹²	280	Game development and services	Korea	December 31	525,410	66.7
Toonnori Corp. ¹³	510	Game development and services	Korea	December 31	52,000	51.0
Life MMO Corp. ²⁹	1,000	Software development and services	Korea	December 31	199,999	81.4
Add Page Corp. ³⁰	5,000	Game development and services	Korea	December 31	1,000,000	100.0
XLGAMES Inc. ¹¹	4,328	Game development and services	Korea	December 31	4,585,703	53.0
GLOHOW HOLDINGS PTE. LTD. ¹⁴	1,669	Game software provider	Singapore	December 31	14,001	54.9
Glohow Co., Ltd. ¹⁶	235	Game software provider	Thailand	December 31	61,061	100.0
Gaseung Development Company ^{15,27}	100	Construction and services	Korea	December 31	100,000	50.0
Kakaopay Corp. ²⁸	11,114	Software development and services	Korea	December 31	12,470,384	56.1
INBYU ²³	433	Insurance and pension service	Korea	December 31	55,531	61.2
Kakaopay Securities Corp. ²³	28,220	Financial services	Korea	December 31	3,386,400	60.0
Kakao Enterprise Corp.	7,050	Software development and services	Korea	December 31	13,524,223	95.9
Partner Co.,Ltd. ²⁶	32	Software development and services	Korea	December 31	322,816	100.0
Kakao Space Corp. (formerly, Kakao IX Corp)	783	Real estate development and Consulting	Korea	December 31	78,288	100.0
B Media Company ^{1,7}	500	Publishing	Korea	December 31	50,000	100.0
KAKAO IX JAPAN Corp.	5,214	Wholesale and retail sales	Japan	December 31	100,000	100.0
KAKAO IX CHINA Co.,LTD.	5,152	Wholesale and retail sales	China	December 31	4,500,000	100.0
KAKAO IX UK, LTD. ⁷	1,147	Retail sales	UK	December 31	760,000	100.0
KAKAO IX USA, LTD.	1,182	Retail sales	USA	December 31	1,000,000	100.0
KAKAO IX HK, LTD.	53	Retail sales	Hong Kong	December 31	350,000	100.0

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
For the years ended December 31, 2020 and 2019

1. General Information, Continued

(2) Consolidated subsidiaries, continued

1) Details of the consolidated subsidiaries as of December 31, 2020, are as follows, continued:

¹ Newly established in 2020.

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 of December 31, 2020.

³ As a subsidiary of KAKAO JAPAN Corp., the number of shares and the percentage of ownership represent KAKAO JAPAN Corp.'s ownership as of December 31, 2020.

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 of December 31, 2020.

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 of December 31, 2020.

⁶ As a subsidiary of Kakao Ventures Corp., the number of shares and the percentage of ownership represent Kakao Ventures Corp.'s ownership as of December 31, 2020.

⁷ As a subsidiary of KAKAO Space Corp.(formerly KAKAO IX Corp.), the number of shares and the percentage of ownership represent KAKAO Space Corp.(formerly KAKAO IX Corp.)'s ownership as of December 31, 2020.

⁸ As a subsidiary of Kakao Page Corp., the number of shares and the percentage of ownership represent Kakao Page Corp.'s ownership as of December 31, 2020.

⁹ As a subsidiary of NeoBazar Inc., the number of shares and the percentage of ownership represent NeoBazar Inc.'s ownership as of December 31, 2020.

¹⁰ As a subsidiary of Daon Creative inc, the number of shares and the percentage of ownership represent DA'ON CREATIVE's ownership as of December 31, 2020.

¹¹ As a subsidiary of Kakao Games Corp., the number of shares and the percentage of ownership represent Kakao Games Corp.'s ownership as of December 31, 2020.

¹² As a subsidiary of Friendsgames Co., Ltd., the number of shares and the percentage of ownership represent Friendsgames Co.,Ltd.'s ownership as of December 31, 2020.

¹³ As a subsidiary of SONNORI CORP., the number of shares and the percentage of ownership represent SONNORI CORP.'s ownership as of December 31, 2020.

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 of December 31, 2020.

¹⁵ As a subsidiary of Kakao VX, the number of shares and the percentage of ownership represent Kakao VX's ownership as of December 31, 2020.

¹⁶ As a subsidiary of GLOHOW HOLDINGS PTE. LTD., the number of shares and the percentage of ownership represent GLOHOW HOLDINGS PTE. LTD.'s ownership as of December 31, 2020.

¹⁷ As a subsidiary of Kakao M Corp., the number of shares and the percentage of ownership represent Kakao M Corp.'s ownership as of December 31, 2020.

¹⁸ As a subsidiary of STARSHIP ENTERTAINMENT CORP., the number of shares and the percentage of ownership represent STARSHIP ENTERTAINMENT CORP.'s ownership as of December 31, 2020.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
For the years ended December 31, 2020 and 2019

1. General Information, Continued

(2) Consolidated subsidiaries, continued

1) Details of the consolidated subsidiaries as of December 31, 2020, are as follows, continued:

¹⁹ As a subsidiary of GRAYGO, the number of shares and the percentage of ownership represent GRAYGO's ownership as of December 31, 2020.

²⁰ As a subsidiary of READY ENTERTAINMENT, the number of shares and the percentage of ownership represent READY ENTERTAINMENT's ownership as of December 31, 2020.

²¹ As a subsidiary of Kakao Mobility Corp., the number of shares and the percentage of ownership represent Kakao Mobility Corp.'s ownership as of December 31, 2020.

²² As a subsidiary of TJ Partners Corp., the number of shares and the percentage of ownership represent TJ Partners Corp.'s ownership as of December 31, 2020.

²³ As a subsidiary of Kakaopay Corp., the number of shares and the percentage of ownership represent Kakaopay Corp.'s ownership as of December 31, 2020.

²⁴ As a subsidiary of Kakao G Corp., the number of shares and the percentage of ownership represent Kakao G Corp.'s ownership as of December 31, 2020.

²⁵ As a subsidiary of PANZEA PTE. LTD., the number of shares and the percentage of ownership represent PANZEA PTE. LTD.'s ownership as of December 31, 2020.

²⁶ As a subsidiary of Kakao Enterprise Corp., the number of shares and the percentage of ownership represent Kakao Enterprise Corp.'s ownership as of December 31, 2020.

²⁷ Classified as a subsidiary although the ownership is less than 50% as the Group is considered to have a control over the investees.

²⁸ In accordance with the agreements with non-controlling interests of some of the above subsidiaries, the Group should obtain a pre-approval from investors, when the Group 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 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 of December 31, 2020.

³⁰ 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 of December 31, 2020.

³¹ As a subsidiary of Klaytn Pte. Ltd., the number of shares and the percentage of ownership represent Klaytn Pte. Ltd.'s ownership as of December 31, 2020.

³² As a subsidiary of CMNP Corp., the number of shares and the percentage of ownership represent CMNP Corp.'s ownership as of December 31, 2020.

³³ As a subsidiary of Kakao M Corp. and Kakao Investment Co., Ltd., the number of shares and the percentage of ownership represent Kakao M Corp. and Kakao Investment Co., Ltd.'s ownership as of December 31, 2020.

³⁴ As a subsidiary of Kakao M Corp. and Kakao Page Corp., the number of shares and the percentage of ownership represent Kakao M Corp. and Kakao Page Corp.'s ownership as of December 31, 2020.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
For the years ended December 31, 2020 and 2019

1. General Information, Continued

(2) Consolidated subsidiaries, continued

2) Subsidiaries newly included in the consolidation during the year ended December 31, 2020:

Subsidiaries	Reason
Kakaopay Securities Corp.	Included to a subsidiary through acquisition of control
XLGAMES Inc.	Included to a subsidiary from an associate through additional acquisition
B Media Company	Newly established through a corporate spin-off
U-camp Corp	Newly established
GLOHOW HOLDINGS PTE. LTD.	Included to a subsidiary from an associate through additional acquisition
Glohow Co., Ltd.	Included to a subsidiary through acquisition of control
Remote Monster Corp.	Included to a subsidiary through acquisition of control
Logos Film Corporation	Included to a subsidiary through acquisition of control
STORY & PICTURES MEDIA	Included to a subsidiary through acquisition of control
Baram Pictures Corp.	Included to a subsidiary through acquisition of control
Shanghai Ready Entertainment Co.,Ltd.	Newly established
BATTLE ENTERTAINMENT CORP.	Included to a subsidiary through acquisition of control
Intime	Included to a subsidiary through acquisition of control
PAGE LAB Inc.	Included to a subsidiary through acquisition of control
Feelyeon Management	Included to a subsidiary through acquisition of control
Myvalet	Included to a subsidiary through acquisition of control
KWbooks	Included to a subsidiary through acquisition of control
Gaseung Development Company	Included to a subsidiary through acquisition of control
HongKong TXKP Limited	Newly established

3) Subsidiaries excluded from the consolidation during the year ended December 31, 2020:

Company	Reason
Stagefive Co., Ltd.	Included to an associate from a subsidiary due to loss of control
Buzzpia Co., Ltd.	Liquidation
Remote Monster Corp.	Merged with Kakao Enterprise Corp., a subsidiary
KIWI PLUS	Included to an associate from a subsidiary due to loss of control
Accio Inc.	Included to an Financial assets at fair value through other comprehensive income from a subsidiary due to loss of control
PARKINGSQUARE	Liquidation

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
For the years ended December 31, 2020 and 2019

1. General Information, Continued

(3) The summarized financial information for consolidated subsidiaries as of and for the year ended December 31, 2020, is as follows:

(in millions of Korean won)

	2020						
	Assets	Liabilities	Equity	Revenue	Profit (loss) for the year	Total Comprehensive income (loss)	
Kakao Commerce Corp.	₩ 1,723,504	1,213,376	510,128	573,534	123,296	122,679	
Kakao Games Corp.	1,148,098	119,744	1,028,354	378,003	88,399	190,877	
Kakao M Corp.	946,320	185,891	760,429	270,816	(8,071)	(9,162)	
Kakaopay Corp.	761,403	571,789	189,614	245,556	(17,218)	(19,653)	
Kakao Page Corp.	529,359	154,520	374,839	342,966	32,331	32,379	
Kakaopay Securities Corp. ¹	491,107	423,946	67,161	45,043	(8,393)	(8,367)	
Kakao Investment Co., Ltd.	316,841	14,256	302,585	125	58,112	58,973	
Kakao Mobility Corp.	302,994	119,931	183,063	211,213	(35,125)	(33,557)	
KAKAO JAPAN Corp.	170,404	76,455	93,949	239,817	14,309	14,309	
Kakao VX	125,762	61,742	64,020	57,249	1,393	1,189	
TJ Partners Corp.	75,102	121	74,981	1	(970)	(946)	
Kakao G Corp.	21,894	11	21,883	-	(193)	(323)	
Gaseung Development Company ¹	83,636	75,650	7,986	-	-	-	
Kakao Enterprise Corp.	69,663	39,498	30,165	67,883	(36,635)	(37,369)	
Kakao Games Europe B.V.	68,657	31,214	37,443	117,669	394	394	
STARSHIP ENTERTAINMENT CORP.	58,929	33,883	25,046	48,775	(5,273)	(5,273)	
K Cube Venture Fund no.1	51,149	27	51,122	-	18,592	19,008	
Kakao Space Corp. (formerly, KAKAO IX Corp.)	26,900	1,128	25,772	73,303	(26,568)	(26,410)	
	<u>₩ 6,971,722</u>	<u>3,123,182</u>	<u>3,848,540</u>	<u>2,671,953</u>	<u>198,380</u>	<u>298,748</u>	

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.

(1) Basis of preparation

The Group maintains its accounting records in Korean won and prepares statutory financial statements in the Korean language (Hangul) in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (Korean IFRS). The accompanying consolidated financial statements have been translated into English from the Korean language financial statements. During the year ended December 31, 2020, the Group newly acquired Kakaopay Securities Corp., which engages in financial services business. Accordingly, assets and liabilities for non-financial services and financial services business are separately presented in the consolidated financial statements.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
For the years ended December 31, 2020 and 2019

2. Significant Accounting Policies, Continued

(1) Basis of preparation, continued

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

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

- Certain financial assets and liabilities (including derivative instruments)
- 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 Group's accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements are disclosed in Note 3.

(2) Changes in accounting policy and disclosures

- *New and amended standards adopted by the Group*

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

- 1) Amendments to K-IFRS No. 1001 *Presentation of Financial Statements* and K-IFRS No. 1008 *Accounting Policies, Changes in Accounting Estimates and Errors* – Definition of Material

The amendments clarified the definition of materiality and amended K-IFRS No. 1001 and K-IFRS No. 1008 in accordance with the clarified definitions. Materiality is assessed by reference to omission or misstatement of material information as well as effects of immaterial information, and to the nature of the users when determining the information to be disclosed by the Group. The Group does not expect that these amendments have a significant impact on the financial statements.

- 2) Amendments to K-IFRS No. 1103 *Business Combinations* – Definition of a Business

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

KAKAO CORP. AND SUBSIDIARIES
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For the years ended December 31, 2020 and 2019

2. Significant Accounting Policies, Continued

(2) Changes in accounting policy and disclosures, continued

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

3) Amendments to K-IFRS No. 1109 *Financial Instruments*, K-IFRS No. 1039 *Financial Instruments: Recognition and Measurements*, K-IFRS No. 1107 *Financial Instruments: Disclosures* – Interest Rate Benchmark Reform

Under the amendments, when there is uncertainty as to the transition for replacing existing interest rate benchmark, exceptions may be applied for determining a forecast transaction regarding hedge accounting requirements. Specifically, when determining whether a forecast transaction is highly probable and whether the hedge is expected to be highly effective, an entity assumes the interest rate benchmark on which the hedged cash flows are based is not altered as a result of interest rate benchmark reform. The Group does not expect that these amendments have a significant impact on the consolidated financial statements.

4) Amendments to References to Conceptual Framework in K-IFRS Standards

The amendments set out new concepts for measurement, presentation and disclosures, and derecognition and update definitions and basis of recognition for assets and liabilities, and clarify fiduciary responsibility, uncertainty in measurements, and priority in substance. The Group does not expect that these amendments have a significant impact on the consolidated financial statements.

5) Amendments to K-IFRS No. 1109 *Financial Instruments*, K-IFRS No. 1039 *Financial Instruments: Recognition and Measurements*, K-IFRS No. 1107 *Financial Instruments: Disclosures* - Financial Reporting Impact of Interbank Loan Offered Rate (IBOR) Reform Phase 1

The amendments provide an exception that allows hedge accounting to continue while there is uncertainty under the interest rate benchmark reform 'until an existing interest rate benchmark is replaced with an alternative interest rate benchmark'. The Group does not expect that these amendments have a significant impact on the financial statements

- *New standards and interpretations not yet adopted by the Group*

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

1) Amendment to K-IFRS No. 1116 *Leases* – practical expedient for forgiveness, concession, waiver of rent payments

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
For the years ended December 31, 2020 and 2019

2. Significant Accounting Policies, Continued

- (2) Changes in accounting policy and disclosures, continued
 - 2) Amendments to K-IFRS No. 1109 *Financial Instruments*, K-IFRS No. 1039 *Financial Instruments: Recognition and Measurements*, K-IFRS No. 1107 *Financial Instruments: Disclosures*, K-IFRS No. 1104 *Insurance Contracts*, K-IFRS No. 1116 *Leases* – Interest Rate Benchmark Reform
 - 3) Amendments to K-IFRS No. 1103 *Business Combinations* – Reference to Conceptual Framework
 - 4) Amendments to K-IFRS No. 1016 *Property, Plant and Equipment* – Proceeds before Intended Use
 - 5) Amendments to K-IFRS No. 1037 *Provisions, Contingent Liabilities and Contingent Assets* – Onerous Contracts: Cost of Fulfilling a Contract
 - 6) Annual Improvements to K-IFRS 2018 – 2020 Cycle:
 - 7) Amendments to K-IFRS No. 1001 *Presentation of Financial Statements* – Classification of Liabilities as Current or Non-current
- (3) Consolidation

The Group 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 Group 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 Group obtains control of a subsidiary and ceases when the Group loses control of the subsidiary.

The Group 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 Group 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.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
For the years ended December 31, 2020 and 2019

2. Significant Accounting Policies, Continued

(3) Consolidation, continued

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 Group.

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

KAKAO CORP. AND SUBSIDIARIES
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For the years ended December 31, 2020 and 2019

2. Significant Accounting Policies, Continued

(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.

(5) Foreign Currency Translation

(a) Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which 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 Group's entities that have a functional currency different from the presentation currency are translated into the presentation currency as follows:

KAKAO CORP. AND SUBSIDIARIES
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For the years ended December 31, 2020 and 2019

2. Significant Accounting Policies, Continued

(5) Foreign currency translation, continued

- 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.

(6) Significant accounting policies

1) 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) Financial Assets

(a) Classification

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

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

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

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

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

KAKAO CORP. AND SUBSIDIARIES
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2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

(b) Measurement

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

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

A. Debt instruments

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

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

KAKAO CORP. AND SUBSIDIARIES
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2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

B. Equity instruments

The Group subsequently measures all equity investments at fair value. Where the Group's management has elected to present fair value gains and losses on equity investments, which held for long-term investment or strategic purpose, in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividend income from such investments continue to be recognized in profit or loss as '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 Group assesses on a forward looking basis the expected credit losses associated with its debt instruments carried at amortized cost and fair value through other comprehensive income. An entity recognizes a credit loss allowance at an amount equivalent to 12-month expected credit losses or lifetime expected credit losses in three stages, as shown in the table below, depending on whether the credit risk has increased significantly since initial recognition of the financial asset. For trade receivables and lease receivables, the Group applies the simplified approach, which requires expected lifetime credit losses to be recognized from initial recognition of the receivables.

	Classification	Credit loss allowances
Stage1	The credit risk has not increased significantly since initial recognition (*)	12-month expected credit loss: expected credit losses resulted from possible default events within the 12 months after the reporting date
Stage2	The credit risk has increased significantly since initial recognition	Lifetime expected credit loss: expected credit loss resulted from all possible default events over the expected life of a financial instrument
Stage3	Credit has been impaired	

(*) If the credit risk at the end of the reporting period is low, the credit risk may not be considered to have increased significantly.

When assessing whether a financial asset's credit risk has increased significantly since initial recognition and when estimating expected credit losses, the Group considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes qualitative, quantitative information and analysis based on the Group's historical experience and informed credit assessment, including forward-looking information.

KAKAO CORP. AND SUBSIDIARIES
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2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

① Measurement of expected credit losses

Expected credit losses are a probability-weighted estimate of credit losses. Credit losses are measured at the present value of all cash shortfalls (i.e. the differences between all contractual cash flows to be received in accordance with the contract and the contractual cash flows that the Group expects to receive). Expected credit losses are discounted at the effective interest rate of the financial asset.

② Credit-impaired financial assets

At the end of each reporting period, the Group assesses whether the credit of financial assets measured at amortized cost and debt securities measured at fair value through other comprehensive income are credit-impaired. A financial asset is 'credit-impaired' when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.

③ Presentation of allowance for expected credit losses in the statement of financial position

The loss allowance for a financial asset measured at amortized cost is deducted from the gross carrying amount of the asset. For debt instruments measured at fair value through other comprehensive income, the loss allowance is included in profit or loss and recognized in other comprehensive income.

④ Write-off

The gross carrying amount of a financial asset is written off when the Group has no reasonable expectations of recovering a financial asset in its entirety or a portion thereof. The Group expects no significant recovery from the amount written off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Group's procedures for recovery of amounts due.

(d) Recognition and Derecognition

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

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

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
For the years ended December 31, 2020 and 2019

2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

3) 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.

4) 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 for further information about the Group's accounting for trade receivables.

5) Inventories

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

6) 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:

	<u>Estimated useful lives</u>
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.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
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2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

7) Government Grants

Government grants are recognized at their fair values when there is reasonable assurance that the grant will be received and the Group 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.

8) 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 Group'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 and the unit of production method. Other intangible assets have definite useful life and are carried at cost less accumulated amortization.

KAKAO CORP. AND SUBSIDIARIES
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2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

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

	<u>Estimated useful lives</u>
Industrial property rights	5 – 10 years
Others	Indefinite, 2 – 15 years
Development costs	5 years
Exclusive rights	Contractual period

The Group 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.

9) 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. After recognition as an asset, investment property is carried at cost less accumulated depreciation and impairment losses. The Group depreciates investment properties, except for land, using the straight-line method over their useful lives of 40 years.

10) 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.

The recoverable amount is estimated for each individual asset or for each cash-generating unit to which the asset belongs if the recoverable amount of the individual asset is not estimated. A cash-generating unit is the smallest identifiable group of assets that generates cash inflows that are largely independent of cash inflows of other assets or groups of assets. The recoverable amount is determined to be the greater of the value in use or the fair value less cost to sell. Value in use is based on the estimated future cash flows, discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset or cash-generating unit.

KAKAO CORP. AND SUBSIDIARIES
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For the years ended December 31, 2020 and 2019

2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

The goodwill acquired in a business combination is allocated to each cash-generating unit that is expected to benefit from the synergy effect of the business combination. Impairment losses on cash-generating units allocated first to reduce the carrying amount of goodwill allocated to the cash-generating unit, and then to reduce the carrying amounts of the other asset in the cash-generating unit on a pro rata basis.

11) Current assets held for sale

Non-current assets, or disposal groups comprising assets and liabilities, that are expected to be recovered primarily through sale rather than through continuing use, are classified as held for sale. In order to be classified as held for sale, the asset (or disposal group) must be available for immediate sale in its present condition and its sale must be highly probable. The assets (or the assets and liabilities) are measured at the lower of their carrying amount and fair value less cost to sell. Impairment losses for any initial or subsequent write-down of an asset to fair value less costs to sell, and a gain for any subsequent increase in fair value less costs to sell, up to the cumulative impairment loss previously recognized are recognized in profit or loss. However, deferred tax asset, assets arising from employee compensation, and financial assets in scope of K-IFRS No. 1109 'Financial Instruments' are measured in accordance with the relevant standards. A non-current asset that is classified as held for sale or part of a disposal group classified as held for sale is not depreciated or amortized.

12) Trade and Other Payables

These amounts represent liabilities for goods and services provided to the Group 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.

13) Financial Liabilities

(a) Classification and measurement

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

The Group classifies non-derivative financial liabilities, except for financial liabilities at fair value through profit or loss, financial guarantee contracts and financial liabilities that arise when a transfer of financial assets does not qualify for derecognition, as financial liabilities carried at amortized cost and present as 'trade payables', 'borrowings' and 'other financial liabilities' in the statement of financial position. These financial liabilities are initially measured at fair value deducting the transaction costs directly attributable to the issue. Other financial liabilities are subsequently measured at amortized cost using the effective interest method, and interest expenses are recognized using the effective interest method.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
For the years ended December 31, 2020 and 2019

2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

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.

14) Provisions

Provisions for service warranties, make good obligation, and legal claims are recognized when the Group 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.

Provisions are reviewed at the end of each reporting period and adjusted to reflect the current best estimates. If it is no longer probable that an outflow of resources embodying economic benefits will be required to settle the obligation, the provision is reversed.

15) 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, or it relates to a business combination. 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.

When the Parent Company and subsidiaries are economically combined, the Group considers the Parent Company and subsidiaries as a single taxable unit and applies the consolidated tax return to pay corporate tax based on the aggregated income. In accordance with the consolidated tax return, the Group calculates the current income tax of the Group including domestic subsidiaries wholly owned by the Parent Company. This amount is recognized as the current income tax liability of the Parent Company, which is obligated to pay, and the amount of Group's current income tax allocated to the Company is recognized as the current income tax.

KAKAO CORP. AND SUBSIDIARIES
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2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

Current income tax is calculated through calculating taxable income after 1) calculating taxable income for each consolidated entity, 2) eliminating consolidation adjustment items for each consolidated entity, 3) adjusting intercompany transaction gains and losses between consolidated entities, and 4) allocating consolidation adjustment items for each consolidated items. After calculating the taxable income, the tax amount is calculated by applying the tax rate to the tax base which calculated by deducting the amount of net operating loss, non-taxable income and income deduction. Finally, current income tax is calculated by adding or deducting tax credits, tax deductions and additions. Taxable income differs from the income stated in the statement of comprehensive income as it excludes gains or losses that will be added or deducted in other taxable periods and items that are not taxable or deductible from the pre-tax income in the statement of comprehensive income. Income tax payable related to the Group's current income tax is calculated at the tax rates that have been enacted or substantively enacted.

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

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

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

The Group reviews the carrying amount of the deferred tax asset at the end of each reporting period and reduces the carrying amount of the deferred tax asset if it is no longer probable that sufficient taxable income will be available to allow the benefits of the deferred tax asset to be utilized. .

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the period when the asset is realized or the liability is settled, based on tax laws that have been enacted or substantively enacted by the end of the reporting period. The measurement of deferred tax liabilities and deferred tax assets reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period to recover or settle the carrying amount of its assets and liabilities.

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 Group 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.

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2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

16) Employee Benefits

(a) Post-employment benefits

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

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

The Group recognizes the contribution payable to a defined contribution plan in exchange for that service as a liability, after deducting any contribution already paid. If the contribution already paid exceeds the contribution due for service before the end of the reporting period, the Group recognizes that excess as an asset to the extent that the prepayment will lead to a reduction in future payments or a cash refund.

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. On the other hand, remeasurements of the net defined benefit liability, which comprise actuarial gains and losses, the return on plan assets (excluding interest) and the effect of the asset ceiling (excluding interest), are recognized in other comprehensive income. The Group determines the net interest expense (income) on the net defined benefit liability (asset) for the period by applying the discount rate used to measure the defined benefit obligation at the beginning of the annual period to the then-net defined benefit liability (asset), taking into account any changes in the net defined benefit liability (asset) during the period as a result of contributions and benefit payments.

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.

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2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

When the options are exercised, the Group 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 Group 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 granted. Until the liability is settled, the Group 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 Group 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.

(d) Short-term employee benefits

Short-term employee benefits are recognized at the amount expected to be settled within 12 months from the end of the reporting period in which the employee has provided service in exchange for the service, and are recognized in profit or loss when the service is provided. Short-term employee benefits are recognized at an undiscounted amount.

17) Share capital

The Group classifies ordinary shares as equity. Incremental costs directly attributable to the equity transactions are recognized as a deduction from equity, net of any tax effects.

When the Group repurchases its share capital, the amount of the consideration paid is recognized as a deduction from equity and classified as treasury shares. The profits or losses from the purchases, disposal, reissue, or retirement of treasury shares are not recognized as current profit or loss. If the Group acquires and retains treasury shares, the consideration paid or received is directly recognized in equity.

KAKAO CORP. AND SUBSIDIARIES
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2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

18) Revenue recognition

Revenues are mainly comprised of advertisement, content and others.

(a) Advertising revenue

The Group 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 priced based on the sum of the total number of advertising services provided other than the contracted period, the Group recognizes revenue when it satisfies its performance obligation.

Advertising revenue is either prepaid by the customer at the set transaction price, or charged afterwards as the Group satisfies its obligations.

(b) Contents revenue and others

The Group provides a variety of contents to a customer. Transaction prices are immediately paid when a customer purchases contents online. The Group recognizes revenue at the time when contents are used at which point the right to use contents are transferred and controlled by the customer and there are no unfulfilled obligations of the Group that may affect the use of contents. The Group recognizes revenue over the time when there are obligations of the Group that may affect the use of contents over the period over which contents are used by customers.

The Group pays the commission fees when a customer pays for the game services provided by the Group. The incremental costs are those commission fees that the Group incurs to acquire a contract with a customer that would not have been incurred if the contract had not been acquired. The Group recognizes the incremental costs as an asset and amortizes it over the expected period of providing the game service to customers.

(c) Commerce revenue and goods sales

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

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2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

19) Finance income and finance cost

The Group's finance income and finance cost include:

- Interest income
- Interest expense
- Dividend income
- Net gain or loss on the disposal of investments in debt securities measured at fair value through other comprehensive income
- Net gain or loss on financial assets measured at fair value through profit or loss
- Foreign currency gains and losses on financial assets and financial liabilities
- Impairment loss (or reversal of impairment loss) on investments in debt securities measured at amortized cost or fair value through other comprehensive income

Interest income or interest expense is recognized using the effective interest method. Dividend income is recognized when the Group's right to receive dividends is established. The effective interest rate is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument to the gross carrying amount of the financial asset (when the asset is not credit-impaired) or to the amortized cost of the financial liability. However, for financial assets that have become credit-impaired subsequent to initial recognition, interest income is calculated by applying the effective interest rate to the amortized cost of the financial asset. If the asset is no longer credit-impaired, then the calculation of interest income reverts to the gross basis.

20) Dividend

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

21) Lease

(a) Lessor

The Group allocates the consideration in the contract to each lease component on the basis of their relative stand-alone prices at inception or on modification of a contract that contains a lease component.

When the Group acts as a lessor, it determines at lease inception whether each lease is a finance lease or an operating lease.

To classify each lease, the Group makes an overall assessment of whether the lease transfers substantially all of the risks and rewards incidental to ownership of the underlying asset. If this is the case, then the lease is a finance lease; if not, it is an operating lease. As part of this assessment, the Group considers certain indicators such as whether the lease is for the major part of the economic life of the asset.

KAKAO CORP. AND SUBSIDIARIES
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2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

When the Group is an intermediate lessor, it accounts for its interests in the head lease and the sub-lease separately. It assesses the lease classification of a sub-lease with reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset. If a head lease is a short-term lease to which the Group applies the exemption, then it classifies the sub-lease as an operating lease.

If an arrangement contains lease and non-lease components, then the Group applies K-IFRS No. 1115 to allocate the consideration in the contract.

When the Group is a lessor, the Group recognizes lease payments received under operating leases as income on a straight-line basis over the lease term. Initial direct cost incurred by the Group in arranging an operating lease are added to the carrying amount of the underlying asset and recognized as an expense on the same basis as the lease income. Each leased asset is presented in the consolidated statement of financial position on the basis of its characteristics.

(b) Lessee

The Group leases offices, vehicles and machinery. Lease contracts are typically made for fixed periods of 3 to 8 years, but may have extension options as described below.

Contracts may contain both lease and non-lease components. The Group allocates the consideration in the contract to the lease and non-lease components based on their relative stand-alone prices. However, with respect to real estate leases for which the Group is a lessee, the Group applied a practical expedient and elected not to separate a non-lease component from a lease component, and instead account for them as a single lease component.

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 collaterals for the borrowings.

The Group determines the lease term by including the enforceable extended period when the lessee is reasonably certain to exercise an extension option within the non-cancellable period of lease and when the lessee is reasonably certain not to exercise a termination option. When assessing the enforceable period, the Group considers economic penalties imposed on the lessee and lessor when they have right to terminate the lease contract without the counterparty's consent.

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:

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2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

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

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

The Group calculates the incremental borrowing interest rate as follows.

- If possible, reflect the change in financial position after receiving third-party financing in the latest third-party financial interest rate received by individual lessees.
- Reflect lease-specific adjustments such as country, currency, collateral, and guarantee

When an individual lessee can readily observe the interest rate on a loan with a same term but a different payment profile (via recent financing sources or market data), the Group sets that interest rate as a starting point for calculating the incremental borrowing interest rate.

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

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

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2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

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

In the consolidated statement of financial position, the Group presents the right-of-use assets which does not qualify the definition of investment property separately from other assets.

Payments associated with short-term leases of equipment and vehicles 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.

(c) 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.

(d) Extension and termination options

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

Most of the extension and termination options held by the Group can be exercised upon agreement between the lessors and the Group.

22) 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.

23) 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.

24) Compound Financial Instruments

Compound financial instruments are convertible bonds and redeemable convertible preferred shares 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.

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2. Significant Accounting Policies, Continued

(6) Significant accounting policies, continued

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. Subsequent to the initial recognition, it will not be remeasured. 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 Group recognized some 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.

25) Approval of Issuance of the Financial Statements

The issuance of the consolidated financial statements, of the Group was authorized by the Board of Directors on February 25, 2021, which is subject to change with approval at the annual shareholders' meeting.

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3. Critical Accounting Estimates and Assumptions

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

1) Subsidiary

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

2) Associates and joint venture

In determining whether the Group has significant influence, the Group takes into account whether the Group directly or indirectly holds 20% or more of the voting rights over the investee, whether the Group participates in the board or other decision-making body equivalent thereto of the investees, or whether the Group's potential voting rights will affect these rights.

3) Estimated impairment of goodwill

The Group 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).

4) Income taxes

The Group's taxable income generated from these operations are subject to income taxes based on tax laws and interpretations of tax authorities in numerous jurisdictions. There are many transactions and calculations for which the ultimate tax determination is uncertain (Note 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 Group 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 Group's income tax is dependent on the investments, increase in wages and dividends, there is an uncertainty measuring the final tax effects.

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3. Critical Accounting Estimates and Assumptions, Continued

5) Fair value of financial instruments

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

6) Impairment of financial assets

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

7) Provisions

As of December 31, 2020, the Group recognizes provisions as explained in Notes 2 (6) 13). These provisions are estimated based on past experience.

8) 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).

9) 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).

10) Revenue Recognition

As points provided to customers provide material rights that customers would not have received without entering into the contract, the promise to provide points is a separate performance obligation. The transaction price is allocated to products and points on a relative stand-alone selling price basis. Management estimates the stand-alone selling price of points based on the discount applied when points are redeemed, and likelihood of point redemption expected on the basis of past experience. The stand-alone selling price of products are estimated based on the retail price.

3. Critical Accounting Estimates and Assumptions, Continued

11) 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 machinery, the following factors are normally the most relevant:

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

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

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

12) COVID-19

The widespread outbreak of the COVID-19 pandemic has been significantly affecting the domestic and global economy. The pandemic may cause a decrease in productivity, a decrease or delay in sales, and negative impact on collecting existing receivables etc. Critical estimates and assumptions used for preparing the consolidated financial statements may be adjusted depending on the changes in uncertainties due to the COVID-19. Due to these uncertainties of the COVID-19, the ultimate impact may differ from estimates reflected in the Group's business, financial position and financial performance of the consolidated financial statements

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4. Financial Risk Management

(1) Financial risk factors

The Group'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 Group's overall risk management program focuses on the unpredictability of financial markets and seeks to minimize potential adverse effects on the Group's financial performance.

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 of December 31, 2020, 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, 2020, would have been increased/decreased by ₩ 6,040 million (2019: ₩ 4,887 million) due to increased/decreased interest income of floating rate deposits.

ii) Price risk

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

As of December 31, 2020, 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 ₩ 29,365 million (2019: ₩ 17,640 million).

Impacts of investment financial instruments of the Group 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.

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4. Financial Risk Management, Continued

(1) Financial risk factors, continued

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

<i>(in millions of Korean won)</i>	2020						
	USD	JPY	CNY	EUR	GBP	NZD	HKD
Financial assets							
Cash and cash equivalents	₩ 394,408	1,693	458	-	114	-	-
Short-term financial instruments	15,450	-	-	-	-	-	-
Long-term financial instruments	-	-	-	-	-	-	-
Trade receivables	8,027	698	1,231	5	21	-	4
Other financial asset	320	-	62	15	18	-	-
	<u>₩ 418,205</u>	<u>2,391</u>	<u>1,751</u>	<u>20</u>	<u>153</u>	<u>-</u>	<u>4</u>
Financial liabilities							
Trade and other payables	₩ 9,109	61	83	-	275	-	-
Other financial liability	22	-	-	-	-	-	-
	<u>₩ 9,131</u>	<u>61</u>	<u>83</u>	<u>-</u>	<u>275</u>	<u>-</u>	<u>-</u>

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, 2020, would have been increased/decreased by ₩ 20,649 million (2019: ₩ 22,630 million).

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.

i) Risk management

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. Individual risk limits are set based on internal or external ratings in accordance with limits set by the Board. Sales to individual customers are required to be settled in cash or using major credit cards, mitigating credit risk.

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

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4. Financial Risk Management, Continued

(1) Financial risk factors, continued

ii) Security

Some trade receivables are provided with guarantees or credit enhancements such as letters of credit that may require performance if the counterparty fails to comply with the contract.

iii) Impairment of financial assets

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

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

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

- Non-financial services business

A. Trade receivables

The Group applies the simplified approach to measuring expected credit losses which uses a lifetime expected loss allowance for all trade receivables. There are no customers exceeding their credit limits for the year, and all of the trade receivables are considered to have low credit risk. Management does not expect any losses upon if the above counterparties are in default under the terms of the agreements.

Details of loss allowance provision for trade receivables as of December 31, 2020 are as follows:

(in millions of Korean won)

	Current	3 months overdue	6 months overdue	9 months overdue	Over 9 months overdue	Total
Expected loss rate	0.08%	2.39%	34.13%	93.98%	99.93%	
Gross carrying amount	₩ 234,884	11,311	2,463	287	4,402	253,347
Impairment loss allowance	₩ (193)	(270)	(841)	(270)	(4,399)	(5,973)

Trade receivables are excluded when collection is no longer reasonably anticipated. Indicators that can no longer reasonably anticipate recovery include failure to comply with the debt adjustment with the consolidated entity and failure to pay contractual cash flows for more than 120 days.

Damage to sales receivables is shown as a net amount due to the loss and loss ratio on the income statement. The subsequent withdrawal of the amount is recognized as a deduction for the same account subject.

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4. Financial Risk Management, Continued

(1) Financial risk factors, continued

The changes in loss allowance for other financial assets at amortized costs for the years ended December 31, 2020 and 2019 are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Beginning of the year	₩ 5,184	7,568
Changes in consolidation range	(155)	(91)
Increase recognised in profit or loss	1,373	9
Reversal	-	(404)
Write-off	(455)	(1,669)
Replacement	-	(201)
Other (CTDs)	26	(28)
End of the year	<u>₩ 5,973</u>	<u>5,184</u>

Maximum exposure to credit risk of the Group as of December 31, 2020 are all carrying amounts.

B. Other financial assets at amortized cost

Other financial assets at amortized cost include uncollected, loans and other bonds.

Changes in the loss allowance for other financial assets measured at amortized cost are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Beginning of the year	₩ 43,657	41,774
Increase recognised in profit or loss	188	2,327
Other (CTDs and Changes in consolidation range)	(499)	(444)
End of the year	<u>₩ 43,346</u>	<u>43,657</u>

Except for lease receivables, other financial assets at amortized costs are considered to have low credit risk, and the loss allowance recognized during the period was, therefore, limited to 12 months expected losses. Management considers to be low credit risk when they have a low risk of default and the issuer has a strong capacity to meet its contractual cash flow obligations in the near term.

The amounts recognized in profit or loss in relation to impairment in 2020 and 2019 are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Trade receivables	₩ 1,373	(395)
-Changes in loss allowance of trade receivables		
Other financial assets	188	2,327
-Changes in loss allowance of other financial assets		
Other current assets	1,381	(121)
-Changes in loss allowance of other current assets		
	<u>₩ 2,942</u>	<u>1,811</u>

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4. Financial Risk Management, Continued

(1) Financial risk factors, continued

Maximum exposure to credit risk of the Group as of December 31, 2020 and 2019 are as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Cash and cash equivalents	₩ 2,877,514	1,918,225
Short-term financial instruments	694,069	207,767
Trade receivables	247,374	157,221
Derivative financial assets	312	1,112
Financial assets at fair value through profit or loss	255,815	74,226
Other current financial assets	225,055	252,486
Long-term financial instruments	10,174	50,062
Other non-current financial assets	121,291	92,355
Total	<u>₩ 4,431,604</u>	<u>2,753,454</u>

- Financial services business

A. Other financial assets at amortized cost

Other financial assets at amortized cost include uncollected, loans and other bonds.

Changes in the loss allowance for other financial assets measured at amortized cost are as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>
Beginning of the year	₩ -
Increase recognised in profit or loss	-
Other(CTDs and Changes in consolidation range)	265
End of the year	<u>₩ 265</u>

The amounts recognized in profit or loss in relation to impairment in 2020 are as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>
Other financial assets	₩ -
-Changes in loss allowance of other financial assets	-
	<u>₩ -</u>

Maximum exposure to credit risk of the Group as of December 31, 2020 are as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>
Deposits	₩ 19,829
Financial assets at fair value through profit or loss	386,625
Other current financial assets	29,164
Total	<u>₩ 435,618</u>

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4. Financial Risk Management, Continued

(1) Financial risk factors, continued

3) Liquidity risk

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

- Non-financial services business

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

(in millions of Korean won)

	2020			
	Less than 1 year	Between 1 and 2 years	Over 2 years	Total
Trade and other payables	₩ 835,983	-	-	835,983
Short-term and long-term borrowings ¹	189,975	331,694	125,608	647,277
Other current financial liabilities	33,859	-	-	33,859
Deposits received	302,038	-	-	302,038
Short-term lease liabilities	79,812	-	-	79,812
Non-current trade and other payables	-	11,693	29,189	40,882
Other non-current financial liabilities	-	22,397	35,791	58,188
Long-term lease liabilities	-	72,361	255,157	327,518
	₩ 1,441,667	438,145	445,745	2,325,557

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)

	2019			
	Less than 1 year	Between 1 and 2 years	Over 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

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4. Financial Risk Management, Continued

(1) Financial risk factors, continued

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

- Financial services business

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

(in millions of Korean won)

	2020			
	Less than 1 year	Between 1 and 2 years	Over 2 years	Total
Other financial liabilities	₩ 41,401	-	-	41,401
Deposits received	377,849	-	-	377,849
Lease liabilities	1,019	908	1,615	3,542
	<u>₩ 420,269</u>	<u>908</u>	<u>1,615</u>	<u>422,792</u>

(2) Capital risk management

The Group's objectives when managing capital are to maintain an optimal capital structure. The Group 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 of December 31, 2020 and 2019, are as follows:

(in millions of Korean won)

	2020	2019
Total liabilities (A)	₩ 4,526,241	2,997,138
Total equity (B)	7,427,729	5,740,118
Debt-to-capital ratio (A/B)	60.94%	52.21%

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4. Financial Risk Management, Continued

(3) Offsetting financial assets and financial liabilities

Details of the Group's recognized financial assets subject to offsetting, enforceable master netting arrangements or similar agreements as of December 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020				
	Gross assets	Gross liabilities offset	Net amounts presented in the statement of financial position	Amounts not offset	Net amount
Trade receivables ¹	₩ 7,368	789	6,579	-	6,579
Non-trade receivables ²	65,929	40,489	25,440	-	25,440

<i>(in millions of Korean won)</i>	2020				
	Gross liabilities	Gross assets offset	Net amounts presented in the statement of financial position	Amounts not offset	Net amount
Non-trade payables ²	₩ 65,929	40,489	25,440	-	25,440

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

² The amount of sales/purchase due to difference in consignment sales and settlement was offset and calculated.

<i>(in millions of Korean won)</i>	2019				
	Gross assets	Gross liabilities offset	Net amounts presented in the statement of financial position	Amounts not offset	Net amount
Trade receivables ¹	₩ 46,714	6,393	40,321	-	40,321
Non-trade receivables ²	41,207	4,279	36,928	-	36,928

<i>(in millions of Korean won)</i>	2019				
	Gross liabilities	Gross assets offset	Net amounts presented in the statement of financial position	Amounts not offset	Net amount
Non-trade payables ²	₩ 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.

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5. Fair Value

(1) Fair value of financial instruments

There are no significant changes in the business environment and economic environment that affect the fair value of the consolidated entity's financial assets and financial liabilities during the current year.

(2) Fair value hierarchy

The Group 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 of December 31, 2020 and 2019:

- Non-financial services business

(in millions of Korean won)

	2020			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value through profit or loss	₩ 66,736	61,741	309,248	437,725
Financial assets at fair value through other comprehensive income ^{1,2,3,4}	535,555	-	167,020	702,575
Derivative financial assets	-	-	312	312
	<u>₩ 602,291</u>	<u>61,741</u>	<u>476,580</u>	<u>1,140,612</u>
Derivative financial liabilities	₩ -	-	37,806	37,806

¹ During 2020, the consolidated company sold all the shares of Hanjin KAL Co., Ltd.

² During 2020, the consolidation company acquired 5,410,700 shares of the former shares of the Japanese content company Kadokawa Corporation.

³ During 2020, the consolidated company reclassified the shares from subsidiary investment stocks to financial assets measured at fair value through other comprehensive income due to changes in the equity ratio due to the absence of shareholder allocation capital increase.

⁴ During 2020, VAIV company Inc. was listed and replaced with Level 3 to Level 1.

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5. Fair Value, Continued

(2) Fair value hierarchy, continued

(in millions of Korean won)

	2019			
	Level 1	Level 2	Level 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 of 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).

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

- Financial services business

(in millions of Korean won)

	2020			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value through profit or loss	₩ -	382,695	3,930	386,625
Financial liabilities at fair value through profit or loss	₩ -	-	14,168	14,168

(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 Group 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.

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5. Fair Value, Continued

(3) Valuation technique and inputs, continued

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

As of December 31, 2020, valuation technique and the inputs used for recurring and non-recurring fair value measurements and disclosed fair value that are categorized within Level 2, 3 of the fair value hierarchy are as follows:

- Non-financial services business

(in millions of Korean won)

	Fair value	Level	Valuation technique	Inputs
Financial assets at fair value through profit or loss				
Compound financial instrument	₩ 61,741	2	Market value method	Market value
Compound financial instrument	193,721	3	Binomial tree model Net asset value method	Net asset value, Probability of risk neutral, increase in risk neutral, decrease in risk neutral
Securities and Funds	115,527	3	Binomial tree model Net asset value method	Net asset value, Probability of risk neutral, increase in risk neutral, decrease in risk neutral
	<u>₩ 370,989</u>			
Financial assets at fair value through other comprehensive income				
Non-listed equity securities	₩ 167,020	3	DCF, Net asset value method	Net asset value Estimated cash flow, discount rate
Derivative financial assets and liabilities				
Derivative financial assets	₩ 312	3	Binominal tree method and others	Probability of risk neutral, increase in risk neutral, decrease in risk neutral
Derivative financial liabilities	37,806	3	Binominal tree method and others	Probability of risk neutral, increase in risk neutral, decrease in risk neutral

- Financial services business

(in millions of Korean won)

	Fair value	Level	Valuation technique	Inputs
Financial assets at fair value through profit or loss				
Other deposits	₩ 382,695	2	Market value method	Interest rate
Securities	3,930	3	DCF	Estimated cash flow
	<u>₩ 386,625</u>			
Financial liabilities at fair value through profit or loss				
Contingent consideration	14,168	3	DCF	Estimated cash flow

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5. Fair Value, Continued

(4) Valuation processes for fair value measurements categorized within level 3

The financial division of the Group 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, 2020, are as follows:

- Non-financial services business

(in millions of Korean won)

	2020	
	Favorable changes	Unfavorable changes
Financial assets at fair value through profit or loss	₩ 3,092	(3,092)
Financial assets at fair value through other comprehensive income	1,670	(1,670)
Derivative financial assets	3	(3)
	<u>₩ 4,765</u>	<u>(4,765)</u>
Derivative financial liabilities	<u>₩ 378</u>	<u>(378)</u>

- Financial services business

(in millions of Korean won)

	2020	
	Favorable changes	Unfavorable changes
Financial assets at fair value through profit or loss	₩ 39	(39)
Financial liabilities at fair value through profit or loss	<u>₩ 142</u>	<u>(142)</u>

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6. Segment Information

The Group 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 Group's revenue for the years ended December 31, 2020 and 2019, is as follows:

(in millions of Korean won)

	2020¹		
	Platform	Contents	Total
Revenue	₩ 2,744,646	2,317,649	5,062,295
Inter-company revenue	(520,574)	(384,905)	(905,479)
Net revenue	<u>₩ 2,224,072</u>	<u>1,932,744</u>	<u>4,156,816</u>

¹ Revenue related to the financial services business in 2020 of ₩ 40,424 million are included in the platform revenue.

(in millions of Korean won)

	2019		
	Platform	Contents	Total
Revenue	₩ 1,682,122	1,913,138	3,595,260
Inter-company revenue	(247,373)	(277,775)	(525,148)
Net revenue	<u>₩ 1,434,749</u>	<u>1,635,363</u>	<u>3,070,111</u>

For the years ended December 31, 2020 and 2019, the Group's most of the revenue arise in Korea, and most of non-current assets held by the Group as December 31, 2020 and 2019 are located in Korea.

There was no external customer contributing more than 10% of the total revenue for the years ended December 31, 2020 and 2019.

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7. Financial Instruments by Category

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

- Non-financial services business

(in millions of Korean won)

	2020	2019
Financial assets at fair value through profit or loss	₩ 437,725	176,661
Financial assets at fair value through other comprehensive income	702,575	419,265
Financial assets at amortized costs		
Cash and cash equivalents	2,877,514	1,918,225
Trade receivables, net	247,374	157,221
Short-term financial instruments	694,069	207,767
Long-term financial instruments	10,174	50,062
Other current financial assets	225,055	252,486
Other non-current financial assets	121,291	92,355
	<u>4,175,477</u>	<u>2,678,116</u>
Derivative financial assets	312	1,112
	<u>₩ 5,316,089</u>	<u>3,275,154</u>

(in millions of Korean won)

	2020	2019
Financial liabilities at amortized costs		
Trade and other payables	₩ 835,983	578,567
Short-term borrowings	188,419	448,596
Deposits received	302,038	299,564
Other current financial liabilities	33,859	25,256
Non-current trade and other payables	40,882	32,872
Long-term borrowings	409,801	72,269
Other non-current financial liabilities ¹	58,188	62,843
	<u>1,869,170</u>	<u>1,519,968</u>
Derivative financial Liabilities		
Current derivative financial liabilities	16,919	18,290
Non-current derivative financial liabilities	20,887	7,372
	<u>37,806</u>	<u>25,662</u>
	<u>₩ 1,906,976</u>	<u>1,545,630</u>

¹ As of December 31, 2020, the Group recognized non-controlling interests in fund with maturity as financial liabilities amounting to ₩ 49,918 million (2019: ₩ 46,236 million).

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7. Financial Instruments by Category, Continued

Gains or losses of financial instruments by category for the years ended December 31, 2020 and 2019 are as follows:

(in millions of Korean won)

	2020					
	Gain (loss) on valuation (other comprehensive income (loss))	Gain (loss) on valuation / disposal (profit or loss)	Interest income (expenses)	Dividend income	Impairment loss	Gain (loss) on foreign currency translation
Financial assets						
Financial assets at fair value through profit or loss	₩ -	123,577	-	1,553	-	(46)
Financial assets at fair value through other comprehensive income	157,537	(250)	-	12,822	-	-
Financial assets at amortized costs and other financial assets	-	-	21,674	-	(2,709)	(20,346)
Derivative financial assets	-	(800)	-	-	-	-
Financial liabilities						
Financial liabilities at amortized costs and other financial liabilities	-	-	(10,384)	-	-	24,777
Derivative financial liabilities	-	(4,230)	-	-	-	-

(in millions of Korean won)

	2019					
	Gain (loss) on valuation (other comprehensive income (loss))	Gain (loss) on valuation / disposal (profit or loss)	Interest income (expenses)	Dividend income	Impairment loss	Gain (loss) on foreign currency translation
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 costs and other financial liabilities	-	-	(4,030)	-	-	(208)
Derivative financial liabilities	-	622	-	-	-	-

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7. Financial Instruments by Category, Continued

- Financial services business

(in millions of Korean won)

	<u>2020</u>
Financial assets at fair value through profit or loss	₩ 386,625
Financial assets at amortized costs	
Cash and cash equivalents	16,803
Deposits	19,829
Other financial assets	29,164
	<u>65,796</u>
	<u>₩ 452,421</u>

(in millions of Korean won)

	<u>2020</u>
Financial liabilities at fair value through profit or loss	₩ 14,168
Financial liabilities at amortized costs	
Deposits received	377,849
Other financial liabilities	41,400
	<u>419,249</u>
	<u>₩ 433,417</u>

Gains or losses of financial instruments by category for the year ended December 31, 2020 are as follows:

(in millions of Korean won)

	<u>2020</u>		
	<u>Gain (loss) on valuation / disposal (profit or loss)</u>	<u>Interest income (expenses)</u>	<u>Gain (loss) on foreign currency translation</u>
Financial assets			
Financial assets at fair value through profit or loss	₩ 3,563	1,356	2
Financial assets at amortized costs and other financial assets	-	264	-
Financial liabilities			
Financial liabilities at amortized costs and other financial liabilities	-	(3,583)	(1)

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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.

(1) Non-financial services business

Details of cash and cash equivalents and short-term and long-term financial instruments as of December 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Bank deposits and cash on hand and others	₩ 2,877,514	1,918,225
Short-term financial instruments ¹	694,069	207,767
Long-term financial instruments – time deposits and others	10,174	50,062
	<u>₩ 3,581,757</u>	<u>2,176,054</u>

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

In addition, the Group's deposits of ₩ 5,312 million are pledged as collateral in relation to employees' bank loans (Note 38).

(2) Financial services business

Details of cash and cash equivalents and Deposits as of December 31, 2020 are as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>
Cash and cash equivalents	₩ 16,803
General instrument deposit	2,000
Separate investment deposit	16,000
Market derivatives transaction deposit	50
Deposit for opening a checking account	2
Other deposits	1,777
Others	-
	<u>₩ 36,632</u>

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

Details of restricted financial instruments as of December 31, 2020 are as follows:

(in millions of Korean won)

	<u>2020</u>
General instrument deposit	₩ 2,000
Market derivatives transaction deposit	50
Deposit for opening a checking account	2
	<u>₩ 2,052</u>

The details of financial instruments that are reserved in accordance with the related laws as of December 31, 2020 are as follows:

(in millions of Korean won)

	<u>Category</u>	<u>2020</u>	<u>Purpose</u>
Deposit	Separate investment deposit ¹	₩ 16,000	Separate depositing of customer's deposit
	Other deposits	1,777	Korea Exchange and securities market margin
Financial assets at fair value through profit or loss	Separate investment deposit (trust) ¹	382,695	Separate depositing of customer's deposit
	Joint funds for damages ²	1,090	Korea Exchange and Korea Securities Depository
		<u>₩ 401,562</u>	

¹ In accordance with Paragraph 4 in Article 74 of Financial Investment Services and Capital Markets Act, the Group separated customer's deposit and placed it in deposits with Korea Securities Finance Corp. in order to return the customer's deposit or to meet the demand of the customers. The deposits shall not be transferred to or provided as collateral and shall not be offset or seized by anyone.

² In accordance with Article 394 and Article 303 of Financial Investment Services and Capital Markets Act, the Group set aside the joint funds for damages in Korea Exchange and Korea Securities Depository to jointly compensate for losses incurred from default arising from transactions on the securities market.

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.

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10. Financial Assets

- Non-financial services business

(1) 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:

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Financial assets at fair value through profit or loss		
Non-current		
Beneficiary securities and fund	₩ 83,652	60,943
Listed shares	66,698	20,925
NEPTUNE Corp.	66,698	20,925
Compound financial instruments	152,872	45,280
	<u>303,222</u>	<u>127,148</u>
Current		
Beneficiary securities	31,875	6,527
Listed shares	38	433
Compound financial instruments	102,590	42,553
	<u>134,503</u>	<u>49,512</u>
	<u>₩ 437,724</u>	<u>176,660</u>
Derivative financial assets		
Derivative financial assets	₩ 312	1,112

The amounts recognized in profit or loss are as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Gain (loss) on financial assets at fair value through profit or loss	₩ 125,084	(1,975)
Gain (loss) on derivative financial assets	(800)	(2,667)

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10. Financial Assets, Continued

(2) Financial assets at fair value through other comprehensive income

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

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Non-current		
Listed equity securities	₩ 535,554	331,441
YD ONLINE CORP.	-	-
FNC ENTERTAINMENT	3,822	5,473
SK TELECOM CO., LTD. ²	301,456	301,456
Kadokawa CORP.	213,625	-
HANJINKAL. ⁶	-	24,511
Action Square Co., Ltd.	1	1
VAIV company Inc (formerly, Daumsoft Inc.) ⁴	16,650	-
Unlisted equity securities ^{1,3,5}	167,021	87,825
	<u>₩ 702,575</u>	<u>419,265</u>

¹ See Note 5 for details of unlisted equity securities.

² The Group 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 Group 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).

⁴ Reclassified into listed equity securities as it was listed in 2020.

⁵ During the year ended December 31, 2020, the Group reclassified the shares from investments in subsidiaries to financial assets measured at fair value through other comprehensive income due to changes in the equity interest which resulted from non-participation of ASIO Co., Ltd.'s capital increase allocated to shareholders.

⁶ During the year ended December 31, 2020, the Group sold all of its shares for ₩ 64,062 million due to changes in management conditions, and the cumulative gain on disposal before income tax (excluding dividend income and incidental expenses) was ₩ 22,937 million.

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10. Financial Assets, Continued

The amounts recognized in profit or loss are as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Gain (loss) on financial assets at fair value through other comprehensive income ¹	₩ 12,573	-

¹ Dividend income of ₩ 12,666 million from equity instruments held at the end of the December 31, 2020. ₩ 156 million and 249 million of dividend income and incidental expenses for disposal, respectively, from Hanjin Kal Co., Ltd., which shares are all sold during the year ended December 31, 2020, were recognized in profit or loss.

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.

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

Trade receivables and allowance for doubtful accounts as of December 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Trade receivables	₩ 253,347	162,404
Less: allowance for doubtful accounts (Note 4)	(5,973)	(5,184)
Trade receivables, net	<u>₩ 247,374</u>	<u>157,221</u>

There is no collateral held by the Group.

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10. Financial Assets, Continued

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

<i>(in millions of Korean won)</i>	2020	2019
Other current financial assets		
Non-trade receivables	₩ 226,521	239,438
Accrued revenues	3,812	2,132
Short-term loans receivable	2,781	21,709
Short-term loans to employees	20	177
Leasehold Deposits	2,467	-
Others	146	33
	<u>235,747</u>	<u>263,488</u>
Other non-current financial assets		
Long-term non-trade receivables	42,332	39,832
Long-term accrued revenues	955	209
Long-term loans receivable	25,379	19,359
Leasehold deposits	84,684	65,343
Long-term loans to employees	157	203
Others	439	63
	<u>153,946</u>	<u>125,010</u>
	<u>389,693</u>	<u>388,498</u>
Less: allowance for doubtful accounts (Note 4)	<u>(43,347)</u>	<u>(43,657)</u>
Other current financial assets and other non-current financial assets, net	₩ <u>346,346</u>	<u>344,841</u>

- Financial services business

(1) Financial assets at fair value through profit or loss

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

(In millions of won)

	2020
Financial assets at fair value through profit or loss	
Equity securities	₩ 2,840
Others (money in trust etc.)	383,785
	<u>₩ 386,625</u>

2) The amounts recognized in profit or loss are as follows:

(In millions of won)

	2020
Gain on financial assets at fair value through profit or loss	₩ 4,921

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10. Financial Assets, Continued

(2) Other financial assets

(In millions of won)

	<u>2020</u>
Other financial assets	
Non-trade receivables	₩ 26,318
Accrued revenues	340
Leasehold deposits	<u>2,771</u>
	29,429
Less: allowance for doubtful accounts (Note 4)	(265)
Other financial assets, net	<u>₩ 29,164</u>

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 of December 31, 2020 and 2019, are as follows:

(in millions of Korean won)

	<u>2020</u>	<u>2019</u>
Contract assets		
Contract assets – platform	₩ 99	2,851
Contract assets – contents	<u>1,390</u>	<u>281</u>
	₩ 1,489	3,133
Incremental costs		
Incremental costs – platform	₩ 354	376
Incremental costs – contents	<u>4,702</u>	<u>6,841</u>
	₩ 5,056	7,217
Costs to fulfil a contract		
Costs to fulfil a contract - platform	₩ 10,364	6,543
Costs to fulfil a contract - contents	<u>182,689</u>	<u>72,679</u>
	193,053	79,222
Contract liabilities		
Contract liabilities – platform	₩ 131,250	116,753
Contract liabilities – contents	<u>195,385</u>	<u>167,017</u>
	₩ 326,635	283,770

Significant changes in incremental costs and contract liabilities

Contract liabilities of the Group 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 of 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.

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11. Contract Assets and Liabilities, Continued

Although the amount of incremental costs of obtaining a contract as of December 31, 2020 decreased compared to December 31, 2019, due to consumption of unused paid game goods, permanent items and paid platforms, the amount of decrease is not significant. The amount of costs to fulfil a contract as of December 31, 2020 increased compared to December 31, 2019 due to advance payments paid to certain contents production companies that are included in the scope of consolidation during the year ended December 31, 2020. The amount of contract liabilities as of December 31, 2020 increased compared to December 31, 2019 due to increase in deferred revenues from certain paid game goods and paid platform goods.

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.

<i>(in millions of Korean won)</i>	2020	2019
Expenses recognized that was included in the contract assets balance at the beginning of the year		
Incremental costs - contents	₩ 6,824	3,819
Costs to fulfil a contract - contents	53,833	-
	<u>₩ 60,657</u>	<u>3,819</u>
Revenue recognized that was included in the contract liability balance at the beginning of the year		
Contract liabilities – platform	₩ 60,391	44,308
Contract liabilities – contents	137,487	117,908
	<u>₩ 197,878</u>	<u>162,216</u>

Classification of revenue from contracts with customers

<i>(in millions of Korean won)</i>	2020	2019
Timing of revenue recognition		
At a point in time	₩ 2,326,758	1,947,450
Over a period	1,830,058	1,122,662
	<u>₩ 4,156,816</u>	<u>3,070,111</u>

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12. Trade and Other payables

- Non-financial services business

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

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Trade and other payables		
Trade payables	₩ 37,653	28,950
Non-trade payables	794,759	546,630
Withhold deposits received	3,571	2,987
	<u>835,983</u>	<u>578,567</u>
Non-current trade and other payables		
Long-term non-trade payables	40,669	32,849
Withhold deposits received	213	23
	<u>40,882</u>	<u>32,872</u>
	<u>₩ 876,865</u>	<u>611,439</u>

13. Other Financial Liabilities

(1) Non-financial services business

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

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Other current financial liabilities		
Accrued expenses	₩ 33,759	25,256
Leasehold Deposit Received	100	-
	<u>33,859</u>	<u>25,256</u>
Deposits received		
Deposits received	302,038	299,565
Other non-current financial liabilities		
Long-term accrued expenses	58,188	62,843
	<u>₩ 394,085</u>	<u>387,664</u>

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13. Other Financial Liabilities, Continued

(2) Financial services business

Other financial liabilities as of December 31, 2020 are as follows:

(in millions of Korean won)

	2020
Other financial liabilities	
Accrued expenses	₩ 1,793
Non-trade Payables	25,440
Financial liabilities at fair value through profit or loss	14,168
	<u>41,401</u>
Deposits received	
Deposits received	377,849
	<u>₩ 419,250</u>

14. Other Assets and Liabilities

(1) Non-financial services business

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

(in millions of Korean won)

	2020	2019
Other current assets		
Advance payments	₩ 179,583	151,586
Prepaid expenses	48,028	32,378
Prepaid value added tax	2,290	7,836
Corporate tax refund receivable	2,433	1,994
Others	201	127
	<u>232,535</u>	<u>193,921</u>
Other non-current assets		
Long-term advance payments	154,447	36,529
Long-term prepaid expenses	11,847	13,765
Other investments	-	100
Others	193	154
	<u>166,487</u>	<u>50,548</u>
	<u>₩ 399,022</u>	<u>244,469</u>

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14. Other Assets and Liabilities, Continued

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

(in millions of Korean won)

	<u>2020</u>	<u>2019</u>
Other current liabilities		
Advances from customers	₩ 989,491	613,860
Deferred revenues	150,140	167,722
Withholdings	67,880	32,374
Value added tax payable	55,876	41,035
Government grants	5	565
Accrued expenses – short-term employee benefits liabilities	92,103	63,987
	<u>1,355,495</u>	<u>919,543</u>
Other non-current liabilities		
Deferred revenues	14,252	19,623
Long-term employee benefits liabilities	13,073	801
Others	3,005	-
	<u>30,330</u>	<u>20,424</u>
	<u>₩ 1,385,825</u>	<u>939,967</u>

(2) Financial services business

Other assets as of December 31, 2020 are as follows:

(in millions of Korean won)

	<u>2020</u>
Other assets	
Advance payments	₩ 5,481
Prepaid expenses	304
Prepaid value added tax	27
	<u>₩ 5,812</u>

Other liabilities as of December 31, 2020 are as follows:

(in millions of Korean won)

	<u>2020</u>
Other liabilities	
Deferred revenues	₩ 22
Withholdings	2,413
Value added tax payable	816
Accrued expenses – short-term employee benefits liabilities	4,063
	<u>₩ 7,314</u>

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15. Inventories

(in millions of Korean won)

	<u>2020</u>	<u>2019</u>
Merchandise	₩ 47,195	53,690
(Valuation allowance for merchandise)	(11,133)	(5,777)
Finished goods	1,191	922
(Valuation allowance for finished goods)	(462)	(456)
Raw materials	9,317	409
(Valuation allowance for raw materials)	(379)	(102)
Others	85	763
	<u>₩ 45,814</u>	<u>49,449</u>

Inventories recognized as an expense during the year ended December 31, 2020, amounted to ₩ 286,045 million (2019: ₩ 288,646 million). These were included in 'operating expenses'.

Loss on valuation of inventories to net realizable value amounted to ₩ 5,639 million (2019: ₩ 13,165 million). These were recognized as an expense during the year ended December 31, 2019, and included in 'operating expenses' in profit or loss.

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16. Investments in Associates and Joint Venture

Investments in associates and joint venture as of December 31, 2020 and 2019, are as follows:

(in millions of Korean won)

Name ¹	Location	2020		2019		
		Percentage of ownership (%)	Acquisition cost	Book value	Book value	
Associates						
Addcredit Corp. ³	Korea	17.7	₩ 300	138	93	
Tapas Media, Inc. ²	USA	43.4	13,472	10,907	1,125	
NBT Inc. ^{3,11}	Korea	5.2	850	923	1,220	
DAUM Venture Fund	Korea	39.5	7,233	5,276	9,664	
Dunamu Inc.	Korea	21.3	4,480	73,848	59,385	
Oscar Entertainment.	Korea	20.0	1,997	-	-	
CNT TECH CO., LTD. ³	Korea	18.0	5,001	4,581	5,670	
Korea Credit Data	Korea	27.4	4,256	3,284	5,360	
MANNACEA	Korea	23.8	10,000	2,354	3,877	
Left Right Co., Ltd.	Korea	40.0	400	67	2	
LUXROBO CO., LTD. ³	Korea	13.1	5,287	5,236	6,081	
Deleo Korea Co., Ltd. ³	Korea	9.0	3,000	3,000	877	
Skelter Labs, Inc. ³	Korea	13.3	2,501	2,630	1,674	
TOROOC Inc.	Korea	20.6	2,500	482	845	
DIGISONIC CO., LTD. ³	Korea	11.8	100	104	52	
D&C MEDIA CO., LTD. ²	Korea	23.3	33,789	38,211	15,026	
K Cube NEO Fund ³	Korea	15.6	2,520	2,081	1,977	
BUNJANG Corp. ⁵	Korea	-	-	-	280	
Supergene Inc ¹⁰	Korea	-	-	-	1,448	
InnoSignal CO., LTD. ³	Korea	14.5	100	164	165	
CLAIR, Inc. ³	Korea	2.7	500	351	586	
KIF-Kakao Wooribank Technology Financing Fund ³	Korea	19.7	15,000	12,358	13,603	
13MILE.CO.LTD	Korea	31.7	4,435	-	3,321	
ADSOTA CORP.	Vietnam	49.0	2,260	656	2,413	
CARDOC Inc. ⁵	Korea	-	-	-	3,895	
YANADU. (formerly. Kakao Kids) ^{3,11}	Korea	19.2	636	3,175	8,074	
NOWBUSKING COMPANY ^{2,8}	Korea	25.7	5,088	2,156	2,160	
LINEWALKS Inc.	Korea	28.4	3,000	3,255	2,869	
CHEQUER GLOBAL, Inc. (formerly. CHEQUER Inc.)	Korea	21.1	400	191	453	
Hasys co.,ltd	Korea	28.8	17,729	17,709	15,419	
mycelebs, inc ³	Korea	14.4	5,000	5,000	5,038	
DAIWAON. C. I. INC ³	Korea	19.8	15,048	8,733	9,244	
Haksan Publinshing Co., Ltd. ³	Korea	19.8	14,653	8,923	11,337	
PEOPLETUND COMPANY ^{2,3}	Korea	11.1	5,836	4,732	2,636	
SEOUL MEDIA.INC.	Korea	22.2	10,000	7,031	8,520	
UBCARE CO., LTD. ⁵	Korea	-	-	-	40,228	
GC Social Marketing Inc.	Korea	27.3	1,018	1,005	951	
LEEMITELEESYUN CULTURE INDUSTRIAL JEONMUNHOESA INC. ¹¹	Korea	20.0	4	1	4	
Sixshop	Korea	20.0	2,000	1,385	1,987	
Tide Square Co., Ltd.	Korea	28.9	26,464	10,510	18,828	
Glohow Holdings PTE. LTE ⁹	Singapore	-	-	-	1,480	
MOVILL Co.Ltd ⁵	Korea	-	-	-	804	
EASYGO CO., LTD.	Korea	20.0	100	95	98	
G&G ENTERPRISE CO.,LTD. ³	Korea	11.5	2,924	4,265	3,060	
KakaoBank of Korea Corp. ²	Korea	31.8	788,748	940,889	615,559	
KW Books, Inc. ⁹	Korea	-	-	-	8,000	
325 E&C	Korea	40.0	2,400	2,138	2,400	

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Name ¹	Location	2020		2019	
		Percentage of ownership (%)	Acquisition cost	Book value	Book value
UNION K-Culture Contents Investment Fund ²	Korea	33.3	5,000	4,698	2,478
EDAM Entertainment Corp	Korea	40.0	11,000	11,526	11,000
Daeyoung Chaevi CO., Ltd ^{2,3}	Korea	14.3	7,500	7,500	5,000
Ocean Drive Studio Co., Ltd.	Korea	20.8	10,003	7,107	10,003
Socialbean Co., Ltd ³	Korea	2.5	999	356	961
DOZEN CO.,LTD ³	Korea	9.9	495	695	495
KASA NETWORK PTE. LTD ⁵	Singapore	-	-	-	1,086
Super Comics. ²	Korea	20.0	2,000	1,893	-
Stage five Co., Ltd. ^{6,11}	Korea	45.2	98,019	91,660	-
Ad X Co. Ltd. ²	Korea	30.0	17,159	17,719	-
Adlock Advertainment ^{2,3}	Korea	12.8	1,000	1,132	-
Second Dive ²	Korea	20.0	10,000	9,523	-
Lionheart Studio ²	Korea	21.6	22,225	20,318	-
KROSS PICTURES ²	Korea	49.0	5,880	5,880	-
DGT mobility. ²	Korea	26.8	2,500	2,556	-
DEVOTION FOODS Inc. ²	Korea	21.4	3,000	3,000	-
Japle Co., Ltd. ²	Korea	37.4	500	500	-
ATU e-sports Growth PE Fund I ²	Korea	25.1	5,499	5,499	-
S&Tsolution Co.,Ltd. ²	Korea	20.0	1,245	1,100	-
Radish Media. Inc ^{2,3}	USA	13.2	32,179	30,972	-
Kakao-Shinhan 1st TNYT Fund ^{2,3}	Korea	19.4	2,388	2,339	-
Kakao Growth Hacking Fund ^{2,3}	Korea	15.3	3,200	3,188	-
Atwater Whip SPV, LP ^{2,14}	USA	54.2	11,859	12,200	-
SHOH enterprise pte.ltd ²	Singapore	29.5	3,892	3,892	-
KIDSPAY CO. Ltd. ²	Korea	38.7	502	502	-
Way2Bit Co., Ltd. ²	Korea	45.8	5,012	5,012	-
Loadstars ²	Korea	29.5	15	15	-
Teins Valley ²	Korea	32.5	500	500	-
JASON GROUP Co., Ltd. ^{2,3}	Korea	13.1	29,997	29,997	-
PLANETS CO. LTD. ²	Korea	41.2	700	700	-
Anycall Mobility Corp. ²	Korea	20.0	1,000	1,004	-
Others (52 companies) ⁴			45,982	22,382	32,790
			<u>1,362,279</u>	<u>1,493,209</u>	<u>961,601</u>
Joint Venture					
DAUM KAKAO PHILIPPINES CORP. ¹²	Philippines	50.0	1,072	176	4,385
Asankakao Medical Data Co., Ltd.	Korea	50.0	5,000	4,500	4,862
PINPLAY JAPAN Co., Ltd. ⁷	Japan	-	-	-	1,962
PHI digital healthcare Inc.	Korea	50.0	6,250	6,531	6,130
The Bridges of Madison County Co., Ltd. ⁵	Korea	-	-	-	5
USABANG CULTURE INDUSTRIAL Ltd. ^{2,13}	Korea	20.0	2	2	-
			<u>12,324</u>	<u>11,209</u>	<u>17,344</u>
			<u>₩ 1,374,603</u>	<u>1,504,418</u>	<u>978,945</u>

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16. Investments in Associates and Joint Venture, Continued

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

² Newly acquired and established during 2020.

³ Although the Group holds less than 20% of equity shares, the Group is considered to have a significant influences as the Group 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 1.6%~49.0% and classified as associates as the Group is considered to have a significant influence.

⁵ Disposed during 2020.

⁶ Reclassified from a subsidiary to an associate due to loss of control during 2020.

⁷ Excluded from joint venture as it is reclassified as an associate of STAGEFIVE CO., LTD.

⁸ Acquired additional 4,662 shares by exercising call options and new capital contribution.

⁹ Reclassified to a subsidiary from an associate due to acquisition of additional shares during 2020.

¹⁰ Reclassified to a financial instrument at fair value through profit or loss from an associate due to loss of significant influence during 2020.

¹¹ Partially disposed during 2020.

¹² The Group recovered some of the principal of investment through a 50% reduction in capital during 2020.

¹³ Although the equity interest is less than 50%, it is recognized as a joint venture because the Group has the joint control.

¹⁴ Although the equity interest exceeds 50%, because the Group made the investment as a member of a limited liability member, the Group has significant influence over the investee, thus recognized it as an associate.

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17. Investments in Associates and Joint Venture, Continued

Changes in carrying amounts of investments in associates and joint venture for the years ended December 31, 2020 and 2019 are as follows:

(in millions of Korean won)

2020

Name	Beginning balance	Changes in scope of consolidation	Acquisition	Disposal	Impairment	Reclassification	Gain (loss) on valuation of equity-method investments	Share in other comprehensive income (loss) of associates	Others ¹	Ending balance
Associates										
Addcredit Corp.	₩ 93	-	-	-	-	-	45	-	-	138
Tapas Media, Inc. ³	1,125	-	10,228	-	-	-	(296)	(67)	(84)	10,906
NBT Inc. ⁵	1,220	-	-	(932)	-	-	959	11	(335)	923
DAUM Venture Fund ⁷	9,664	-	-	(395)	-	-	(4,004)	11	-	5,276
Dunamu Inc. ⁶	59,385	-	-	(2,242)	-	-	20,178	(15)	(3,458)	73,848
CNT TECH CO., LTD.	5,670	-	-	-	-	-	(1,058)	(32)	-	4,580
Korea Credit Data ¹³	5,360	-	-	-	(1,975)	-	(2,869)	1	2,767	3,284
MANNACEA	3,877	-	-	-	-	-	(1,526)	2	-	2,353
Left Right Co., Ltd.	2	-	-	-	-	-	65	-	-	67
LUXROBO CO., LTD.	6,081	-	-	-	-	-	(844)	-	-	5,237
Deleo Korea Co., Ltd.	877	-	-	-	-	-	2,123	-	-	3,000
Skelter Labs, Inc.	1,674	-	-	-	-	-	(2,248)	-	3,204	2,630
TOROOO Inc.	845	-	-	-	-	-	(363)	-	-	482
DIGISONIC CO., LTD.	52	-	-	-	-	-	3	-	49	104
D&C MEDIA CO.,LTD. ³	15,026	-	21,174	-	-	-	2,010	-	-	38,210
K Cube NEO Fund	1,977	-	-	-	-	-	107	(2)	-	2,082
BUNJANG Corp. ⁴	280	-	-	(280)	-	-	-	-	-	-
Supergene Inc ¹⁰	1,448	-	-	-	-	(498)	-	-	(950)	-
InnoSignal CO., LTD.	165	-	-	-	-	-	2	-	(3)	164
CLAIR, Inc.	586	-	-	-	-	-	(235)	-	-	351
KIF-Kakao Wooribank Technology Financing Fund	13,603	-	-	-	-	-	(1,253)	8	-	12,358
13MILE.CO.LTD ¹³	3,321	-	-	-	(1,835)	-	(1,486)	-	-	-

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2020

Name	Beginning balance	Changes in scope of consolidation	Acquisition	Disposal	Impairment	Reclassification	Gain (loss) on valuation of equity-method investments	Share in other comprehensive income (loss) of associates	Others ¹	Ending balance
ADSOTA CORP. ¹³	2,413	-	-	-	(1,083)	-	(644)	(30)	-	656
CARDOC Inc. ⁴	3,895	-	-	(5,954)	-	-	2,058	-	-	(1)
YANADU. (formerly. Kakao Kids) ⁵	8,074	-	-	(2,158)	-	-	(2,921)	-	180	3,175
NOWBUSKING COMPANY ³	2,160	-	2,087	-	-	-	(2,091)	-	-	2,156
LINEWALKS Inc.	2,869	-	-	-	-	-	(332)	-	719	3,256
CHEQUER Inc.	453	-	-	-	-	-	(262)	-	-	191
Hasys co.,ltd	15,419	-	-	-	-	-	(4,755)	133	6,913	17,710
mycelebs, inc	5,038	-	-	-	-	-	(37)	(1)	-	5,000
DAIWAON. C. I. INC ¹³	9,244	-	-	-	(878)	-	373	(7)	-	8,732
Haksan Publinsing Co., Ltd. ¹³	11,337	-	-	-	(2,878)	-	342	122	-	8,923
PEOPLEFUND COMPANY	2,636	-	2,000	-	-	-	(60)	-	156	4,732
SEOUL MEDIA.INC. ¹³	8,520	-	-	-	(1,358)	-	(131)	-	-	7,031
UBCARE CO., LTD. ⁴	40,228	-	-	(40,104)	-	-	(82)	(43)	-	(1)
GC Social Marketing Inc.	951	-	-	-	-	-	44	11	-	1,006
LEEMITELEESYUN CULTURE INDUSTRIAL JEONMUNHOESA INC. ⁵	4	-	-	(1)	-	-	(2)	-	-	1
Sixshop	1,987	-	-	-	-	-	(602)	-	-	1,385
Tide Square Co., Ltd. ¹³	18,828	-	-	-	(5,099)	-	(3,140)	(79)	-	10,510
Glohow Holdings PTE. LTE ⁹	1,480	(1,493)	-	-	-	-	(7)	20	-	-
MOVILL Co.Ltd	804	-	-	-	-	-	(804)	-	-	-
EASYGO CO., LTD.	98	-	-	-	-	-	(2)	-	-	96
G&G ENTERPRISE CO.,LTD.	3,060	-	-	-	-	-	1,205	-	-	4,265
KakaoBank of Korea Corp. ⁹	615,559	-	167,643	-	-	-	33,284	1,854	122,550	940,890
KW Books, Inc.	8,000	(22,000)	-	-	-	-	582	-	13,418	-
325 E&C	2,400	-	-	-	-	-	(262)	-	-	2,138
UNION K-Culture Contents Investment Fund ³	2,478	-	2,500	-	-	-	(280)	-	-	4,698

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2020

Name	Beginning balance	Changes in scope of consolidation	Acquisition	Disposal	Impairment	Reclassification	Gain (loss) on valuation of equity-method investments	Share in other comprehensive income (loss) of associates	Others ¹	Ending balance
EDAM Entertainment Corp	11,000	-	-	-	-	-	526	-	-	11,526
Daeyoung Chaevi CO., Ltd ³	5,000	-	2,500	-	-	-	-	-	-	7,500
Ocean Drive Studio Co., Ltd.	10,003	-	-	-	-	-	(3,020)	-	125	7,108
Socialbean Co., Ltd	961	-	-	-	-	-	(986)	-	381	356
DOZEN CO.,LTD	495	-	-	-	-	-	200	-	-	695
KASA NETWORK PTE. LTD ⁴	1,086	-	-	(1,086)	-	-	-	-	-	-
Super Comics. ²	-	-	2,000	-	-	-	(107)	-	-	1,893
Stage five Co., Ltd. ^{5,8}	-	99,625	-	(1,606)	-	-	(6,258)	(101)	-	91,660
Ad X Co. Ltd. ²	-	-	17,159	-	-	-	560	-	-	17,719
Adlock Advertainment ²	-	-	1,000	-	-	-	132	-	-	1,132
Second Dive ²	-	-	10,000	-	-	-	(476)	-	-	9,524
Lionheart Studio ²	-	-	13,892	-	-	8,333	(1,908)	-	-	20,317
KROSS PICTURES ²	-	-	5,880	-	-	-	-	-	-	5,880
DGT mobility. ²	-	-	2,500	-	-	-	56	-	-	2,556
DEVOTION FOODS Inc. ²	-	-	3,000	-	-	-	-	-	-	3,000
Japle Co., Ltd. ²	-	-	500	-	-	-	-	-	-	500
ATU e-sports Growth PE Fund I ^{3,11}	-	-	2,999	-	-	2,500	-	-	-	5,499
S&Tsolution Co.,Ltd. ²	-	-	1,245	-	-	-	(145)	-	-	1,100
Radish Media. Inc ²	-	-	32,179	-	-	-	(793)	(414)	-	30,972
Kakao-Shinhan 1st TNYT Fund ²	-	-	2,388	-	-	-	(49)	-	-	2,339
Kakao Growth Hacking Fund ²	-	-	3,200	-	-	-	(12)	-	-	3,188
Atwater Whip SPV, LP ²	-	-	11,859	-	-	-	1,493	(1,153)	-	12,199
SHOH enterprise pte.ltd ²	-	-	3,892	-	-	-	-	-	-	3,892
KIDSPAY CO. Ltd. ²	-	-	502	-	-	-	-	-	-	502
Way2Bit Co., Ltd. ¹¹	-	-	3,517	-	-	1,495	-	-	-	5,012

KAKAO CORP. AND SUBSIDIARIES
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2020

Name	Beginning balance	Changes in scope of consolidation	Acquisition	Disposal	Impairment	Reclassification	Gain (loss) on valuation of equity-method investments	Share in other comprehensive income (loss) of associates	Others ¹	Ending balance
Loadstars ²	-	-	15	-	-	-	-	-	-	15
Teins Valley ²	-	-	500	-	-	-	-	-	-	500
JASON GROUP Co., Ltd. ²	-	-	29,997	-	-	-	-	-	-	29,997
PLANETS CO. LTD. ²	-	-	700	-	-	-	-	-	-	700
Anycall Mobility Corp. ²	-	-	1,000	-	-	-	4	-	-	1,004
Others (52 companies) ⁴	32,790	-	44	(1,287)	-	(478)	(11,726)	150	2,889	22,382
	<u>961,601</u>	<u>76,132</u>	<u>358,100</u>	<u>(56,045)</u>	<u>(15,106)</u>	<u>11,352</u>	<u>8,275</u>	<u>379</u>	<u>148,521</u>	<u>1,493,209</u>
Joint Venture										
DAUM KAKAO PHILIPPINES CORP. ^{12,13}	4,385	-	-	(4,537)	(54)	-	21	361	-	176
Asankakao Medical Data Co., Ltd.	4,862	-	-	-	-	-	(362)	-	-	4,500
PINPLAY JAPAN Co., Ltd. ⁸	1,962	(1,962)	-	-	-	-	-	-	-	-
PHI digital healthcare Inc.	6,130	-	-	-	-	-	758	-	(357)	6,531
USABANG CULTURE INDUSTRIAL Ltd. ²	-	-	2	-	-	-	-	-	-	2
The Bridges of Madison County Co., Ltd. ⁴	5	-	-	(5)	-	-	-	-	-	-
	<u>17,344</u>	<u>(1,962)</u>	<u>2</u>	<u>(4,542)</u>	<u>(54)</u>	<u>-</u>	<u>417</u>	<u>361</u>	<u>(357)</u>	<u>11,209</u>
	<u>₩ 978,945</u>	<u>74,170</u>	<u>358,102</u>	<u>(60,587)</u>	<u>(15,160)</u>	<u>11,352</u>	<u>8,692</u>	<u>740</u>	<u>148,164</u>	<u>1,504,418</u>

¹ Others include gain or loss on disposal from changes in percentage of ownership with maintaining significant influence during 2020.

² Newly acquired and established during 2020.

³ Additionally acquired during 2020.

⁴ Disposed during 2020.

⁵ Partially disposed during 2020.

⁶ The Group received dividend income from Dunamu Inc. amounting to ₩ 2,242 million and deducted it from the carrying amount of investments in associates.

⁷ Collected partial amount of investments from the fourth distribution.

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⁸ Excluded from joint ventures due to the reclassification of Stage Five Corp into an associate.

⁹ Reclassified to a subsidiary from an associate due to acquisition of additional shares during 2020.

¹⁰ Reclassified to a financial instrument at fair value through profit or loss from an associate due to loss of significant influence during 2020.

¹¹ Reclassified to associates from financial instruments measured at fair value through profit or loss as the Group acquired significant influence through additional acquisitions during 2020.

¹² The Group recovered some of the principal of investment through a 50% reduction in capital during 2020.

¹³ Due to decrease in sales, as of December 31, 2020, the recoverable amount is less than the carrying amount, thus, the Group recognized the difference of ₩ 15,159 million as an impairment loss during 2020.

(in millions of Korean won)

Name	2019							Ending balance	
	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
Associates									
Addcredit Corp.	₩ 112	-	-	-	-	(19)	-	-	93
DMS Network, Inc.	-	-	-	-	-	-	-	-	-
Tapas Media, Inc. ¹	177	-	-	-	-	(313)	109	1,152	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	(754)	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)	-	3,069	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)	1,592	6,081
Deleo Korea Co.,Ltd.	759	-	-	-	-	(361)	-	479	877
Skelter Labs, Inc.	2,044	-	-	-	-	(2,723)	-	2,353	1,674
TOROOC Inc.	744	-	-	-	-	(1,087)	-	1,188	845
Dreamcide SPC Ltd.	-	-	-	-	-	-	-	-	-
DIGISONIC Co., Ltd.	76	-	-	-	-	(42)	-	18	52
D&C MEDIA CO.,LTD. ¹	14,475	-	-	-	-	758	(83)	(124)	15,026
K Cube NEO Fund ^{4,6}	1,974	-	750	(480)	-	(268)	2	(1)	1,977
BUNJANG Corp. ⁵	247	-	-	(350)	-	(171)	-	554	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 Technology Financing Fund ⁴	7,554	-	7,200	-	-	(1,216)	66	-	13,603
13MILE.CO.LTD ⁴	2,945	-	1,000	-	-	(624)	-	-	3,321

KAKAO CORP. AND SUBSIDIARIES
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(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
ADSOTA CORP ⁴	1,419	-	1,180	-	-	(50)	(136)	-	2,413
CARDOC Inc. ^{1,4}	4,100	-	900	-	-	(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
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 JEONMUNHOESA INC ³	-	-	5	-	-	(1)	-	-	4
KM Solution Corp. (formerly, Tago Solutions Co., Ltd)	3,000	(814)	-	-	-	(635)	-	(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 Investment Fund ³	-	-	2,500	-	-	(22)	-	-	2,478
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
Un7qj3 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

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Name	2019								
	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
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
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
	<u>₩ 305,188</u>	<u>27,050</u>	<u>453,986</u>	<u>(42,802)</u>	<u>238,901</u>	<u>(19,771)</u>	<u>(4,679)</u>	<u>21,071</u>	<u>978,944</u>

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

² During 2019, the Group 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 of December 31, 2019.

³ Newly acquired and established during 2019.

⁴ Additionally acquired during 2019.

⁵ Disposed during 2019.

⁶ The Group 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 Group 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.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
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16. Investments in Associates and Joint Venture, Continued

Fair value of investments in associates that has a quoted market price as of December 31, 2020 and 2019, is as follows:

<i>(in millions of Korean won)</i>	Company	2020		2019	
		Fair value	Book value	Fair value	Book value
Associates	D&C MEDIA CO.,LTD.	₩ 104,503	38,211	43,296	15,026
	UBCARE CO., LTD.	-	-	54,305	40,228

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.

<i>(in millions of Korean won)</i>	2020				
	Net assets at the end of the year (a)	The Group's share in % (b)	The Group's share in KRW (a*b)	Goodwill and etc.	Book value
KakaoBank of Korea Corp.	₩ 2,792,042	31.8%	887,185	53,704	940,889
Stage five Co., Ltd	41,121	45.2%	18,595	73,065	91,660
Dunamu Inc. ¹	344,769	21.3%	71,116	2,732	73,848
D&C MEDIA CO.,LTD.	51,881	23.3%	12,066	26,145	38,211
Hasys Co., Ltd. ¹	35,342	28.8%	10,186	7,523	17,709

¹ The Group's share in net asset is calculated by taking into account of conditions of the investing companies' preferred shares.

<i>(in millions of Korean won)</i>	2019				
	Net assets at the end of the year (a)	The Group's share in % (b)	The Group'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

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
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16. Investments in Associates and Joint Venture, Continued

A summary of financial information on the associates and joint venture for the years ended December 31, 2020 and 2019, is as follows:

(in millions of Korean won)

2020

	Current asset	Non-current asset	Financial asset	Current liability	Non-current liability	Financial liability	Revenue	Profit (loss)	Other comprehensive income (loss)	Total Comprehensive income (loss)
KakaoBank of Korea Corp.	₩ -	-	26,649,990	-	-	23,853,028	804,157	113,636	5,023	118,659
Stage five Co., Ltd	48,806	5,201	-	3,069	9,816	-	34,849	(7,118)	(7)	(7,125)
Dunamu Inc.	1,242,324	141,723	-	1,009,721	153,741	-	176,674	46,441	-	46,441
D&C MEDIA CO.,LTD.	58,966	4,773	-	10,932	754	-	57,734	10,892	-	10,892
Hasys Co., Ltd. ¹	17,723	52,739	-	30,900	3,326	-	13,829	(10,144)	-	(10,144)
	<u>₩ 1,367,819</u>	<u>204,436</u>	<u>26,649,990</u>	<u>1,054,622</u>	<u>167,637</u>	<u>23,853,028</u>	<u>1,087,243</u>	<u>153,707</u>	<u>5,016</u>	<u>158,723</u>

(in millions of Korean won)

2019

	Current asset	Non-current asset	Financial asset	Current liability	Non-current liability	Financial liability	Revenue	Profit (loss)	Other comprehensive income (loss)	Total Comprehensive income (loss)
KakaoBank of Korea Corp.	₩ -	-	22,724,108	-	-	21,045,387	664,940	13,733	2,433	16,166
Dunamu Inc.	413,429	115,995	-	248,978	102,917	-	140,251	9,456	-	9,456
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)
	<u>₩ 620,174</u>	<u>184,258</u>	<u>22,724,108</u>	<u>316,706</u>	<u>113,070</u>	<u>21,045,387</u>	<u>1,011,052</u>	<u>24,096</u>	<u>1,702</u>	<u>25,798</u>

The accumulated loss that was not recognized due to discontinuance of equity method of accounting is ₩ 5,498 million.

KAKAO CORP. AND SUBSIDIARIES
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18. Property and Equipment

(1) Non-financial services business

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

(in millions of Korean won)

	2020							
	Land	Buildings	Structures	Machinery and equipment	Vehicles	Furniture	Construction in progress	Total
Beginning balance	₩ 67,191	53,454	499	138,319	7,881	79,781	2,693	349,818
Acquisition	145	261	1,667	112,089	9,666	48,074	9,639	181,541
Changes in scope of consolidation	22,662	-	(324)	(204)	305	918	16,062	39,419
Disposals	(486)	(4,540)	-	(1,480)	(2,675)	(4,999)	(132)	(14,312)
Depreciation	-	(1,498)	(259)	(58,996)	(1,048)	(33,116)	-	(94,917)
Transfer	(20,190)	(8,625)	-	-	106	(4)	65	(28,648)
Others ¹	(4)	(6)	-	(17)	(2,181)	(24)	(1)	(2,233)
Ending balance	<u>₩ 69,318</u>	<u>39,046</u>	<u>1,583</u>	<u>189,711</u>	<u>12,054</u>	<u>90,630</u>	<u>28,326</u>	<u>430,668</u>
December 31, 2020								
Acquisition cost	₩ 69,318	47,208	1,899	427,323	17,429	187,068	28,326	778,572
Government grants	-	-	-	(28)	-	(239)	-	(267)
Accumulated depreciation	-	(8,162)	(316)	(237,584)	(5,375)	(96,193)	-	(347,630)
Accumulated impairment	-	-	-	-	-	(6)	-	(6)
Net book value	<u>₩ 69,318</u>	<u>39,046</u>	<u>1,583</u>	<u>189,711</u>	<u>12,054</u>	<u>90,631</u>	<u>28,326</u>	<u>430,668</u>

¹ Others include currency translation effects.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

17. Property and Equipment, Continued

(in millions of Korean won)

	2019							
	Land	Buildings	Structures	Machinery and equipment	Vehicles	Furniture	Construction in progress	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	<u>₩ 67,191</u>	<u>53,454</u>	<u>499</u>	<u>138,319</u>	<u>7,881</u>	<u>79,781</u>	<u>2,693</u>	<u>349,818</u>
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	<u>₩ 67,191</u>	<u>53,454</u>	<u>499</u>	<u>138,319</u>	<u>7,881</u>	<u>79,781</u>	<u>2,693</u>	<u>349,818</u>

¹ Others include currency translation effects.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

17. Property and Equipment, Continued

(2) Financial services business

Changes in property and equipment for the year ended December 31, 2020 are as follows

(in millions of Korean won)

	Land	Buildings	Equipment	Total
Beginning balance	₩ -	-	-	-
Changes in scope of consolidation	-	-	5,327	5,327
Acquisition	11	23	816	850
Transfer	229	517	-	746
Disposals	-	-	-	-
Depreciation	-	(11)	(1,062)	(1,073)
Ending balance	<u>₩ 240</u>	<u>529</u>	<u>5,081</u>	<u>5,850</u>
December 31, 2020				
Acquisition cost	₩ 240	540	7,757	8,537
Accumulated depreciation	-	(11)	(2,676)	(2,687)
Net book value	<u>₩ 240</u>	<u>529</u>	<u>5,081</u>	<u>5,850</u>

(3) Some land and buildings of the Group's property and equipment are provided as collateral in relation to the loan agreement (Note 38).

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For the years ended December 31, 2020 and 2019

18. Investment Properties

Changes in investment properties for the year ended December 31, 2020, are as follows:

(in millions of Korean won)

	Land	Buildings	Total
Beginning balance	₩ 2,146	697	2,843
Transfer	13,328	7,241	20,569
Disposals	(15,474)	(7,718)	(23,192)
Depreciation	-	(220)	(220)
Ending balance	<u>₩ -</u>	<u>-</u>	<u>-</u>
December 31, 2020			
Acquisition cost	₩ -	-	-
Accumulated depreciation	-	-	-
Net book value	<u>₩ -</u>	<u>-</u>	<u>-</u>

During the year ended December 31, 2020, rental income earned from operating leases of investment property is ₩ 336 million (2019: ₩ 29 million), and direct operating expenses (including repairs and maintenance) from property that generated rental income are ₩ 54 million. (2019: ₩ 2 million)

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	-	(4)	(5)
Ending balance	<u>₩ 2,146</u>	<u>697</u>	<u>2,843</u>
December 31, 2019			
Acquisition cost	₩ 2,146	734	2,880
Accumulated depreciation	-	(37)	(37)
Net book value	<u>₩ 2,146</u>	<u>697</u>	<u>2,843</u>

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For the years ended December 31, 2020 and 2019

19. Intangible Assets

(1) Non-financial services business

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

(in millions of Korean won)

	2020						
	Goodwill ¹	Development costs	Industrial property rights	Exclusive rights	Membership / Brand ⁴	Other intangible assets ^{2,3}	Total
Beginning balance	₩ 2,915,165	4,119	34,990	27,365	360,429	206,348	3,548,416
Acquisition	-	-	1,455	380	11,390	68,769	81,994
Transfer	-	(524)	1,688	500	433	10,646	12,743
Changes in scope of consolidation	198,398	12	(5,040)	-	(423)	72,821	265,768
Disposal	-	-	(94)	(52)	(473)	(3,290)	(3,909)
Amortization	-	(2,144)	(5,538)	(9,016)	-	(69,728)	(86,426)
Impairment	(417,768)	-	(4)	(682)	(19)	(37,447)	(455,920)
Other	(2,262)	(1,197)	(58)	-	92	(7,688)	(11,113)
Ending balance	₩ 2,693,534	266	27,399	18,495	371,429	240,431	3,351,553
December 31, 2020							
Acquisition cost	₩ 3,473,695	22,106	34,472	38,838	371,588	503,085	4,443,784
Accumulated amortization	-	(19,728)	(5,521)	(19,661)	-	(173,001)	(217,911)
Government grants	-	-	(4)	-	-	(13)	(17)
Accumulated impairment	(780,162)	(2,112)	(1,548)	(682)	(159)	(89,640)	(874,303)
Net book value	₩ 2,693,533	266	27,399	18,495	371,429	240,431	3,351,553

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 ₩ 417.8 billion of goodwill was recognized as an impairment loss.

² The impairment loss on intangible assets is recognized from customer relationships recognized by the Group at the acquisition of Kakao M Corp. (formerly, LOEN ENTERTAINMENT, INC.). The Group estimated the recoverable amount as of December 31, 2020 and recognized the difference between the recoverable amount and its book value as impairment loss amounting to ₩ 24.7 billion as the Group determined that the recognized customer relationships and future economic benefit are less than

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
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there book value.

³ As of December 31, 2020, the Group owns marketable cryptocurrency of ₩ 1,747 million and non-marketable cryptocurrency of ₩ 4,529 million.

⁴ Brands of ₩ 249,063 million arising from the merger and acquisition with Kakao M Corp. (formerly, LOEN ENTERTAINMENT, INC.) prior to 2019 are included.

(in millions of Korean won)

	2019						
	Goodwill ¹	Development costs	Industrial property rights	Exclusive rights	Membership / Brand	Other intangible assets ^{2,3}	Total
Beginning balance	₩ 3,175,610	8,861	39,467	7,388	356,875	277,064	3,865,265
Acquisition	-	242	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	4,119	34,990	27,365	360,429	206,348	3,548,416
December 31, 2019							
Acquisition cost	₩ 3,302,966	24,592	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)	(1,609)	-	(95)	(56,062)	(447,762)
Net book value	₩ 2,915,165	4,119	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 Group at the acquisition of Kakao M Corp. (formerly, LOEN ENTERTAINMENT, INC.). The Group estimated the recoverable amount as of 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 Group determined that the recognized customer relationships and future economic benefit are less than there book value.

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

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19. Intangible Assets, Continued

(2) Financial services business

Changes in intangible assets for the year ended December 31, 2020 are as follows:

(in millions of Korean won)

	Development costs	Others	Goodwill	Membership	Total
Beginning balance	₩ -	-	-	-	-
Changes in scope of consolidation	19,779	6,223	12,567	697	39,266
Acquisitions	136	748	-	-	884
Amortization	(2,945)	(1,314)	-	(58)	(4,317)
Reclassification	(2,558)	2,759	-	-	201
Ending balance	₩ 14,412	8,416	12,567	639	36,034
December 31, 2020					
Acquisition cost	₩ 17,916	10,115	12,567	711	41,309
Accumulated amortization	(3,504)	(1,699)	-	(72)	(5,275)
Net book value	₩ 14,412	8,416	12,567	639	36,034

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19. Intangible Assets, Continued

The following is a summary of goodwill allocation for cash generating units ("CGU"s) operated by management for the years ended December 31, 2020 and 2019:

(in millions of Korean won)

	2020					Ending balance
	Beginning balance	Increase ¹	Changes in scope of consolidation	Impairment	Other adjustments ²	
Internet portal service and other service	₩ 1,081,856	-	-	-	-	1,081,856
Music service	868,551	-	-	(367,976)	-	500,575
Other mobile service	305,370	88,549	(28,861)	(27,003)	(1,928)	336,127
Game business	36,410	78,425	-	-	-	114,835
Commerce service	277,901	-	-	-	-	277,901
Financial services ³	-	12,567	-	-	-	12,567
Entertainment service	345,077	60,285	-	(22,789)	(334)	382,239
	<u>₩ 2,915,165</u>	<u>239,826</u>	<u>(28,861)</u>	<u>(417,768)</u>	<u>(2,262)</u>	<u>2,706,100</u>

¹ It is the amount increased by the acquisition of shares in 13 companies including XLGAMES Inc. during 2020.

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 2019 because the purchase price allocation amount has been determined in 2020.

³ Goodwill arising from the acquisition of Kakao Pay Securities Co., Ltd., which operates the financial business during 2020.

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For the years ended December 31, 2020 and 2019

19. Intangible Assets, Continued

(in millions of Korean won)

		2019				
	Beginning balance	Increase ¹	Changes in scope of consolidation	Impairment	Other adjustments ²	Ending 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
	<u>₩ 3,175,610</u>	<u>163,124</u>	<u>(10,278)</u>	<u>(374,639)</u>	<u>(38,653)</u>	<u>2,915,165</u>

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.

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Notes to Consolidated Financial Statements, Continued
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19. Intangible Assets, Continued

The Group 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.

	2020			
	Internet portal service and other service¹	Music Service²	Financial services	Other mobile service, game business, commerce service, other contents service, entertainment service and others
Operating income rate	17.5% ~ 23.6%	15.2% ~ 18.0%	(-)36.5% ~ 26.5%	(-)1,028.52% ~ 53.19%
Revenue growth rate	6.4% ~ 13.3%	4.0% ~ 6.4%	16.3% ~ 34.3%	(-)89.43% ~ 3,827.73%
Perpetual growth rate	2.0%	1.0%	1.0%	0.0% ~ 2.0%
After-tax discount rate	10.71%	11.85%	13.6% ~ 15.47 %	9.4% ~ 17.26%

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 4.0%.

If after-tax discount rate applied to the estimation is higher than the management's estimate by 0.5%, the recoverable amount will decrease by 5.4%.

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 3.2%.

If after-tax discount rate applied to the estimation is higher than the management's estimate by 0.5%, the recoverable amount will decrease by 4.3%.

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For the years ended December 31, 2020 and 2019

19. Intangible Assets, Continued

	2019		
	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	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%

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.

As a result of impairment assessment for goodwill, the Group determined that the carrying amount of the music service division and other mobile services and entertainment service cash-generating units will not exceed the recoverable amount. The recoverable amount of the music service cash-generating unit is ₩ 697,436 million.

20. Leases

(1) Non-financial services business

1) Amounts recognized in the consolidated statements of financial position

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

(in millions of Korean won)

	2020		2019	
		₩		₩
Right-of-use assets				
Properties		266,481		179,781
Machinery		73,464		42,242
Vehicles		5,380		5,436
Total		₩ 345,325		₩ 227,459

(in millions of Korean won)

	2020		2019	
		₩		₩
Lease liabilities				
Current		78,895		68,077
Non-current		273,311		164,989
Total		₩ 352,206		₩ 233,066

Additions to the right-of-use assets for the year ended December 31, 2020 is ₩ 184,710 million. (2019: ₩ 83,598 million). The amount does not include any right-of-use asset that have been derecognized due to sublease.

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Notes to Consolidated Financial Statements, Continued
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20. Leases, Continued

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

(in millions of Korean won)

	<u>2020</u>	<u>2019</u>
Depreciation of right-of-use assets		
Properties	₩ 50,996	37,994
Machinery	24,484	15,492
Vehicles	3,341	2,643
Total	<u>₩ 78,821</u>	<u>56,129</u>
Interest expense relating to lease liabilities (included in finance cost)	₩ 7,239	6,370
Expense relating to short-term leases (included in operating expenses)	3,285	11,142
Expense relating to leases of low-value assets that are not short-term leases (included in operating expenses)	1,283	927
Expense relating to variable lease payments not included in lease liabilities (included in operating expenses)	13,808	22,957
Income from subleases of right-of-use assets	3	69

The total cash outflow for leases for the year ended December 31, 2020 is ₩ 96,074 million (2019: ₩ 78,071 million).

3) Changes in lease liabilities

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

(in millions of Korean won)

	<u>2020</u>	<u>2019</u>
Beginning balance	₩ 233,065	-
Changes in accounting policy	-	198,775
Changes in scope of consolidation	80,811	340
Increase	112,586	86,231
Payments	(78,436)	(49,851)
Disposals	(11,349)	-
Amortization	7,239	6,370
Others	8,290	(8,800)
Ending balance	<u>₩ 352,206</u>	<u>233,065</u>

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Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

20. Leases, Continued

(2) Financial services business

1) Amounts recognized in the consolidated statements of financial position

The consolidated statements of financial position show the following amounts relating to leases:
(in millions of Korean won)

	<u>2020</u>
Right-of-use assets	
Properties	₩ 2,949
Vehicles	584
Total	<u>₩ 3,533</u>

(in millions of Korean won)

	<u>2020</u>
Lease liabilities	₩ 3,304

Additions to the right-of-use assets for the year ended December 31, 2020 is ₩ 4,354 million.

2) Amounts recognized in the consolidated statement of comprehensive income

The consolidated statement of other comprehensive income shows the following amounts relating to leases:

(in millions of Korean won)

	<u>2020</u>
Depreciation of right-of-use assets	
Properties	₩ 445
Vehicles	241
Total	<u>₩ 686</u>
Interest expense relating to lease liabilities (included in finance cost)	₩ 85
Expense relating to short-term leases (included in operating expenses)	327
Expense relating to leases of low-value assets that are not short-term leases (included in operating expenses)	263

The total cash outflow for leases for the year ended December 31, 2020 is ₩ 1,340 million.

3) Changes in lease liabilities

Changes in lease liabilities for the year period ended December 31, 2020 are as follows:

(in millions of Korean won)

	<u>2020</u>
Beginning balance	₩ -
Changes in scope of consolidation	1,371
Increase	2,637
Payments	(750)
Amortization	85
Others	(39)
Ending balance	<u>₩ 3,304</u>

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21. Borrowings, Bonds and Lease Liabilities

Short-term borrowings and lease liabilities as of December 31, 2020 and 2019, are as follows:

(in millions of won)

	Lender	Interest rate	Date of maturity	Amount	
				2020	2019
Current portion of long-term borrowings	THE KUMAMOTO DAI-ICHI SHINKIN BANK and others	0.90~4.30%	March 2021~ October 2032	₩ 168	168
Convertible bonds ³	10th non-guarantee private convertible bonds	0.00%	April 2021	18,000	208,400
	Discount on issuance of bonds			(5)	(269)
	Net			17,995	208,131
Public bonds ¹	Public offering (9-2th nonguaranteed public bonds)	2.30%	April 2021	40,000	-
	Discount on issuance of bonds			(8)	-
	Net			39,992	-
Exchangeable bonds ²	11th guaranteed private exchangeable bonds	0.00%	May 2021	-	230,000
	Discount on issuance of bonds			-	(880)
	Net			-	229,120
Loans for operation capital	Employees of subsidiaries	-	-	-	450
Loans for operation capital	NongHyup Bank	2.82%	March 2021	600	-
Loans for operation capital	Shinhan Bank	2.05%~2.62%	January 2021 ~August 2021	12,200	-
Loans for operation capital	Shinhan Bank	2.05%	August 2021	27,000	-
Loans for operation capital	Woori Bank	2.00%~2.26%	February 2021~November 2021	50,694	-
Loans for operation capital	Korea Development Bank	1.91%	January 2021	10,000	-
Loans for operation capital	KB Kookmin Bank	1.92%~3.45%	January 2021 ~September 2022	4,300	7,079
Loans for operation capital	INDUSTRIAL BANK OF KOREA and others	2.56%~5.13%	January 2021 ~September 2021	2,060	-
Redeemable convertible preferred shares				23,410	3,638
	Total			₩ 188,419	448,596

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For the years ended December 31, 2020 and 2019

21. Borrowings, Bonds and Lease Liabilities, Continued

¹ During the year ended December 31, 2020, 9-2th nonguaranteed public bonds are converted into short-term borrowings.

² During the year ended December 31, 2020, 1,743,558 bonds are converted into ordinary shares due to exercise of conversion rights and 51,518 bonds are repaid per redemption request from bondholders.

³ 1,602,873 private convertible bonds issued by the Group were converted into ordinary shares of the Group during year ended December 31, 2020. (Note 27)

Long-term borrowings and long-term lease liabilities as of December 31, 2020 and 2019, are as follows:

(In millions of won)

	Lender	Interest rate	Date of maturity	Amount	
				2020	2019
Public bonds	Public offering (9-2th nonguaranteed public bonds) ²	2.30%	April 2021	₩ -	40,000
	Discount on issuance of bonds			-	(35)
	Net			-	39,965
Exchangeable bonds ³	12th guaranteed private exchangeable bonds	0.00%	April 2023	326,400	-
	Discount on issuance of bonds			(4,639)	-
	Net			321,761	-
Loans for operation capital	THE KUMAMOTO DAI-ICHI SHINKIN BANK and others	2.00%~2.90%	April 2023 ~October 2032	1,172	7,418
Loans for operation capital	KB Kookmin Bank	2.42%	November 2022	4,000	-
Loans for operation capital	Woori Bank	1.83%	July 2023	86	-
Redeemable convertible preferred shares, exchangeable bonds and others ¹				82,782	24,886
	Total			₩ 409,801	72,269

¹ Include ₩ 1,034 million of exchangeable bonds issued by the subsidiary during the year ended December 31, 2020.

² During the year ended December 31, 2020, 9-2th nonguaranteed public bonds are converted into short-term borrowings.

³ In 2020, exchangeable bond amounting to USD 300,000,000 has been issued for exchange of 711,552 shares of the Group.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

21. Borrowings, Bonds and Lease Liabilities, Continued

Movements in the borrowings for the years ended December 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Beginning balance	₩ 520,865	654,475
Changes in scope of consolidation	10,368	7,374
Additions	571,879	364,214
Repayments	(76,921)	(455,502)
Conversion to ordinary shares	(413,800)	(32,600)
Amortization of present value discounts	4,373	1,151
Others ¹	(18,544)	(18,247)
Ending balance	₩ 598,220	520,865

¹ As conversion rights and early redemption rights embedded in the redeemable convertible preferred shares issued by the subsidiary during the years ended December 31, 2020 and 2019 meet the terms of separation of embedded derivatives, they are separately accounted for as derivative liabilities.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

21. Borrowings, Bonds and Lease Liabilities, Continued

Details of exchangeable bonds issued by the Group are as follows:

		Details
Type		12th guaranteed private exchangeable bonds
Principal amount		USD 300 million
Interest rate	Coupon rate	0%
	Yield rate	0%
Date of maturity		April 28, 2023
Redemption at maturity		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 details	Exchange ratio	100%
	Exchange price (in Korean won)	₩ 477,225 (per share)
	Exchange into	Ordinary shares of Kakao Corp.(treasury shares)
	Exchange period	From January 1, 2021 to April 18, 2023 (both inclusive)
	Exchange price adjustments	Subject to adjustment in certain circumstances as described in the agreement
Investor's early redemption right (Put Option)		Until and unless previously redeemed, repurchased and cancelled, or exchanged, on October 28, 2022, 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.
Issuer's early redemption right (Call Option)		The Company may, at its option at any time on or after April 28, 2022, until the 30 th 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.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

21. Borrowings, Bonds and Lease Liabilities, Continued

Details of convertible bonds issued by the Group are as follows:

		Detail
Type		10 th non-guaranteed private convertible bonds
Principal amount		₩ 18,000 million
Interest rate	Coupon rate	0%
	Yield rate	0%
Date of maturity		April 14, 2021
Redemption at maturity		The bonds to be redeemed at their principal amount with 0% of yield to maturity on the maturity date
Conversion details	Conversion ratio	100%
	Conversion price (in Korean won)	₩ 118,786 (per share)
	Conversion into	Ordinary shares of Kakao Corp.
	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 redemption right (Put Option)		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.

The entire amount of financial instruments was accounted for liability as the event of default of the convertible bonds is considered contingent settlement provisions. During 2020, convertible bond of ₩ 190,226 million (principal amount of ₩ 190,400 million) has been converted into ordinary shares (Note 27).

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

21. Borrowings, Bonds and Lease Liabilities, Continued

Details of redeemable convertible preferred shares issued by subsidiaries as of December 31, 2020, are as follows:

	Issuers		
	Friendsgames Co.,Ltd. ¹	TNK Factory (Series 1) ¹	TNK Factory (Series 2)
Date of issue	May 4, 2018	April 9, 2019	April 9, 2019
Value at issue <i>(in millions of Korean won)</i>	₩ 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	a) 1 preferred share for 1 ordinary share b) anti-dilution <i>(includes certain adjustments in IPO offering price)</i>	a) 1 preferred share for 1 ordinary share b) anti-dilution <i>(includes certain adjustments in IPO offering price)</i>	a) 1 preferred share for 1 ordinary share b) anti-dilution <i>(includes certain adjustments in IPO offering price)</i>
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
		Issuers	
	INBYU.	Kakao VX¹	Life MMO Corp. ¹
Date of issue	February 25, 2019 / March 26, 2019	February 10, 2020	February 24, 2020 / March 17, 2020
Value at issue <i>(in millions of Korean won)</i>	₩ 1,000	₩ 20,000	₩ 9,145
Dividend rate for preferred shares	0.1% of issue value	1% of issue value	-
Guaranteed yield upon redemption	6%	2%	5%
Conversion period	From the day after issuance date to the day before 10 years from issuance date	From one year after issuance date to the five days before 10 years from one year after issuance date	From the day after issuance date to 5 years from issuance date
Conversion rate	a) 1 preferred share for 1 ordinary share b) anti-dilution	a) 1 preferred share for 1 ordinary share b) anti-dilution <i>(includes certain adjustments in IPO offering price)</i>	a) 1 preferred share for 1 ordinary share b) anti-dilution <i>(includes certain adjustments in IPO offering price)</i>
Redemption period	Redeemable from three years after issuance date	Redeemable from four years after issuance date to ten years after issuance date	Redeemable from one year after issuance date

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

21. Borrowings, Bonds and Lease Liabilities, Continued

	Issuers	
	Kakao VX^{1,2}	Kakao VX^{1,2}
Date of issue	October 4, 2018	December 3, 2018
Value at issue <i>(in millions of Korean won)</i>	₩ 3,996	₩ 4,000
Dividend rate for preferred shares	1% of issue value	1% of issue value
Guaranteed yield upon redemption	2%	2%
Conversion period	From the issuance date to the day of 10 years from issuance date a) 1 preferred share for 1 ordinary share b) anti-dilution	From the issuance date to the day of 10 years from issuance date a) 1 preferred share for 1 ordinary share b) anti-dilution
Conversion rate	(includes certain adjustments in IPO offering price)	(includes certain adjustments in IPO offering price)
Redemption period	From February 11, 2024 to October 1, 2028	From February 11, 2024 to December 3, 2028

¹ As of December 31, 2020, 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 ₩ 37,307 million are separately recognized.

² Changed from convertible preferred shares into redeemable convertible preferred shares during the year ended December 31, 2020.

Other than the above redeemable convertible preferred shares, Kids Note Co., Ltd. and others, subsidiaries, have issued six redeemable convertible preferred shares as of December 31, 2020 and they are recognized as ₩ 25,753 million of short-term and long-term borrowings.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

22. Net Defined Benefit Liabilities

- Non-financial services business

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

<i>(in millions of Korean won)</i>	2020	2019
Present value of funded defined benefit obligation	₩ 184,715	142,558
Fair value of plan assets	(174,402)	(139,003)
Liability in the consolidated statements of financial position	<u>₩ 10,313</u>	<u>3,555</u>

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

<i>(in millions of Korean won)</i>	2020	2019
Beginning balance	₩ 142,558	102,630
Increase due to change in scope of consolidation	6,234	5,505
Current service cost	45,636	36,487
Past service cost	1,069	-
Interest cost	3,526	2,946
Remeasurement:		
Actuarial loss from change in demographic assumptions	(2,128)	2,420
Actuarial loss (gain) from change in financial assumptions	(2,567)	947
Actuarial loss from experience adjustments	4,942	5,399
Benefits paid	(12,930)	(13,779)
Transfer from affiliated companies	3,561	-
Others	(5,186)	2
Ending balance	<u>₩ 184,715</u>	<u>142,558</u>

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

<i>(in millions of Korean won)</i>	2020	2019
Beginning balance	₩ 139,003	99,808
Increase due to change in scope of consolidation	(719)	205
Interest income	3,079	1,933
Contribution	43,865	48,976
Payments from plans	(10,401)	(11,129)
Transfer from affiliated companies	2,981	-
Remeasurement:		
Revenue from plan assets(excluding amounts included in interest income)	(682)	(791)
Others	(2,724)	-
Ending balance	<u>₩ 174,402</u>	<u>139,003</u>

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

22. Net Defined Benefit Liabilities, Continued

- Non-financial services business, Continued

The amounts recognized in the consolidated statements of comprehensive income for the years ended December 31, 2020 and 2019 are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Current service cost	₩ 45,636	36,487
Past service cost	1,069	-
Net interest cost	448	1,013
Total	<u>₩ 47,153</u>	<u>37,500</u>

Total service cost from defined benefit plan amounting to ₩ 47,153 million and ₩ 37,500 million is included in operating expenses for the years ended December 31, 2020 and 2019, respectively. In addition, total service cost from defined contribution plan was ₩ 5,700 million and ₩ 2,217 million for the years ended December 31, 2020 and 2019, respectively.

Principal assumptions on actuarial valuation as of December 31, 2020 and 2019 are as follows:

	2020	2019
Discount rate	2.0% ~ 3.7%	2.1% ~ 3.5%
Salary growth rate	4.0% ~ 7.0%	2.5% ~ 7.5%

The sensitivity analysis of the defined benefit obligations as of December 31, 2020 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	1%	20.7% decrease	23.5% increase
Salary growth rate	1%	23.3% increase	20.7% decrease

The Group 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.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

22. Net Defined Benefit Liabilities, Continued

- Non-financial services business, Continued

Plan assets as of December 31, 2020 and 2019 consist of the following:

<i>(in millions of Korean won)</i>	2020	2019
Equity linked bond	₩ 12,740	12,448
Time deposits	35,355	38,990
Debt instruments	-	201
Financial instruments with fixed rate	76,672	65,179
Interest guarantee insurance	15,814	21,567
Others	33,821	618
Total	<u>₩ 174,402</u>	<u>139,003</u>

Expected contributions to post-employment benefit plans for the year ended December 31, 2021 are ₩ 50,383 million.

The weighted average duration of the defined benefit obligation is 4.21 ~ 12.30 years.

The Group annually reviews the level of fund accumulated in the plan and operates a policy to compensate for any deficit in the fund.

- Financial services business

Net defined benefit liabilities recognized in the consolidated statements of financial position as of December 31, 2020 is as follows:

<i>(in millions of Korean won)</i>	2020
Present value of funded defined benefit obligation	₩ 432
Fair value of plan assets	(240)
Liability in the consolidated statements of financial position	<u>₩ 192</u>

Changes in the defined benefit obligations for the year ended December 31, 2020 is as follows:

<i>(in millions of Korean won)</i>	2020
Beginning balance	₩ -
Current service cost	193
Past service cost	198
Interest cost	4
Remeasurement:	
Actuarial loss (gain) from change in financial assumptions	(34)
Benefits paid	-
Transfer from affiliated companies	71
Ending balance	<u>₩ 432</u>

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

22. Net Defined Benefit Liabilities, Continued

- Financial services business, Continued

Changes in the fair value of plan assets for the year ended December 31, 2020 is as follows:

<i>(in millions of Korean won)</i>	2020
Beginning balance	₩ -
Interest income	2
Contribution	238
Payments from plans	-
Remeasurement:	
Revenue from plan assets(excluding amounts included in interest income)	-
Ending balance	<u>₩ 240</u>

The amounts recognized in the consolidated statements of comprehensive income for the year ended December 31, 2020 is as follows:

<i>(in millions of Korean won)</i>	2020
Current service cost	₩ 193
Past service cost	198
Net interest cost	3
Total	<u>₩ 394</u>

Total service cost from defined benefit plan amounting to ₩ 394 million is included in operating expenses for the year ended December 31, 2020.

Principal assumptions on actuarial valuation as of December 31, 2020 is as follows:

	2020
Discount rate	3.09%
Salary growth rate	5.00%

The sensitivity analysis of the defined benefit obligations as of December 31, 2020 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	1%	6.5% decrease	7.4% increase
Salary growth rate	1%	7.6% increase	6.7% decrease

The Group 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.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

22. Net Defined Benefit Liabilities, Continued

- Financial services business, Continued

Plan assets as of December 31, 2020 consist of the following:

<i>(in millions of Korean won)</i>	2020
Interest guarantee insurance	₩ 240

Expected contributions to post-employment benefit plans for the year ending December 31, 2021, is ₩ 398 million.

The weighted average duration of the defined benefit obligation is 7.58 years.

The Group annually reviews the level of fund accumulated in the plan and operates a policy to compensate for any deficit in the fund.

23. Other Long-term Employee Benefits Liabilities

- Non-financial services business

Changes in other long-term employee benefits liabilities for the years ended December 31, 2020 and 2019 are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Beginning balance	₩ 43,592	40,156
Increase due to change in scope of consolidation	777	36
Current service cost	13,461	13,049
Interest cost	728	787
Remeasurement of the benefit liabilities	(3,747)	(3,021)
Benefits paid	(843)	(7,415)
Transfer from affiliated companies	(80)	-
Others	(56)	-
Ending balance	₩ 53,832	43,592

The amounts recognized on the consolidated statements of comprehensive income for the years ended December 31, 2020 and 2019 are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Current service cost	₩ 13,462	13,049
Interest cost	728	787
Remeasurement of the benefit liabilities	(3,747)	(3,021)
Total	₩ 10,443	10,815

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

23. Other Long-term Employee Benefits Liabilities, Continued

- Non-financial services business, Continued

Principal assumptions on actuarial valuation in relation to other long-term employee benefits liabilities for the years ended December 31, 2020 and 2019 are as follows:

	<u>2020</u>	<u>2019</u>
Discount rate	0.2% ~ 2.8%	1.8% ~ 2.8%
Salary growth rate	3.5% ~ 6.0%	4.0% ~ 7.5%

- Financial services business

Changes in other long-term employee benefits liabilities for the year ended December 31, 2020 is as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>
Beginning balance	₩ -
Current service cost	291
Interest cost	2
Remeasurement of the benefit liabilities	(29)
Ending balance	<u>₩ 264</u>

The amounts recognized on the consolidated statements of comprehensive income for the year ended December 31, 2020 is as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>
Current service cost	₩ 291
Interest cost	2
Remeasurement of the benefit liabilities	(29)
Total	<u>₩ 264</u>

Principal assumptions on actuarial valuation in relation to other long-term employee benefits liabilities for the year ended December 31, 2020 is as follows:

	<u>2020</u>
Discount rate	2.3%
Salary growth rate	5.0%

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

24. Income Tax Expense and Deferred Tax

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

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Current tax:		
Current tax on profit for the year	₩ 180,358	99,410
Adjustments due to changes in estimates related to prior years	(2,014)	1,846
Current tax charged directly to equity	10,872	-
	<u>189,216</u>	<u>101,256</u>
Deferred tax:		
Changes in temporary differences	116,923	(15,159)
Increase (decrease) in temporary differences due to change in scope of consolidation	(15,308)	(209)
Deferred tax charged or credited directly to equity	(49,919)	21,780
	<u>51,696</u>	<u>6,412</u>
Income tax expense	<u>₩ 240,912</u>	<u>107,668</u>

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, 2020 and 2019 follows:

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Profit (loss) before income tax	₩ 414,271	(234,257)
Income tax expense computed at statutory tax rate	100,254	(56,690)
Adjustments:		
Non-taxable income	(53,044)	(4,003)
Non-deductible expenses	51,819	6,892
Changes in valuation allowance of deferred income tax asset	146,572	169,418
Adjustments due to changes in estimates related to prior years	(2,014)	1,846
Effects of the tax system for recirculation of corporate income	894	(7,999)
Tax credits	(3,569)	(1,795)
Income tax expense	<u>₩ 240,912</u>	<u>107,668</u>

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

24. Income Tax Expense and Deferred Tax, Continued

Income tax effects related to components of other comprehensive income (expenses) for the years ended December 31, 2020 and 2019 are as follows:

<i>(in millions of Korean won)</i>	2020		
	Before tax	Tax effect	After tax
Other comprehensive income (expense):			
Gain on valuation of equity instruments at fair value through other comprehensive income	₩ 207,833	(50,296)	157,537
Remeasurement of the net defined benefit liabilities	(1,797)	435	(1,362)
Share of other comprehensive income of associates	741	(59)	682
	<u>₩ 206,777</u>	<u>(49,920)</u>	<u>156,857</u>

<i>(in millions of Korean won)</i>	2019		
	Before tax	Tax effect	After tax
Other comprehensive income (expense):			
Gain on valuation of equity instruments at fair value through other comprehensive income	₩ (702)	170	(532)
Remeasurement of the net defined benefit liabilities	(8,511)	2,060	(6,452)
Share of other comprehensive income of associates	(4,679)	1,132	(3,547)
	<u>₩ (13,893)</u>	<u>3,362</u>	<u>(10,531)</u>

The aggregate current and deferred tax relating to items that are reflected directly to equity for the years ended December 31, 2020 and 2019, is as follows:

<i>(in millions of Korean won)</i>	2020		
	Before tax	Tax effect	After tax
Other reserves:			
Goodwill (investment in kind)	₩ -	-	-
Consideration for exchange option	(44,927)	10,872	(34,055)

<i>(in millions of Korean won)</i>	2019		
	Before tax	Tax effect	After tax
Other reserves:			
Goodwill (investment in kind)	₩ 83,720	(18,418)	65,302
Consideration for exchange option	-	-	-

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

24. Income Tax Expense and Deferred Tax, Continued

Deferred tax assets (liabilities) recognized in the consolidated statements of financial position as of December 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Deferred tax assets		
Deferred tax assets to be recovered after more than 12 months	₩ 26,622	152,477
Deferred tax assets to be recovered within 12 months	185,915	28,056
	<u>212,537</u>	<u>180,533</u>
Deferred tax liabilities		
Deferred tax liabilities to be settled after more than 12 months	(407,849)	(257,222)
Deferred tax liabilities to be settled within 12 months	(1,965)	(3,664)
	<u>(409,814)</u>	<u>(260,886)</u>
Deferred tax liabilities, net	<u>₩ (197,277)</u>	<u>(80,353)</u>

The gross movement in the deferred tax assets (liabilities) for the years ended December 31, 2020 and 2019 are as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Beginning balance	₩ (80,353)	(95,513)
Changes in accounting policies	-	-
Changes in scope of consolidation	(15,308)	(209)
Deferred income tax charged to profit or loss	(51,696)	(6,412)
Deferred income tax charged to other comprehensive income	(49,920)	3,362
Deferred income tax charged to other equity	-	18,418
Ending balance	<u>₩ (197,277)</u>	<u>(80,353)</u>

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

24. Income Tax Expense and Deferred Tax, Continued

Changes in deferred income tax assets and liabilities for the years ended December 31, 2020 and 2019 without taking into consideration the offsetting of balances within the same tax jurisdiction are as follows:

(in millions of Korean won)

	2020					
	Beginning balance	Changes in scope of consolidation	Statement of profit or loss	Other comprehensive income	Other equity	Ending balance
Deferred tax liabilities						
Accrued revenue	₩ (446)	-	(1,261)	-	-	(1,707)
Property and equipment	(7,530)	-	304	-	-	(7,226)
Intangible assets	(149,602)	(16,745)	50,775	-	-	(115,572)
Financial assets at fair value through profit or loss	(16,719)	-	(9,308)	-	-	(26,027)
Financial assets at fair value through other comprehensive income	(3,307)	-	-	(50,295)	-	(53,602)
Plan assets	(22,735)	-	(8,592)	-	-	(31,327)
Derivative instruments	(3,219)	-	2,962	-	-	(257)
Lease	(28,106)	-	(41,317)	-	-	(69,423)
Investments in subsidiaries and associates	(8,707)	-	(73,731)	(59)	-	(82,497)
Others	(20,514)	-	(1,661)	-	-	(22,175)
	<u>(260,886)</u>	<u>(16,745)</u>	<u>(81,829)</u>	<u>(50,354)</u>	<u>-</u>	<u>(409,814)</u>
Deferred tax assets						
Property and equipment	2,663	10	(414)	-	-	2,259
Advances from customers	11,317	-	(1,646)	-	-	9,671
Intangible assets	2,979	-	2,496	-	-	5,475
Allowance for doubtful accounts	4,532	-	(82)	-	-	4,450
Other payables	9,325	36	7,590	-	-	16,951
Provisions	7,526	-	(3,167)	-	-	4,359
Government grants	137	-	(113)	-	-	24
Defined benefit liabilities	23,409	95	10,128	434	-	34,066
Other long-term employee benefits liabilities	16,745	8	6,726	-	-	23,479

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

(in millions of Korean won)

	2020					
	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	1,210	-	23	-	-	1,233
Financial assets at fair value through other comprehensive income	1,399	-	306	-	-	1,705
Derivative instruments	2,746	31	(695)	-	-	2,082
Lease	30,411	-	41,277	-	-	71,688
Goodwill	57,186	-	(48,459)	-	-	8,727
Others	8,949	1,257	16,163	-	-	26,369
	180,533	1,437	30,133	434	-	212,537
Deferred tax assets (liabilities), net	₩ (80,353)	(15,308)	(51,696)	(49,920)	-	(197,277)

(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
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)	-	669	-	-	(20,514)
	(235,429)	(209)	(26,331)	1,083	-	(260,886)

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	2019					Ending balance
	Beginning balance	Changes in scope of consolidation	Statement of profit or loss	Other comprehensive income	Other equity	
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)	-	-	9,325
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
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)

The Group did not recognize deferred income tax asset of ~~₩~~ 83,774 million as of December 31, 2020, related to the investments in subsidiaries and associates considering the possibility of realization. As of December 31, 2020, the deferred tax assets of unrecognized deductible temporary differences arising from subsidiaries' net loss carryforwards and others amount to ~~₩~~ 65,452 million.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

25. Provisions

- Non-financial services business

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

(in millions of Korean won)

	2020					
	Beginning balance	Changes in scope of consolidation	Increase	Decrease	Foreign currency exchange rate differences	Ending balance
Current						
Provision for mileage	₩ 587	-	525	(560)	-	552
Provision for restoration	53	-	58	(53)	-	58
Provision for returns	781	-	999	(615)	-	1,165
Provision for litigation ¹	2,649	-	-	(2,649)	-	-
Other provisions	3,011	-	10,401	(9,271)	(58)	4,083
	<u>7,081</u>	<u>-</u>	<u>11,983</u>	<u>(13,148)</u>	<u>(58)</u>	<u>5,858</u>
Non-current						
Provision for restoration	14,844	261	5,874	(1,363)	(22)	19,594
	<u>₩ 21,925</u>	<u>261</u>	<u>17,857</u>	<u>(14,511)</u>	<u>(80)</u>	<u>25,452</u>

¹ In 2020, ₩ 2,649 million of litigation provision was reversed as Kakao VX Co., Ltd. won the second trial.

(in millions of Korean won)

	2019				
	Beginning balance	Changes in scope of consolidation	Increase	Decrease	Ending balance
Current					
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
	<u>3,636</u>	<u>-</u>	<u>4,388</u>	<u>(943)</u>	<u>7,081</u>
Non-current					
Provision for restoration	7,611	(100)	7,362	(28)	14,844
	<u>₩ 11,246</u>	<u>(100)</u>	<u>11,750</u>	<u>(972)</u>	<u>21,924</u>

¹ In 2019, 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 Group recognized indemnification payable of ₩ 2,649 million as a provision for litigation.

- Financial services business

Changes in provisions for the year ended December 31, 2020 is as follows:

(in millions of Korean won)

	2020				
	Beginning balance	Changes in scope of consolidation	Increase	Interest expense	Ending balance
Provision for restoration	₩ -	44	184	1	229

KAKAO CORP. AND SUBSIDIARIES
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For the years ended December 31, 2020 and 2019

26. Derivative Financial Instruments

The carrying amounts of derivative financial assets, liabilities and commitments as of December 31, 2020 and 2019, are as follows:

(a) Derivative financial assets

<i>(in millions of Korean won)</i>	2020	2019
Call option (Tide Square Co., Ltd.)	₩ 94	894
Others	218	217
	<u>₩ 312</u>	<u>1,112</u>

(b) Derivative financial liabilities

<i>(in millions of Korean won)</i>	2020	2019
Redemption right and conversion right (Kakao VX) ¹	₩ 20,208	6,876
Redemption right and conversion right (Friendsgames Co., Ltd.) ²	7,936	7,537
Redemption right and conversion right (TNK Factory) ³	1,714	3,877
Put option (NeoBazar Inc.)	682	24
Redemption right and conversion right (stagefive Co., Ltd.) ⁴	-	7,347
Early redemption right and conversion right (Life MMO Corp.) ⁵	5,149	-
Convertible bond's early redemption right (XLGAMES Inc.) ⁶	117	-
Share options (ALIPAY SINGAPORE HOLDING PTE. LTD.) ⁷	2,000	-
	<u>₩ 37,806</u>	<u>25,662</u>

¹ Redemption right and conversion right granted to redeemable convertible preferred shares issued by Kakao VX (Note 21).

² Redemption right and conversion right granted to redeemable convertible preferred shares issued by Friendsgames Co.,Ltd. (Note 21).

³ Redemption right and conversion right granted to redeemable convertible preferred shares issued by TNK Factory (Note 21).

⁴ It relates to redemption right and conversion right granted to the redeemable convertible preferred shares issued by stagefive Co., Ltd. The entire amount was derecognized as stagefive Co., Ltd. was excluded from the scope of consolidation in 2020.

⁵ Redemption right and conversion right granted to redeemable convertible preferred shares issued by Life MMO Corp.(Note 21).

⁶ Redemption right and conversion right granted to convertible bonds issued by XLGAMES Inc. (Note 21).

⁷ Under the stock purchase agreement entered between Kakaopay Corp., a subsidiary, and ALIPAY SINGAPORE HOLDING PTE. LTD., ALIPAY SINGAPORE HOLDING PTE. LTD. can acquire 444,533 common shares issued by Kakaopay Corp. for USD 18,090,906.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

27. Share Capital and Share Premium

As of December 31, 2020, the Parent Company's total number of authorized shares is 150 million and the total number of issued and outstanding ordinary shares are 88,601,998 shares and 88,501,998 shares, 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 Group, with the resolution of special shareholders meeting or board of directors up to 15% of total number of issued stocks. As of December 31, 2020, the number of outstanding stock options among granted is 2,170,666 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 ₩ 500 billion to investors other than current shareholders, with the resolution of the board of directors. As of December 31, 2020, the Parent Company has issued convertible bonds amounting to ₩ 18,000 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 of December 31, 2020.

Changes in share capital and additional paid-in capital during the years ended December 31, 2020 and 2019 are as follows:

<i>(in millions of Korean won, except number of shares)</i>		Number of ordinary shares (in shares)	Share capital	Additional paid-in capital	Total
Description					
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
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	<u>86,322,636</u>	<u>₩ 43,161</u>	<u>5,346,415</u>	<u>5,389,576</u>
At January 1, 2020	Beginning balance	86,322,636	₩ 43,161	5,346,415	5,389,576

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<i>(in millions of Korean won, except number of shares)</i>		Number of ordinary shares (in shares)	Share capital	Additional paid-in capital	Total
	Description				
At January 3, 2020	Exercise of conversion right	92,603	46	10,940	10,986
At January 17, 2020	Exercise of conversion right	84,185	42	9,945	9,988
At January 21, 2020	Exercise of stock options	51,685	26	4,495	4,521
At January 31, 2020	Exercise of conversion right	84,185	42	9,946	9,988
At February 7, 2020	Exercise of conversion right	8,418	4	995	999
At February 14, 2020	Exercise of conversion right	8,418	4	995	999
At February 21, 2020	Exercise of conversion right	159,950	80	18,882	18,962
At February 25, 2020	Exercise of stock options	27,730	14	2,735	2,749
At February 28, 2020	Exercise of conversion right	92,603	46	10,942	10,988
At March 6, 2020	Exercise of conversion right	42,092	21	4,973	4,994
At March 23, 2020	Exercise of stock options	82,670	41	8,104	8,145
At April 10, 2020	Exercise of conversion right	16,837	8	1,990	1,998
At April 20, 2020	Exercise of stock options	95,630	48	9,395	9,443
At May 8, 2020	Exercise of conversion right	42,092	21	4,974	4,995
At May 8, 2020	Exercise of conversion right	5,051	3	596	599
At May 8, 2020	Exercise of conversion right	42,092	21	4,974	4,995
At May 15, 2020	Exercise of conversion right	126,277	63	14,923	14,986
At May 15, 2020	Exercise of conversion right	16,837	8	1,990	1,998
At May 22, 2020	Exercise of conversion right	42,092	21	4,974	4,995
At May 25, 2020	Exercise of stock options	129,289	65	13,178	13,243
At May 29, 2020	Exercise of conversion right	6,734	3	796	799
At May 29, 2020	Exercise of conversion right	84,185	42	9,949	9,991
At May 29, 2020	Exercise of conversion right	168,370	84	19,878	19,962
At May 29, 2020	Exercise of conversion right	25,255	13	2,984	2,997
At May 29, 2020	Exercise of conversion right	42,092	21	4,975	4,996
At June 22, 2020	Exercise of stock options	46,150	23	5,186	5,209
At July 10, 2020	Exercise of conversion right	84,185	42	9,950	9,992
At July 17, 2020	Exercise of conversion right	42,092	21	4,975	4,996
At July 20, 2020	Exercise of stock options	41,560	21	4,402	4,423
At August 24, 2020	Exercise of stock options	20,530	10	2,547	2,557
At September 4, 2020	Exercise of conversion right	33,674	17	3,981	3,998
At September 11, 2020	Exercise of conversion right	84,185	42	9,944	9,986
At September 16, 2020	Exercise of stock options	95,435	48	12,583	12,631
At October 23, 2020	Exercise of stock options	31,785	16	4,029	4,045
At November 20, 2020	Exercise of stock options	30,675	15	3,896	3,911
At November 27, 2020	Exercise of conversion right	126,277	63	14,927	14,990
At December 11, 2020	Exercise of conversion right	42,092	21	4,976	4,997
At December 18, 2020	Exercise of stock options	23,350	14	3,176	3,190
At December 31, 2020	Ending balance	<u>88,601,998</u>	<u>₩ 44,301</u>	<u>5,609,516</u>	<u>5,653,817</u>

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				
Stocks issued (in shares)	Par value (in Korean won)	Total par value	Share capital	Difference
88,501,998	₩ 500	44,251	44,301	50

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27. Share Capital and Share Premium, Continued

Due to the request for conversion of foreign exchangeable bonds issued by the Parent Company before 2019, 1,743,558 treasury shares of the Parent Company were disposed of (Note 38). As a result, treasury shares decreased from 4,233,492 shares to 2,489,934 shares as of December 31, 2020.

28. Share-based compensation

Details of the Parent Company's stock options as of December 31, 2020, 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:
 - 16th tranches : The requisite service period is two years, exercisable from two to seven years after grant date.
 - 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:
 - 3rd – 5th 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. If the average price of the shares exceeds 200% of exercise price, all options granted are exercisable after two years.
 - 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.

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28. Share-based compensation, Continued

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. If the average price of the shares exceeds 200% of exercise price, all options granted are exercisable after two years.

(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, 29th, 31th, 32th 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, 30th 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.

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29. Share-based compensation, Continued

Details of the Parent Company's equity-settled stock options outstanding as of December 31, 2020, are as follows:

Tranche	Grant date	Exercise price (in Korean won)	Number of shares (in shares)				Outstanding as of December 31, 2020	Exercisable as of December 31, 2020
			Outstanding as of January 1, 2020	Granted	Forfeited	Exercised		
13 th	August 31, 2012	₩ 12,857	1,000	-	-	1,000	-	-
16 th	March 28, 2013	32,143	11,165	-	-	11,165	-	-
18 th	March 2, 2017	85,350	226,550	-	-	158,935	67,615	67,615
19 th	March 2, 2017	85,350	331,000	-	10,000	151,000	170,000	170,000
20 th	March 17, 2017	84,650	50,000	-	-	50,000	-	-
21 st	May 2, 2017	88,600	211,690	-	3,750	146,604	61,336	61,336
22 nd	September 28, 2017	131,500	36,500	-	2,250	18,330	15,920	15,920
23 ^d	September 28, 2017	131,500	15,000	-	-	15,000	-	-
24 th	August 31, 2018	123,380	271,000	-	15,750	71,455	183,795	56,170
25 th	August 31, 2018	123,380	190,000	-	20,000	53,000	117,000	117,000
26 th	October 31, 2018	100,580	120,000	-	-	-	120,000	120,000
27 th	May 16, 2019	124,400	125,000	-	28,000	-	97,000	-
28 th	May 16, 2019	124,400	380,000	-	8,000	-	372,000	-
29 th	February 25, 2020	177,750	-	68,000	-	-	68,000	-
30 th	May 06, 2020	173,050	-	720,000	7,000	-	713,000	-
31 st	May 06, 2020	173,050	-	175,000	-	-	175,000	-
32 nd	September 24, 2020	376,190	-	10,000	-	-	10,000	-
			<u>1,968,905</u>	<u>973,000</u>	<u>94,750</u>	<u>676,489</u>	<u>2,170,666</u>	<u>608,041</u>

In addition to the aforementioned stock options, the Group 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., Kidsnote inc, Friendsgames Co.,Ltd. XLGAMES Inc., Life MMO Corp., Kakao Enterprise Corp., starship entertainment co.,ltd, GRAYGO CORP., FLEX M Corp, KAKAO BRAIN Corp., Daon Creative inc and Kakaopay Corp.

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28. Share-based compensation, Continued

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 option at grant date (in Korean won)	Stock price at grant date (in Korean won)	Expected volatility ¹	Expected dividends	Expected maturity	Risk free Interest rate
13 th	₩ 6,090	20,000	40%	0%	3 years	2.76%
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%	0.16%	2~3 years	2.18%
27 th	10,745	133,500	12%	0.10%	2~4 years	1.80%
28 th	29,998	133,500	12%	0.10%	2~4 years	1.80%
29 th	30,605	185,500	9%	0.07%	2~4 years	1.40%
30 th	48,767	199,500	11%	0.06%	2~4 years	1.40%
31 st	20,829	199,500	11%	0.06%	2~4 years	1.40%
32 nd	48,217	352,000	34%	0.04%	2~4 years	1.40%

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 of December 31, 2020, are as follows:

(In Korean won, except number of shares)

Tranche	Grant date	Exercise price	Number of shares (in shares)				Outstanding as of December 31, 2020	Exercisable as of December 31, 2020
			Outstanding as of January 1, 2020	Granted	Cancelled	Exercised		
3 rd	May 2, 2017	₩ 88,600	3,500	-	-	3,000	500	500
4 th	September 28, 2017	131,500	500	-	-	500	-	-
5 th	August 31, 2018	123,380	5,000	-	-	1,000	4,000	1,500
6 th	August 31, 2018	123,380	14,500	-	-	10,500	4,000	4,000
7 th	May 16, 2019	124,400	3,000	-	-	-	3,000	-
8 th	May 16, 2019	124,400	10,000	-	-	-	10,000	-
			36,500	-	-	15,000	21,500	6,000

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

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28. Share-based compensation, Continued

The fair value of the Group'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, 2020 and 2019 are as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Equity-settled stock option ¹	₩ 34,243	21,444
Cash-settled stock option ²	9,073	(740)
	<u>₩ 43,316</u>	<u>20,704</u>

¹ Amounts for 2020 include ₩ 15,800 million (2019: ₩ 11,083 million) of share-based compensation recognized as expenses for the shares of subsidiaries.

² Amounts for 2020 include ₩ 1,336 million (2019: ₩ 1,440 million) of share-based compensation recognized as expenses for the shares of subsidiaries.

30. Other Components of Equity

Other components of equity as of December 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Other capital adjustments	₩ (5,430)	(5,430)
Treasury shares	(1,034)	(1,034)
Losses on disposal of treasury shares	(2,719)	(5,941)
Stock options	27,800	19,643
	<u>₩ 18,617</u>	<u>7,238</u>

As of December 31, 2020, the Parent Company holds 2,489,934 shares of treasury shares in the amount of ₩ 1,033 million recognized as other components of equity.

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31. Accumulated Other Comprehensive Income

Accumulated other comprehensive income as of December 31, 2020 and 2019, consists of:

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Translation adjustments, net of tax	₩ 9,653	6,637
Shares of other comprehensive income (loss) of associates, net of tax	(2,861)	(3,810)
Equity instruments at fair value through accumulated other comprehensive income, net of tax	89,979	(9,283)
Remeasurement of defined benefit obligation, net of tax	(11,320)	(10,463)
Revaluation surplus	1,126	526
	<u>₩ 86,577</u>	<u>(16,393)</u>

Changes in accumulated other comprehensive income for the years ended December 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	January 1, 2020	Increase (Decrease)	Reclassification to retained earnings	December 31, 2020
Translation adjustments, net of tax	₩ 6,637	3,016	-	9,653
Shares of other comprehensive income (loss) of associates, net of tax	(3,810)	949	-	(2,861)
Equity instruments at fair value through accumulated other comprehensive income, net of tax	(9,283)	121,991	(22,729)	89,979
Remeasurement of defined benefit obligation, net of tax	(10,463)	(857)	-	(11,320)
Revaluation surplus	526	830	(230)	1,126
	<u>₩ (16,393)</u>	<u>125,929</u>	<u>(22,959)</u>	<u>86,577</u>

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

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30. Accumulated Other Comprehensive Income, Continued

<i>(in millions of Korean won)</i>	January 1, 2019	Increase (Decrease)	Reclassificatio n to retained earnings	December 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
	<u>₩ (7,329)</u>	<u>(3,256)</u>	<u>(5,809)</u>	<u>(16,393)</u>

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

31. Retained Earnings

Retained earnings as of December 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Legal reserve ¹	₩ 14,353	8,432
Retained earnings before appropriation	301,972	139,722
	<u>₩ 316,325</u>	<u>148,154</u>

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

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32. Operating Expenses

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

(in millions of Korean won)

	<u>2020</u>	<u>2019</u>
Salaries	₩ 711,213	538,486
Retirement benefit expense	53,089	39,717
Compensation cost of share-based payments	43,316	20,704
Welfare	104,318	88,776
Travel and transportation expense	6,973	12,106
Taxes and dues	8,647	6,667
Rental expense	11,228	9,363
Commission	457,680	360,117
Sales-related expenses	1,460,398	1,114,840
Cost of goods sold	286,046	253,129
Advertising expense	230,229	146,176
Depreciation	171,605	139,125
Amortization	90,742	79,679
Expenses for events	2,045	5,073
Bad debt expenses	2,943	1,811
Others	60,489	47,556
	<u>₩ 3,700,961</u>	<u>2,863,325</u>

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33. Other Non-Operating Income and Expenses

Details of other non-operating income and expenses for the years ended December 31, 2020 and 2019 are as follows:

(in millions of Korean won)

	2020	2019
Other non-operating income		
Gain on disposal of property and equipment	₩ 15,227	2,688
Gain on disposal of intangible assets	2,622	7,882
Gain on disposal of equity method investments	223,947	50,973
Gain on disposal of investments in subsidiaries	87,081	612
Gain on foreign currency transactions	2,252	1,523
Gain on foreign currency translation	523	861
Miscellaneous income	19,910	7,796
Rent income	265	293
Reversal of allowance for doubtful accounts (non-operating income)	30	62
Reversal of impairment loss on intangible assets	74	341
Gains on bargain purchase	-	694
Reversal of provision for restoration	421	28
	<u>₩ 352,352</u>	<u>73,755</u>
Other non-operating expenses		
Loss on disposal of property and equipment	₩ 5,159	1,245
Loss on disposal of intangible assets	198	1,836
Loss on abandonment of property and equipment	1,099	578
Impairment losses on property and equipment	-	57
Impairment losses on intangible assets	456,044	440,323
Impairment losses on other assets	29	1,378
Impairment losses on equity method investments	15,160	25,876
Loss on disposal of equity method investments	5,441	4,678
Loss on disposal of investments in subsidiaries	5,850	32
Donations	14,745	4,651
Service fees	11,713	5,188
Loss on foreign currency transactions	5,574	1,804
Loss on foreign currency translation	830	924
Miscellaneous losses	21,794	28,004
Other bad debt expenses	2,427	2,073
Loss on disposal of trade receivables	-	3
Others	1	2,763
	<u>₩ 546,064</u>	<u>521,412</u>

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34. Finance Income and Costs

Finance income and costs for the years ended December 31, 2020 and 2019 are as follows:

(in millions of Korean won)

	<u>2020</u>	<u>2019</u>
Finance income		
Interest income	₩ 23,454	31,700
Dividend income	14,376	1,287
Gain on valuation of derivatives	6,525	5,625
Gain on derivative transactions	642	-
Gain on valuation of financial assets at fair value through profit or loss	124,187	11,489
Gain on disposal of financial assets at fair value through profit or loss	12,429	566
Gain on foreign currency transactions	16,060	5,102
Gain on foreign currency translation	18,198	14,616
Other finance income	234	-
	<u>₩ 216,105</u>	<u>70,386</u>
Finance costs		
Interest expense	₩ 18,945	12,808
Loss on valuation of derivative financial instruments	12,197	7,671
Loss on foreign currency transactions	3,555	2,116
Loss on foreign currency translation	20,516	4,021
Loss on valuation of financial assets at fair value through profit or loss	12,106	14,990
Loss on disposal of financial assets at fair value through profit or loss	933	328
Loss on disposal of financial assets at fair value through other comprehensive income	250	-
Other finance costs	4,168	2,068
	<u>₩ 72,670</u>	<u>44,000</u>

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, 2020 and 2019 is calculated as follows:

(in millions of Korean won, except number of shares per share data)

	<u>2020</u>	<u>2019</u>
Profit (loss) attributable to equity holders of the Parent Company	₩ 155,624	(301,003)
Weighted average number of ordinary shares outstanding (in shares)	84,665,336	79,715,891
Basic earnings (loss) per share (in Korean won)	<u>₩ 1,838</u>	<u>(3,776)</u>

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35. Earnings per Share, Continued

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 Group 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 Group'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, 2020 and 2019, is calculated as follows:

<i>(in millions of Korean won, except number of shares and per share data)</i>	2020	2019
Profit (loss) attributable to equity holders of the Parent Company	₩ 155,624	(301,003)
Interest cost for convertible bonds (net of tax)	61	-
	<u>155,685</u>	<u>(301,003)</u>
Weighted average number of ordinary shares outstanding (in shares)	84,665,336	79,715,891
Adjustment for:		
Stock options	1,136,591	-
Convertible bonds	748,806	-
Weighted average number of diluted potential ordinary shares (in shares)	<u>1,885,397</u>	<u>-</u>
Weighted average number of ordinary shares (in shares) for diluted earnings per share	86,550,733	79,715,891
Diluted earnings (loss) per share (in Korean won)	<u>₩ 1,799</u>	<u>(3,776)</u>

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 of December 31, 2020, is as follows:

<i>(in millions of Korean won, except number of shares)</i>	Interest expense, net of tax	Number of ordinary shares to be issued (in shares)
exchangeable bonds	₩ 1,595	595,350

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36. Dividends

Dividends paid by the Parent Company for the years ended December 31, 2020 and 2019, are ₩ 10,413 million (₩ 127 per share) and ₩ 10,053 million (₩ 127 per share), respectively.

The dividend to the shareholders of the Parent Company in respect of the year ended December 31, 2020, of ₩ 150 per share, amounting to total dividends of ₩ 12,902 million, is to be proposed at the annual general shareholders' meeting on March 29, 2021. The Group's consolidated financial statements as of December 31, 2020, do not reflect this dividend payable.

37. Cash Generated from Operations

Details of cash generated from operations for the years ended December 31, 2020 and 2019 are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Profit (loss) before income tax	₩ 414,271	(234,257)
Adjustments :		
Bad debt expense	2,709	1,811
Depreciation	175,717	139,125
Amortization	90,742	79,679
Impairment losses on intangible assets	455,970	439,982
Gain on disposal of property and equipment	(10,068)	(1,443)
Loss on abandonment of property and equipment	1,099	578
Gain (loss) on disposal of intangible assets	(2,425)	(6,046)
Retirement benefit expense	47,546	37,500
Compensation cost of share-based payments	43,316	20,704
Interest income	(24,658)	(31,700)
Interest expense	22,528	12,808
Dividend income	(14,376)	(1,287)
Share of net loss (profit) of associates	(8,692)	19,771
Loss on disposal of equity method investments	5,441	-
Gain on disposal of equity method investments	(223,947)	(50,973)
Gain on disposal of investments in subsidiaries	(87,081)	-
Loss on disposal of investments in subsidiaries	5,850	-
Impairment losses on equity method investments	15,160	25,876
Gain on disposal of financial assets at fair value through profit or loss	(12,429)	(566)
Loss on disposal of financial assets at fair value through profit or loss	933	328
Gain on valuation of financial assets at fair value through profit or loss	(125,563)	(11,489)
Loss on valuation of financial assets at fair value through profit or loss	12,202	14,990
Loss on disposal of financial assets at fair value through other comprehensive income	250	-
Impairment losses on other assets	29	1,378
Gain on valuation of derivative financial instruments	(6,526)	(5,625)
Loss on valuation of derivative financial instruments	12,198	7,671
Gains on transaction of derivative financial instruments	(642)	-
Other bad debt expenses	2,427	2,073
Other long-term employee benefits	10,707	-
Gain on foreign exchange translations	(18,724)	-
Loss on foreign exchange translations	21,348	-

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<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Others	₩ 36,328	(580)
Changes in operating assets and liabilities		
Trade receivables	(60,327)	39,192
Inventories	(4,387)	(19,188)
Other current financial assets	(19,844)	(40,544)
Other current assets	(133,585)	24,541
Other non-current financial assets	(590)	-
Other non-current assets	(9,621)	(43,181)
Trade payables and other payables	103,517	100,465
Other current liabilities	367,942	132,779
Other current financial liabilities and deposits received	(4,368)	205,815
Other non-current liabilities	(8,478)	8,916
Other non-current financial liabilities	(1,107)	16,892
Net defined benefit liabilities	(45,814)	(51,627)
Other long-term employee benefit liabilities	(923)	(1,656)
Other financial assets (financial services business)	(93,669)	-
Other assets (financial services business)	(274)	-
Deposits received (financial services business)	266,828	-
Net defined benefit liabilities (financial services business)	(167)	-
Other financial liabilities (financial services business)	(199,702)	-
Other liabilities (financial services business)	1,791	-
Others	26,121	(1,566)
Cash generated from operations	<u>₩ 1,024,983</u>	<u>831,143</u>

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

<i>(in millions of Korean won)</i>	<u>2020</u>	<u>2019</u>
Provision for restoration to specific property and equipment account	₩ 1,582	5,117
Write-offs of trade receivables	2,168	1,650
Change of other payables related to acquisition of property and equipment	(755)	6,655
Change of non-trade receivables related to disposal of property and equipment	716	179
Change of other payables related to acquisition of intangible assets	1,890	515
Change of advanced payments related to acquisition of intangible assets	-	4,336
Transfer from advanced payments and long-term advanced payments to property and equipment	669	3,794
Transfer from advanced payments and long-term advanced payments to intangible assets	3,887	4,300
Conversion of convertible bonds	183,800	32,600
Conversion of exchangeable bonds	230,000	-
Transfer to current portion of long-term borrowings	42,107	1,054
Transfer to investment property of property, plant and equipment	20,569	-
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	9,540	8,800
Transfer from financial assets at fair value through other comprehensive income to investments in associates	12,565	243,105
Other payables related to acquisition of equity method investments	167,643	-

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37. Cash Generated from Operations, Continued

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

	Other assets		Liabilities from financing activities			Total
	Cash and cash equivalents	Short-term financial assets	Short-term borrowings	Long-term borrowings	Lease liabilities	
At January 1, 2020	₩ 1,918,225	207,767	(448,596)	(72,269)	(233,065)	1,372,062
Acquisition - lease	-	-	-	-	(115,223)	(115,223)
Disposal - lease	-	-	-	-	11,349	11,349
Cash flows	976,025	472,169	(94,623)	(400,334)	79,187	1,032,424
Exchange differences	(39,670)	(978)	-	71	-	(40,577)
Changes in consolidation scope	39,736	15,111	(10,452)	84	(82,181)	(37,702)
Transfer from/to current portion	-	-	(42,107)	42,107	-	-
Unwind of discount	-	-	(2,102)	(2,272)	(7,324)	(11,698)
Transfer	-	-	-	-	1,757	1,757
Conversion of convertible bond	-	-	413,800	-	-	413,800
Others	-	-	(4,339)	22,812	(10,009)	8,464
At December 31, 2020	₩ 2,894,316	694,069	(188,419)	(409,801)	(355,509)	2,634,656

	Other assets		Liabilities from financing activities				Total
	Cash and cash equivalents	Short-term financial assets	Short-term borrowings	Long-term borrowings	Current lease liabilities	Non-current lease liabilities	
At December 31, 2018	₩ 1,247,013	924,215	(609,480)	(44,995)	-	-	1,516,753
Changes in accounting policies	-	-	-	-	(42,514)	(156,261)	(198,775)
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

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38. Commitments and Contingencies

The Group has provided the following guarantees as of December 31, 2020 and 2019:

(in millions of Korean won)

Beneficiary	Guarantor	Amount		Guaranteed item
		2020	2019	
Employees ¹	Shinhan Bank	₩ 4,829	245	Employee loans
Customers ²	Korea Investment Savings Bank, etc.	14,196	15,151	Guarantee for sales instalment
Housing loans to employees	Executives of associates	-	440	Housing loans to employees
Business agency contract, etc.	KakaoBank Corp. of Korea etc	225	-	Performance guarantee
		<u>₩ 19,250</u>	<u>15,836</u>	

¹ The Group provided its employees payment guarantee with banks for the employees' bank loans related to their welfare and the Group's deposits of ₩ 5,312 million are pledged as collateral.

² Debt guarantee provided for the customer's instalment amount for financial institutions among the purchase amount. In relation to such debt guarantee financial instruments of ₩ 300 million of the Group are provided as collateral.

The Group has been provided the following guarantees by others as of December 31, 2020 and 2019:

(in millions of Korean won)

Guarantor	Details	Amount		Beneficiary
		2020	2019	
Seoul Guarantee Insurance and others	Performance guarantee and others	₩ 143,263	161,436	Korea Workers' Compensation & Welfare Service, Korea Electric Power Corporation, etc.
Korea Credit Guarantee Fund	Guarantee for borrowings and others	2,249	2,249	Industrial Bank of Korea, etc.
Shinhan Bank	Consumer protection under Act on Electronic Commerce	500	500	Kakao Commerce Corp.
		<u>₩ 146,012</u>	<u>164,185</u>	

As of December 31, 2020, the Group is involved in 42 lawsuits amounting to ₩ 29,340 million as a defendant or co-defendant. The Group recognizes related liabilities when it is highly probable that there will be an outflow of resources embodying economic benefits in order to fulfil obligations pursuant to law. The Group does not expect that these cases would have a material impact on its consolidated financial statements.

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38. Commitments and Contingencies, Continued

The Group's agreements with financial institutions and commitments as of December 31, 2020 and 2019, are as follows:

(in millions of Korean won)

Financial Institution	Agreements	2020	
		Maximum limit	Amount executed
Industrial Bank of Korea	General loans	₩ 100	-
Industrial Bank of Korea	Loans for operation capital	1,380	1,380
KEB Hana Bank	Loans for operation capital	150	150
KEB Hana Bank	General loans	1,000	-
KB Kookmin Bank	General loans	2,000	2,000
KB Kookmin Bank	Facility loans	4,000	4,000
KB Kookmin Bank	Limit loans for operation capital	24,800	2,800
Shinhan Bank	General loans	20,300	20,000
Shinhan Bank	Limit loan	32,000	17,000
Shinhan Bank	Limit loans for operation capital	200,000	-
Shinhan Bank	Loans for operation capital	2,200	2,200
Woori Bank	Loans for operation capital	50,086	50,086
Woori Bank	Retail Banking loans	700	693
Korea Development Bank	Limit loan agreement	40,000	10,000
Korea Securities Finance Corp	General loans	30,000	-
Korea Securities Finance Corp	Loans for acquisition	80,000	-
Nonghyup Bank	General loans	600	600
THE KUMAMOTO DAI-ICHI SHINKIN BANK	Loans for operation capital	1,301	1,301
Japan Finance Corporation	Loans for investments	5	5
		<u>₩ 490,622</u>	<u>112,215</u>

(in millions of Korean won)

Financial Institution	Agreements	2019	
		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

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(in millions of Korean won)

		2019	
Woori Bank	Loans for operation capital	100	100
Shinhan Bank	Limit loan	25,000	-
Korea Development Bank	Limit loan	40,000	-
KB Kookmin Bank	Limit loan	22,000	-
		<u>₩ 302,825</u>	<u>14,674</u>

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 Parent Company due to the merge with Kakao M Corp. occurred in 2018. The number of treasury shares that became subject to the securities lending agreement was 1,793,755 shares in 2019. As a result, the securities lending agreement with NH Investment & Securities Co. ended as exchangeable bonds expired in 2020.

In the past, the Group granted a right to a customer for reselling equipment to the Group at 50% of a price when it sells to a customer after a certain period of time (selling price: ₩ 2,883 million).

In accordance with the shareholder agreements in relation to Kakaopay Corp., a subsidiary, if there are difficulties in management and operation of Kakaopay Corp. due to changes in governance structure, the non-controlling interest investors of the subsidiary may request the Group to purchase those shares at fair value for a period of time described in the agreements. The management of the Group believes that the Group can control prerequisites for investors to claim the purchase and therefore, as of December 31, 2020, the Group believes that the possibility for non-controlling interest investors to exercise the put option is remote.

In accordance with the agreements with non-controlling interests of some subsidiaries including Kakao Page Corp., the Group is required to obtain a consent from investors, when the Group 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).

711,552 stocks subject to exchange are deposited with the Korea Securities Depository in relation to foreign currency exchange bonds issued by the parent company during 2020.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

38. Commitments and Contingencies, Continued

Financial instruments restricted as of December 31, 2020 and 2019:

(in millions of Korean won)

	2020	2019	Purpose of restriction
	₩ 13,000	20,000	Withdrawal restriction in relation to firm banking ¹
	1,350	1,350	Pledged as collateral for Shinhan Card and etc. ²
	-	425	Pledged for housing loans to employees
	4,998	4,997	Payment guarantee for office lease
Short-term financial instruments	3,200	1,700	Pledged as collateral for a franchise contract
	300		- Pledged for payment guarantee for Daehan Bank
	971		- Investment related pledged deposit and etc
	-	100	Guarantee for instalment sales of a customer
	4		- Withdrawal restriction for Korea Investment Savings Bank ⁴
	2	2	Deposit for checking account
Long-term financial instruments	5,312	5,766	Payment guarantee for employee's loan
	101		- Pledged as collateral for Korea Land Corporation
	-	10	Payment guarantee for vehicles lease
Deposits and financial assets at fair value through profit or loss	2,000		- Provision of collateral for KEB Hana Bank overdraft
	16,000		- Separate investment deposit (ordinary deposit) ³
	50		- Market derivative instrument transaction deposit
	2		- Deposits for opening checking accounts and others
	1,777		- Deposit for security transactions for Korea Exchange Market
	382,695		- Separate investment deposit (financial asset) ³
	<u>₩ 431,762</u>	<u>34,350</u>	

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

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 Deposited separately at Korea Securities Finance Corp. to meet the customer's requests such as return of investment deposit under Section 4 of Article 74 of Financial Investment Services and Capital Markets Act. It cannot be transferred or provided as collateral and cannot be offset or seized by anyone.

⁴ With regard to customer complaints, withdrawals are restricted.

The following assets are pledged as collateral in relation to guarantees for contract fulfilment and borrowings as of December 31, 2020:

(in millions of Korean won)

Asset	Book value	Collateralized amount	Type of Guarantee	Secured party
Land, buildings and Non-current assets classified as held for sale	₩ 14,465	9,407	Collateral for facility loans	KB Kookmin Bank, KEB Hana Bank

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
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38. Commitments and Contingencies, Continued

The Group provided a claim for return of shares subject to exchange as collateral for payment guarantees received from KB Kookmin Bank Co., Ltd. in relation to exchangeable bonds. As the redemption of the exchangeable bonds was completed during 2020, the pledge set on the remaining exchangeable stocks was terminated.

The Group made a transaction in the form of mutual stock exchange in order to enter into a strategic partnership with SK Telecom during 2019. The Group acquired 1,266,620 old shares of SK Telecom, and SK Telecom purchased 2,177,401 new shares issued by the Group through a paid-in capital increase method allocated to a third party. New shares issued through this transaction had a deposit contract (prohibition of withdrawal and sale of the relevant securities for one year from the deposit date) with KSD, but the deposit contract was terminated as of December 31, 2020.

The Group entered into an agreement to pay incentives to shareholders of non-controlling interests of Kakaopay Corp., a subsidiary, for earnings generated from fiscal year 2018 to 2021. These earnings are calculated in accordance with the agreement and incentives are paid in dividends and bonus through discussion between shareholders. The Group pays incentives unless the entity subject to payment recognizes net loss and to extent it is permitted under laws or regulations (including unenforceable guidelines and administrative guidance of government organization).

As of December 31, 2020, other commitments of the Group are as follows:

(1) The Group pledged shares held by some shareholders who have participated in the Group'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 Group is required to obtain written consent from interested parties and investors when the Group 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 Group to purchase shares of STARSHIP ENTERTAINMENT CORP. In relation to this, the Group recognized the amount to purchase the additional shares as liabilities.

(4) After lending money to subsidiary's CEO, the Group 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.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

38. Commitments and Contingencies, Continued

(5) For the shares of EDAM Entertainment, an associate, held by other shareholders, the Group can request to sell the number of shares to hold 51% of the total shares issued on a complete dilution basis to the Group or a third party designated by the Group through a written notice within one year after two years from the signed date of shareholders agreements.

(6) The Group has entered into the shareholders agreements to grant put options in relation to the equity investment of Starship entertainment co.,ltd and Kakao Page Corp., subsidiaries, recognized the amount as financial liabilities.

(7) The Group 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 Group.

(8) As of December 31, 2020, 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., Feelyeon Management, PAGE LAB Inc., BATTLE ENTERTAINMENT CORP., Kross Pictures Inc., the Group 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 Group recognizes the amount as financial liabilities.

(9) As of December 31, 2020, the Group 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., and Imitation 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. and Imitation SPC Ltd. is ₩ 10.5 billion and ₩ 9.4 billion. The Group should raise funds by investing on the schedule agreed between the parties or by attracting third party investment.

(10) The Group has entered into contracts with 23 companies to sell and exchange cryptocurrency in relation to its subsidiary's cryptocurrency business ("Klaytn").

(11) With respect to Kakao VX, a subsidiary, the investors of Kakao VX can request to sell their shares under the provisions of subscription agreement relating to redeemable convertible preferred shares. The investors may request to sell their shares during a specified period under limited circumstances where the Group fails to perform important obligations stated in the contract due to willful misconduct or gross negligence. The Group expects that the likelihood of the circumstances that allow investors' request to sell their shares is remote.

(12) The Group has pledged some stocks held by shareholders who participated in the capital increase of some subsidiaries.

(13) Some shareholders of a subsidiary may request the Group to purchase all or part of their shares in the subsidiary when certain conditions are satisfied according to the agreement. The management of the Group believes that there is currently no possibility of a purchase request.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

38. Commitments and Contingencies, Continued

(14) Mezondbaha Corp. a subsidiary, has entered into an agreement to take over some video production and distribution business related to Mezondbaha Corp. if certain conditions are met.

39. Business Combinations

In 2020, the Group acquired the shares of 13 companies including Kakaopay Securities Corp., 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)

Company	Percentage of ownership acquired (%)	Consideration	Goodwill
Kakaopay Securities Corp.	60.0	₩ 64,168	12,567
XLGAMES Inc.	52.9	128,041	75,353
Wind Pictures Corp	100	40,000	34,588
LOGOS FILM Co	100	20,000	11,979
STORY & PICTURES MEDIA Corp	100	20,000	13,719
GLOHOW HOLDINGS PTE. LTD.	54.9	4,271	3,071
Remote Monster Corp	100	6,069	5,894
BATTLE ENTERTAINMENT CORP.	70	3,855	3,477
Intime	70	16,800	16,421
PAGE LAB Inc.	79	3,370	2,003
Feelyeon Management	80	11,203	8,776
KWbooks ¹	51	56,100	47,616
Myvalet ¹	100	4,700	4,363
Total		<u>₩ 378,577</u>	<u>239,827</u>

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

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

39. Business Combinations, Continued

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 2020, are as follows:

(in millions of Korean won)

	XLGAMES Inc.	GLOHOW HOLDINGS PTE. LTD.	Kakaopay Securities Corp.	Logos Film Corporation	STORY & PICTURES MEDIA	Remote Monster Corp.
Consideration transferred						
Cash and cash equivalents	₩ 118,092	2,871	30,000	20,000	20,000	6,069
Non-trade payables	9,949	1,400	34,168	-	-	-
Assets acquired and liabilities assumed						
Cash and cash equivalents	33,967	1,668	44,511	27	281	56
Short-term financial instruments	8,974	-	-	-	30	-
Financial assets at fair value through profit or loss	4,967	-	106,328	3,796	-	-
Trade receivables	7,052	385	-	-	2	34
Other current financial assets	-	-	-	-	-	-
Property and equipment	612	46	5,328	196	114	-
Right-of-use assets	1,502	121	1,397	1,075	239	-
Intangible assets	46,390	-	26,700	681	4,998	174
Deferred tax assets	9,109	-	-	1,262	310	-
Other assets	2,319	109	236,123	2,240	7,733	6
Borrowings	(11,683)	-	(10,000)	-	-	-
Other financial liabilities	(2,026)	-	(342,177)	(35)	(74)	-
Trade payables and Other liabilities	-	(21)	-	-	-	-
Derivative financial liabilities	(182)	-	-	-	-	-
Lease liabilities	(1,521)	(121)	(1,371)	(1,037)	(244)	-
Net defined benefit liabilities	(8,032)	-	-	-	-	-
Deferred income tax liabilities	(11,170)	-	(361)	(150)	(1,098)	(19)
Other liabilities	(6,697)	(2)	(3,255)	(34)	(6,010)	(76)
Net identifiable assets acquired	73,581	2,185	63,223	8,021	6,281	175
Non-controlling interests	(20,893)	(985)	(11,622)	-	-	-
Goodwill	₩ 75,353	3,071	12,567	11,979	13,719	5,894

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

39. Business Combinations, Continued

¹ In connection with the acquisition of Kakaopay Securities Corp., an agreement has been concluded to pay dividends or bonuses to existing shareholders based on their operating performance and profit (see Note 38).

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 2020, are as follows:

<i>(in millions of Korean won)</i>	Baram Pictures Corp.	BATTLE ENTERTAINMENT CORP.	Intime
Consideration transferred			
Cash and cash equivalents	₩ 40,000	3,855	16,800
Non-trade payables	-	-	-
Assets acquired and liabilities assumed			
Cash and cash equivalents	1,088	682	660
Short-term financial instruments	-	-	47
Financial assets at fair value through profit or loss	-	-	-
Trade receivables	-	52	352
Other current financial assets	-	-	-
Property and equipment	193	31	26
Right-of-use assets	138	-	196
Intangible assets	18,776	266	1,636
Deferred tax assets	-	-	-
Other assets	14,234	13	1,739
Borrowings	(6,700)	-	(725)
Other financial liabilities	(395)	-	-
Trade payables and Other liabilities	-	(121)	(1,574)
Derivative financial liabilities	-	-	-
Lease liabilities	(122)	-	(198)
Net defined benefit liabilities	-	(231)	(243)
Deferred income tax liabilities	(3,948)	(58)	(322)
Other liabilities	(17,852)	(94)	(1,053)
Net identifiable assets acquired	5,412	540	541
Non-controlling interests	-	(162)	(163)
Goodwill	₩ 34,588	3,477	16,422

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

39. Business Combinations, Continued

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 2020, are as follows:

<i>(in millions of Korean won)</i>	PAGE LAB Inc.	Feelyeon Management	KWbooks	Myvalet
Consideration transferred				
Cash and cash equivalents	₩ 3,370	11,203	34,000	4,700
Non-trade payables	-	-	22,100	-
Assets acquired and liabilities assumed				
Cash and cash equivalents	1,735	1,280	3,749	51
Short-term financial instruments	-	60	6,000	-
Financial assets at fair value through profit or loss	-	-	-	-
Trade receivables	360	363	1,754	367
Other current financial assets	-	-	-	-
Property and equipment	-	119	168	32
Right-of-use assets	-	94	92	-
Intangible assets	5	1,528	9,019	53
Deferred tax assets	-	-	-	-
Other assets	214	1,042	4,163	5
Borrowings	-	-	(2,941)	-
Other financial liabilities	-	-	-	(30)
Trade payables and Other liabilities	(259)	(146)	-	(36)
Derivative financial liabilities	-	-	-	-
Lease liabilities	-	(96)	(93)	-
Net defined benefit liabilities	(59)	-	-	(90)
Deferred income tax liabilities	-	(319)	(1,960)	-
Other liabilities	(266)	(892)	(3,315)	(15)
Net identifiable assets acquired	1,730	3,033	16,636	337
Non-controlling interests	(363)	(606)	(8,152)	-
Goodwill	₩ 2,003	8,776	47,616	4,363

As of December 31, 2020, with respect to the purchase of shares of two companies including LS Media Co., Ltd. the Group is obligated to purchase some shares held by the counterparty at a certain price when the counterparty expresses its intention to sell them.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

40. Related Parties Transactions

The list of related parties as of December 31, 2020 and 2019, is as follows:

	2020
Relationship	Related parties¹
Associates	Addcredit Corp., DAUM Venture Fund., Dunamu Inc., Futurewiz, IGIS Networks, Dunamu Investment Management Co., Ltd., Dunamu&Partners, LAMBDA256, DXM CO.,LTD, Auto manix Corp., Oscar Entertainment, CNT TECH CO.,LTD., TELESTAR CO.,LTD., Creativecomms Corp., CNT Tech 1st Start-up Investment Fund, CNT Tech 2nd Start-up Investment Fund, CNT Tech 3rd Start-up Investment Fund, CNT Tech 5th Start-up Investment, IBK Changgong 1st Jump-up Investment Fund, Sixshop, Tide Square Co., Ltd., CC Partners, Polarium CO., LTD., Allstay Co.,LTD., Square Lab Inc., KakaoBank Corp.(formerly, KakaoBank of Korea Corp.), Korea Credit Data, Japan Credit Data, KCD Marketing, KCD Partners, Payg crew, Inc., NOWBUSKING COMPANY, Kakao-Shinhan 1st TNYT Fund, Kakao Growth Hacking Fund, TAPAS MEDIA, INC., D&C MEDIA Co., Ltd., D&C OF STORM CO.,LTD., The Comics Co.,Ltd., mycelebs, inc, DAIWAON. C. I. INC, Haksan Publinshing Co.Ltd., Seoul Media Comics, LEEMITELEESYUN CULTURE INDUSTRIAL JEONMUNHOESA INC., SUPERCOMIX STUDIO Corp., Kross Pictures Inc., Radish Media Inc., SHOH enterprise pte.ltd, 325E&C Co., Ltd., UNION K-Culture Contents Investment Fund, EDAM Entertainment Corp, ATWATER WHIP SPV.LP, NBT Inc., NBT AMERICA INC., NBT BEIJING CO., LTD., CS Factory Inc., Hasys Co., Ltd, MannaCEA, Manna Town, Farmit, Farmit II, Leferi Inc., Deleo Korea Co., Ltd.(formerly, Wex24 Korea Co., Ltd.), Yanadoo Corp.(formerly, Kakao Kids), Fixel Hub Co.,Ltd., FOR YOUR KIDS CO.,LTD., LINEWALKS Inc., Daeyoung Chaevi CO., Ltd., Adrock Advertainment Corp., Stage Five Corp., DEVOTION FOODS Inc., JASON GROUP Co.,Ltd., J.ple Inc., KIDSPAY CO. Ltd., ATU e-sports Growth PE Fund I, LUXROBO Co., Ltd., Skelter Labs, Inc., TOROOC Inc., Left Right Co., Ltd., Ocean Drive Studio Co., Ltd., AD(x) Inc., Nexelon inc., NFLY STUDIO, Gomfactory Corp, Second Dive Corp, LIONHEART STUDIO Corp., WAY2BIT Co.Ltd., Loadstars, Teins Valley, GC SOCIAL MEDIA MARKETING, INC., K Cube NEO Fund, DGT Mobility Corp., SNT Solution Corp., Anycall Mobility Corp., DIGISONIC Co., Ltd., InnoSignal Co., Ltd., CHEQUER GLOBAL, INC., CLAIR, Inc., G&G Enterprise Co., Ltd., Socialbean Co., Ltd, KIF-Kakao Wooribank Technology Financing Fund, 13MILE.CO.LTD, PEOPLEFUND COMPANY, EASYGO CO., LTD., DOZEN CO., LTD, ADSOTA CORP, PLANETS CO., LTD., Other 54
Joint venture	DAUMKAKAO PHILIPPINES CORP, AsanKakao Medical Data Co., Ltd., PHI DIGITAL HEALTHCARE Inc., USABANG CULTURE INDUSTRIAL Ltd.
Other related parties	Stage Asset Co., Ltd., K Cube Holdings Co., Ltd., T for Invest, New learn English Inc., Onyx K., Golf & Data System, PLUS 2 PERCENT, NPLUTO, GOLF&FRIEND CO.,LTD., LKMS Limited, LKMS Re, KCUBE IMPACT Co.,Ltd, kakao Impact Foundation, GAMERS FOUNDATION

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
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¹ Include associates and other related parties of KaKao Corp. and the entities that are not the related party in accordance with K-IFRS No.1024 but belong to the Large Enterprise Group to which the Group also belongs in accordance with the Monopoly Regulation and Fair Trade Act.

	2019
Relationship	Related parties¹
Associates	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, 13MILE.CO.LTD, ADSOTA CORP, CARDOC Inc., LUFTT KOREA Inc., Kakao 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 Publinsing 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
Joint venture	DAUMKAKAO PHILIPPINES CORP, AsanKakao Medical Data Co., Ltd., PINPLAY JAPAN Co., Ltd., PHI DIGITAL HEALTHCARE Inc., The Bridges of Madison County Co., Ltd.
Other related parties	K Cube Holdings Co., Ltd., T for Invest, New learn English Inc., Onyx K., Golf & Data System, PLUS 2 PERCENT, NPLUTO, GOLF&FRIEND CO.,LTD., LKMS Limited, LKMS Re, 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 K-IFRS No.1024 but belong to the Large Enterprise Group to which the Group also belongs in accordance with the Monopoly Regulation and Fair Trade Act.

KAKAO CORP. AND SUBSIDIARIES
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40. Related Parties Transactions, Continued

Transactions with the related parties for the years ended December 31, 2020 and 2019 and the receivables from and payables to the related parties as of December 31, 2020 and 2019, are as follows:

Transactions

	2020					
	Revenue and others			Operating expenses and others		
	Revenue	Interest income	Other income	Service fee	Advertising expense	Others
<i>(in millions of Korean won)</i>						
Associates						
Adlock Advertainment	₩ -	-	-	-	-	-
AD(x) Inc.	575	-	-	-	-	-
Anycall Mobility Corp.	-	7	-	-	-	-
YANADOO Co., Ltd.	114	-	-	5	-	-
4ukids	534	-	-	-	-	284
Pixel Hub	5	-	-	28	-	-
CARDOC Inc	7	-	-	-	-	-
CLAIR, Inc.	1	-	-	-	-	258
C&T Tech	718	-	-	525	-	-
Deleo Korea Co.,Ltd.	-	-	-	4	-	-
DGT Mobility Corp.	-	-	-	4	-	-
D&C MEDIA CO.,LTD	169	-	-	27,082	-	-
Dunamu Inc. ¹	917	-	807	287	-	-
Doctorbrain SPC Ltd	-	-	3	-	-	-
DAIWAON. C. I. INC	114	-	-	714	-	-
DOZEN CO.,LTD	64	-	-	885	-	-
EDAM Entertainment Corp	238	-	56	2,779	-	2,049
325 E&C	-	-	-	1,223	-	1
G&G Enterprise Co Ltd	80	-	-	1	-	211
Haksan Publinshing Co.Ltd	-	-	-	2,723	-	3
Hasys Co.,Ltd	3,028	-	-	-	-	4
JASON GROUP Co.,Ltd.	1,031	-	-	191	-	-
KakaoBank Corp.	5,956	-	-	4,861	-	30
K Cube NEO Fund	375	-	-	-	-	-
Kakao Growth Hacking Fund	80	-	-	-	-	-
KIF-KakaoWooribank Technology Financing Fund	1,470	-	-	-	-	-
Krcoss Pictures Inc.	100	-	-	-	-	-
KW Books	-	-	-	11,895	-	-
Leferi	114	-	-	-	-	-
LIONHEART STUDIO Corp.	-	-	-	-	265	-
MOVILL Co.Ltd	-	87	-	-	-	-
MANNACEA	57	-	-	181	-	-
13 Mile Co., Ltd.	-	10	-	-	-	-
Mycelebs	-	-	-	1,451	-	-
NBT Inc	83	-	-	1,509	-	-
PLANETS CO., LTD.	514	-	-	-	-	-
PEOPLEFUND COMPANY	3,403	-	-	-	-	-
Stagefive Co. Ltd	24,848	-	-	7	-	2,854
Social bean	128	-	-	-	-	252
Super Comics studio	11	-	-	769	-	-
Sixshop	22	-	-	64	-	-
Seoul Media Comics	4	-	-	1,135	-	-
SNT Solution Corp.	-	18	-	-	-	-

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	2020					
	Revenue and others			Operating expenses and others		
	Revenue	Interest income	Other income	Service fee	Advertising expense	Others
Tangramfactory	-	-	-	-	-	-
TAPAS MEDIA, INC.	1,279	-	-	-	-	-
TIDESQUARE	5	-	-	-	-	-
Shoe Lab	-	-	-	-	-	32
Dr.Kitchen	7	-	-	-	-	-
LUFTT Korea	-	-	-	-	-	-
MONOLITH	-	-	-	-	-	-
Babyfriends	2	-	-	-	-	-
Life Lab	41	-	-	-	-	-
SeedPaper	20	-	-	-	-	-
Applepie Studio	-	-	-	84	-	-
Culture hero	82	-	-	-	2	-
Futurewiz	172	-	-	-	-	-
Humart Company Co.,Ltd	1	-	-	-	-	-
Korea Credit Data	671	-	-	-	-	-
Nowbusking	2	-	-	3	-	-
Dunamu Investment Management Co., Ltd.	-	-	-	-	-	-
Gomfactory Corp	-	-	-	65	-	-
	<u>47,042</u>	<u>122</u>	<u>866</u>	<u>58,475</u>	<u>267</u>	<u>5,978</u>
Joint venture						
Asankakao Medical Data Co., Ltd.	361	-	-	-	-	-
Other related parties						
Gamers Foundation	-	-	2	-	-	-
LKMS Limited	-	-	-	-	-	59
Kakao Impact Foundation	382	-	-	-	-	6,305
K Cube Holdings	165	-	-	-	-	-
	<u>908</u>	<u>-</u>	<u>2</u>	<u>-</u>	<u>-</u>	<u>6,364</u>
	<u>₩ 47,950</u>	<u>122</u>	<u>868</u>	<u>58,475</u>	<u>267</u>	<u>12,342</u>

¹ Received dividends of ₩ 808 million from Dunamu Inc. in 2020, and the dividends amount is included in the above table.

Transactions

	2019					
	Revenue and others			Operating expenses and others		
	Revenue	Interest income	Other income	Service fee	Advertising expense	Others
Associates						
FOR YOUR KIDS CO.,LTD.	₩ 1,083	-	-	-	-	-
K Cube NEO Fund ¹	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	-	-
Haksan Publinshing Co.Ltd.	-	-	-	2,088	-	-
CLAIR, Inc.	1	-	-	-	-	-
CARDOC Inc.	40	-	-	-	-	13
BUNJANG Corp.	-	326	2	-	-	223

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

	2019					
	Revenue and others			Operating expenses and others		
	Revenue	Interest income	Other income	Service fee	Advertising expense	Others
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. ¹	-	-	-	-	-	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. ¹	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	1	-	23	-	-	-
	<u>15,659</u>	<u>326</u>	<u>390</u>	<u>26,656</u>	<u>4</u>	<u>367</u>
Other related parties						
Kakao Impact Foundation	169	-	-	-	-	3,223
GAMERS FOUNDATION	-	-	2	-	-	-
	<u>169</u>	<u>-</u>	<u>2</u>	<u>-</u>	<u>-</u>	<u>3,223</u>
	<u>₩ 15,828</u>	<u>326</u>	<u>392</u>	<u>26,656</u>	<u>4</u>	<u>3,590</u>

¹ Received dividends of ₩ 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.

Receivables and Payables

(in millions of Korean won)

	2020				
	Receivables			Payables	
	Trade receivables	Loans	Other receivables	Non-trade payables	Other payables
Associates					
AD(x) Inc.	₩ 236	₩ -	₩ -	₩ 73	₩ -
Atwater Whip SPV, LP	-	-	7	-	-
YANADOO Co., Ltd.	1	-	-	-	-
4ukids	341	-	-	-	299
Pixel Hub	-	-	-	-	-
CLAIR, Inc.	-	-	-	10	-
C&T Tech	47	-	-	408	-

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

Deleo Korea Co.,Ltd.	-	-	-	1	-
DGT Mobility Corp.	-	-	-	77	-
D&C MEDIA CO.,LTD	29	-	1,862	3,287	-
Dunamu Inc.	5	-	-	23	-
Doctorbrain SPC Ltd	2	-	400	-	-
Dreamside SPC Ltd.	-	-	400	-	-
DAIWAON. C. I. INC	-	-	514	150	-
DOZEN CO.,LTD	9	-	802	108	-
EDAM Entertainment Corp	-	-	4,500	22	23
325 E&C	-	-	2,888	-	16
G&G Enterprise Co Ltd	-	-	-	109	-
Haksan Publinsing Co.Ltd	-	-	2,026	140	-
Hasys Co.,Ltd	212	-	438	775	-
LEEMITELEESYUN CULTURE INDUSTRIAL JEONMUNHOESA INC.	-	-	3,000	-	-
JASON GROUP Co.,Ltd.	-	-	-	67	-
KakaoBank Corp.	398	-	21,218	663	413
Krcross Pictures Inc.	-	-	580	-	-
LIONHEART STUDIO Corp.	-	-	2,800	292	-
MANNACEA	-	-	-	31	-
13 Mile Co., Ltd.	-	450	9	3	-
Mycelebs	-	-	757	158	-
Nowbusking	-	-	-	-	-
NBT Inc	2	-	47	180	-
PLANETS CO., LTD.	7	-	-	-	-
PEOPLEFUND COMPANY	54	-	-	-	-
Stagefive Co. Ltd	255	-	26	-	-
Social bean	19	-	-	154	-
Super Comics studio	-	-	138	37	-
Sixshop	-	-	-	7	-
Seoul Media Comics	-	-	668	266	-
Tangramfactory	-	-	-	-	-
Three Point Inc.	3	50	-	-	-
TAPAS MEDIA, INC.	818	-	-	-	131
TIDESQUARE	-	-	-	-	-
WAY2BIT Co.Ltd.	2,707	-	-	-	-
Shoe Lab	-	-	-	-	-
Dr.Kitchen	-	-	-	1	-
SeedPaper	2	-	-	-	-
Futurewiz	75	-	-	-	-
Second Dive Corp	-	-	2,800	-	-
Culture hero	-	-	-	17	-
Life Lab	-	-	-	30	-
Leferi	-	-	-	62	-
	<u>5,222</u>	<u>500</u>	<u>45,880</u>	<u>7,151</u>	<u>882</u>
Joint venture					
Asankakao Medical Data Co., Ltd.	35	-	-	-	-
Other related parties					
Gamers Foundation	-	-	-	-	-
Kakao Impact Foundation	24	-	-	-	6
	<u>59</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>6</u>
	<u>₩ 5,281</u>	<u>₩ 500</u>	<u>₩ 45,880</u>	<u>₩ 7,151</u>	<u>₩ 888</u>

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

Receivables and Payables

(in millions of Korean won)

	2019				
	Receivables			Payables	
	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 Fund	374	-	-	-	-
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	-	-	22	-
NOWBUSKING COMPANY	-	-	-	-	-
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	-	-	856	-
SHOELAB CO., LTD.	-	-	-	-	-
	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

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

40. Related Parties Transactions, Continued

Loans arising from related parties for the years ended December 31, 2020 and 2019, are as follows:

(in millions of Korean won)

	2020								
	Loan transactions						Finance lease transactions		
	Contributions in cash	Beginning balance	Changes in scope of consolidation	Loans	Repayment	Ending balance	Loans	Amortization	Collection
Associates									
Three Point Inc.	₩ -	50	-	-	-	50	-	-	-
SNT Solution Corp.	-	-	400	1,245	(1,645)	-	-	-	-
13MILE.CO.LTD	-	450	-	-	-	450	-	-	-
MOVILL Co.Ltd	-	1,300	-	1,591	(2,891)	-	-	-	-
KakaoBank of Korea Corp.	167,643	-	-	-	-	-	-	-	-
UNION K-Culture Contents Investment Fund	2,500	-	-	-	-	-	-	-	-
Daeyoung Chaevi CO., Ltd.	2,500	-	-	-	-	-	-	-	-
TAPAS MEDIA, INC.	10,229	-	-	-	-	-	-	-	-
D&C MEDIA CO.,LTD.	21,175	-	-	-	-	-	-	-	-
NOWBUSKING COMPANY	2,088	-	-	-	-	-	-	-	-
PEOPLEFUND COMPANY	2,000	-	-	-	-	-	-	-	-
	<u>208,135</u>	<u>1,800</u>	<u>400</u>	<u>2,836</u>	<u>(4,536)</u>	<u>500</u>	<u>-</u>	<u>-</u>	<u>-</u>
Other related parties									
LKMS INC.	-	-	-	114	(114)	-	-	-	-
K Cube Holdings Co., Ltd.	-	-	-	-	-	-	563	3	16
	<u>₩ 208,135</u>	<u>1,800</u>	<u>400</u>	<u>2,950</u>	<u>(4,650)</u>	<u>500</u>	<u>563</u>	<u>3</u>	<u>16</u>

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

40. Related Parties Transactions, Continued

(in millions of Korean won)

	2019				
	Beginning balance	Loans	Repayments	Changes in scope of consolidation	Ending balance
Associates					
Three Point Inc.	₩ 50	-	-	-	50
13MILE.CO.LTD	450	-	-	-	450
MOVILL Co.Ltd	-	1,300	-	-	1,300
Others	100	200	(100)	(200)	-
	<u>₩ 600</u>	<u>1,500</u>	<u>(100)</u>	<u>(200)</u>	<u>1,800</u>

Key management compensation

The compensation paid or payable to key management for the years ended December 31, 2020 and 2019 consists of:

(in millions of Korean won)

	2020	2019
Salaries	₩ 10,023	1,830
Retirement benefit expense	123	111
Other long-term employee benefits	28	25
Share-based payments	891	884
	<u>₩ 11,065</u>	<u>2,850</u>

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

41. Information for Non-controlling Interests

(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 Group for the years ended December 31, 2020 and 2019, is as follows:

(in millions of Korean won)

	2020						
	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.	54.4	₩ 162,244	36,268	-	349,125	14,146	561,783
Kakaopay Corp.	43.9	18,784	(14,873)	-	106,207	(6,309)	103,809
Kakao Page Corp.	36.5	128,273	13,314	-	10,943	1,164	153,694
Kakao Mobility Corp.	30.7	69,468	(12,025)	-	1,715	(569)	58,589
Kakao M Corp.	22.7	64,646	(5,856)	-	120,670	3,180	182,640

(in millions of Korean won)

	2019						
	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

(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 Group. The amounts disclosed for each subsidiary are before inter-company eliminations.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

41. Information for Non-controlling Interests, Continued
Summarized consolidated statements of financial position

<i>(in millions of Korean won)</i>	2020				
	Kakao Games Corp.	Kakaopay Corp.	Kakao Page Corp.	Kakao Mobility Corp.	Kakao M Corp.
Current assets	₩ 695,580	644,304	115,793	137,280	365,937
Non-current assets	614,332	60,029	429,900	185,361	719,472
Assets of financial services business	-	503,650	-	-	-
Current liabilities	159,301	548,984	145,286	81,487	258,386
Non-current liabilities	125,231	24,198	41,054	59,480	67,874
Liabilities of financial services business	-	430,666	-	-	-
Equity	₩ 1,025,380	204,135	359,353	181,674	759,149

<i>(in millions of Korean won)</i>	2019				
	Kakao Games Corp.	Kakaopay Corp.	Kakao Page Corp.	Kakao Mobility Corp.	Kakao 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

Summarized consolidated statements of comprehensive income

<i>(in millions of Korean won)</i>	2020				
	Kakao Games Corp.	Kakaopay Corp.	Kakao Page Corp.	Kakao Mobility Corp.	Kakao M Corp.
Revenue	₩ 495,521	284,371	359,064	280,095	464,714
Profit (loss) for the year	67,511	(25,051)	33,420	(37,157)	(17,133)
Other comprehensive income (loss)	101,976	(2,502)	(271)	1,459	(1,484)
Total comprehensive income (loss)	₩ 169,487	(27,553)	33,149	(35,698)	(18,617)

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

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

41. Information for Non-controlling Interests, Continued
Summarized consolidated statements of cash flows

(in millions of
Korean won)

	2020				
	Kakao Games Corp.	Kakaopay Corp.	Kakao Page Corp.	Kakao Mobility Corp.	Kakao M Corp.
Cash flows from operating activities	₩ 82,289	32,554	48,051	(4,237)	(50,295)
Cash flows from investing activities	(168,367)	(193,938)	(171,997)	(26,007)	(147,548)
Cash flows from financing activities	408,689	167,691	78,239	68,139	223,370
Net increase (decrease) in cash and cash equivalents	322,611	6,307	(45,707)	37,895	25,527
Cash and cash equivalents at beginning of year	247,105	378,689	67,799	26,586	126,346
Effects of exchange rate changes on cash and cash equivalents	(2,486)	(35)	(13)	-	(174)
Cash and cash equivalents at end of year	₩ 567,230	384,961	22,079	64,481	151,699

(in millions of
Korean won)

	2019				
	Kakao Games Corp.	Kakaopay Corp.	Kakao Page Corp.	Kakao Mobility Corp.	Kakao 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	104,822	261,372	14,645	35,410	135,547
Effects of exchange 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

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

41. Information for Non-controlling Interests, Continued

(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, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Capital increase of a subsidiary ^{1,2,3}	₩ 176,446	42,395
Others	77,836	3,665
Net effect on equity	₩ 254,282	46,060

¹ During 2020, Kakao M Corp., a subsidiary, decided to increase capital through allotment to a third party. Total amount of the capital increase is ₩ 237,105 million. As a result, the Group's interests in Kakao M Corp. decreased from 89.8% to 77.3%. Due to the above transaction, the non-controlling interest increased by ₩ 120,670 million as of the date of capital increase and the share capital attributed to the owners of the Parent Company increased by ₩ 116,435 million.

² During 2020, Kakaopay Corp., a subsidiary, decided to increase capital through allotment to a third party. Total amount of the capital increase is ₩ 115,235 million. As a result, the Group's interests in Kakaopay Corp. decreased from 60.9% to 56.1%. Due to the above transaction, the non-controlling interest increased by ₩ 94,584 million as of the date of capital increase and the share capital attributed to the owners of the Parent Company increased by ₩ 20,651 million.

³ During 2020, Kakao Games Corp., a subsidiary, decided to increase capital through allotment to a third party. Total amount of the capital increase is ₩ 399,858 million. As a result, the Group's interests in Kakao Games Corp. decreased from 60.6% to 45.6%. Due to the above transaction, the non-controlling interest increased by ₩ 349,125 million as of the date of capital increase and the share capital attributed to the owners of the Parent Company increased by ₩ 50,732 million.

KAKAO CORP. AND SUBSIDIARIES
Notes to Consolidated Financial Statements, Continued
For the years ended December 31, 2020 and 2019

42. Events After the Reporting Period

Pursuant to the resolution of the board of directors' meeting held on March 12, 2021, the Group decided to spin off Melon business segment (which provides music services, musical, tickets) in order to encourage professional and prompt decision-making process, and promote effective cooperation and synergy within Kakao Group. Final approval by the shareholders will be made at the shareholders' annual general meeting to be held on March 29, 2021.

Pursuant to the resolution of the board of directors' meeting held on March 12, 2021, the Group decided to set up an eco-friendly data center (IDC) to strengthen operation management of its artificial intelligence and big data and effectively respond to future IT demand data increase.

Kakao Page Co., Ltd., a subsidiary, merged with Kakao M Co., Ltd., a subsidiary, at a merger date of March 1, 2021 (at a merger ratio of 1:1.3102584) through a resolution of the shareholders' meeting held on January 26, 2021. After the merger, name of the surviving company changed to Kakao Entertainment.

Kakao Enterprise Co., Ltd., a subsidiary, decided to issue new shares through a third-party allotment in accordance with the resolution of the board of directors' meeting held on December 31, 2020. The number of new shares allocated is 1,366,774 shares, and the price is ₩ 100,000 million.

Kakao Games, a subsidiary, participated in a Neptune Co., Ltd.'s capital increase by a third-party allotment on February 5, 2021 in accordance with the resolution of the board of directors' meeting held on December 18, 2020, and acquired 7,515,336 registered common shares for ₩ 193,52 million (₩ 25,750 per share).

On February 5, 2021, Kakao Games Inc., a subsidiary, exercised its conversion rights for unregistered unsecured private convertible bonds of Neptune Co., Ltd. and acquired 464,900 registered common shares.