SK HYNIX, INC. and Subsidiaries

Consolidated Financial Statements

December 31, 2018 and 2017

(With Independent Auditors' Report Thereon)

Contents

Independent Auditors' Report

Based on a report originally issued in Korean

To The Board of Directors and Shareholders of
SK hynix, Inc.:

Opinion

We have audited the accompanying consolidated financial statements of SK hynix, Inc. and its subsidiaries (the "Group"), which comprise the consolidated statements of financial position as of December 31, 2018 and 2017, the related consolidated statements of comprehensive income, changes in equity and cash flows for the years 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, 2018 and 2017, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with Korean International Financial Reporting Standards ("K-IFRS").

Basis for Opinion

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

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements as of and for the year ended December 31, 2018. 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.

(I) Measurement of fair value of financial instruments.
As described in note 6 and note 12 to the consolidated financial statements, the acquisition costs of equity investment ("SPC1") and convertible bonds ("SPC2") acquired during 2018 relating to the Group's investment in Toshiba Memory Corporation ("TMC") were JPY 266,000 million and JPY 129,000 million, respectively. Those are measured at the fair value using significant unobservable inputs as of December 31, 2018 and amount to ₩4,183,005 million in the aggregate.

Financial instruments measured at fair value through profit or loss can contain misstatements due to the involvement of significant judgments and the use of assumptions and estimates. Accordingly, we identified the measurement of fair value of financial instruments in connection with the investments in SPC1 and SPC2 as a key audit matter.

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

- Assessing the qualification and objectivity of the external institution engaged by the Group to assess the fair value of the financial instruments;
- Reading investment agreements to understand the relevant investment terms, identifying any conditions that were relevant to the valuation of financial instruments and confirming whether investment terms and conditions are considered in valuation;
- Engaging our internal valuation specialists to assist us in evaluating the valuation result from the report issued by the external institution, and the valuation models and assumptions used by the Group to value investments in SPC1 and SPC2;
- Performing sensitivity analysis of significant unobservable inputs used in estimating the fair value of investments in SPC1 and SPC2 and assessing the impact of changes in the inputs on the fair value measurement and whether there were any indicators of management bias; and
- Assessing the appropriate disclosures of the consolidated financial statements for the valuation of fair value and key assumptions and source data in accordance with K-IFRS.

(II) Assessment and disclosure of contingencies for price-fixing class-action lawsuits in North America and the antitrust investigation in China.

As described in note 34, there are a number of ongoing legal disputes and regulatory investigations as of December 31, 2018, which included the price-fixing class-action lawsuits in North America and the antitrust investigation in China. As described in note 3-(17) to the consolidated financial statements, a provision should be recognized for these litigation and investigation if they represent a present obligation as a result of past event, and it is probable that an outflow of resources will occur, and reliable estimation of amounts can be made.

As the outcome of these litigation and regulatory investigation is uncertain, any position taking by management will involve significant judgment and estimation. The estimates underlying these contingent liabilities involve management's significant judgment in interpreting various relevant regulations, laws, and practices, and evaluation of past cases of jurisdictions. Accordingly, we identified the assessment of contingent liabilities and related disclosures for the above litigation and regulatory investigation as a key audit matter.

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

- Discussing the status and potential exposures with the Company internal legal counsel and obtaining confirmation letters regarding the litigation and regulatory investigation from the Company's external legal counsels, including their views on the likely outcome of each litigation or regulatory investigation and whether the magnitude of potential exposure to the Group could be reliably estimated;
- Assessing the competence, capability and objectivity of external legal counsels, by considering professional qualifications, fee arrangements and other relevant factors;
- Assessing the recognition of provisions depending on whether those are a present obligation as a result of past event, probable that an outflow of resources, and reliable estimation of amounts in accordance with accounting standard; and
- Assessing whether the disclosures detailing the above litigation and regulatory investigation adequately disclose the potential liabilities of the Group.

Other Matter

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.

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

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with Korean International Financial Reporting Standards ("K-IFRS"), and for such internal controls 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' Responsibility 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 misstatements, 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 Korean Standards on Auditing will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

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

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, 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 of business activities with 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, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our 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 Seung Yeoul Yang.

KPMG Samjong Accounting Corp.
Seoul, Korea
February 25, 2019

This report is effective as of February 25, 2019, 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.

SK HYNIX, INC. and Subsidiaries

Consolidated Statements of Financial Position

As of December 31, 2018 and 2017

(In millions of won)

	Note		2018	2017
Assets				
Current assets				
Cash and cash equivalents	*5,6*	₩	2,349,319	2,949,991
Short-term financial instruments	*5,6,7*		523,579	4,674,862
Short-term investment assets	*5,6*		5,496,452	929,801
Trade receivables, net	*5,6,8,33*		6,319,994	5,552,795
Loans and other receivables, net	*5,6,8,33*		18,392	37,613
Inventories, net	*9*		4,422,733	2,640,439
Current tax assets	*31*		22,252	1,305
Other current assets	*10*		741,425	523,638
			19,894,146	17,310,444
Non-current assets				
Investments in associates and joint ventures	*11*		562,194	359,864
Long-term investment assets	*5,6,12*		4,325,550	43,226
Loans and other receivables, net	*5,6,8,33*		68,514	42,410
Other financial assets	*5,6,7*		310	273
Property, plant and equipment, net	*13,15,34*		34,952,617	24,062,601
Intangible assets, net	*14,30*		2,678,770	2,247,290
Investment property, net	*13,15*		1,400	2,468
Deferred tax assets	*21,31*		544,016	599,783
Employee benefit assets	*20*		5,164	13,385
Other non-current assets	*10,34*		625,654	736,720
			43,764,189	28,108,020
Total assets		₩	63,658,335	45,418,464

See accompanying notes to the consolidated financial statements.

SK HYNIX, INC. and Subsidiaries
Consolidated Statements of Financial Position, Continued
As of December 31, 2018 and 2017

(In millions of won)

	Note		2018	2017
Liabilities				
Current liabilities				
Trade payables	5,6,33	₩	1,096,380	758,578
Other payables	5,6,33		3,681,933	2,724,547
Other non-trade payables	5,6,16,33		1,879,520	1,340,225
Borrowings	5,6,17,34		1,614,303	773,780
Provisions	19		56,208	81,351
Current tax liabilities	31		4,555,670	2,385,876
Other current liabilities	18		147,838	51,776
			13,031,852	8,116,133
Non-current liabilities				
Other non-trade payables	5,6,16		15,231	3,412
Borrowings	5,6,17,34		3,667,634	3,397,490
Defined benefit liabilities, net	20		5,387	6,096
Deferred tax liabilities	21		6,597	5,554
Other non-current liabilities	18		79,303	68,860
			3,774,152	3,481,412
Total liabilities			16,806,004	11,597,545
Equity				
Equity attributable to owners of the Parent Company				
Capital stock	1,23		3,657,652	3,657,652
Capital surplus	23		4,143,736	4,143,736
Other equity	23		(2,506,451)	(771,100)
Accumulated other comprehensive loss	24		(482,819)	(502,264)
Retained earnings	25		42,033,601	27,287,256
Total equity attributable to owners of the Parent Company			46,845,719	33,815,280
Non-controlling interests			6,612	5,639
Total equity			46,852,331	33,820,919
Total liabilities and equity		₩	63,658,335	45,418,464

See accompanying notes to the consolidated financial statements.

SK HYNIX, INC. and Subsidiaries
Consolidated Statements of Comprehensive Income
For the years ended December 31, 2018 and 2017

(In millions of won, except per share information)

	Note		2018	2017
Revenue	*4,26,33*	₩	40,445,066	30,109,434
Cost of sales	*28,33*		15,180,838	12,701,843
Gross profit			25,264,228	17,407,591
Selling and administrative expense	*27,28*		4,420,478	3,686,265
Operating profit			20,843,750	13,721,326
Finance income	*29*		1,691,955	996,468
Finance expenses	*29*		1,142,134	1,249,617
Share of profit of equity-accounted investees	*11*		13,007	12,367
Other income	*30*		112,810	77,882
Other expenses	*30*		178,358	118,860
Profit before income tax			21,341,030	13,439,566
Income tax expense	*31*		5,801,046	2,797,347
Profit for the year			15,539,984	10,642,219
Other comprehensive income (loss)				
Item that will never be reclassified to profit or loss:				
Remeasurements of defined benefit liability, net of tax	*20*		(77,029)	2,762
Items that are or may be reclassified to profit or loss:				
Foreign operations – foreign currency translation differences, net of tax	*24*		7,534	(387,683)
Loss on valuation of long-term investment asset			-	(10,735)
Equity-accounted investees – share of other comprehensive income (loss), net of tax	*11,24*		2,276	(26,386)
Other comprehensive loss for the year, net of tax			(67,219)	(422,042)
Total comprehensive income for the year		₩	15,472,765	10,220,177
Profit attributable to:				
Owners of the Parent Company		₩	15,540,111	10,641,512
Non-controlling interests			(127)	707
Total comprehensive income (loss) attributable to:				
Owners of the Parent Company			15,471,792	10,221,113
Non-controlling interests			973	(936)
Earnings per share				
Basic earnings per share (in won)	*32*		22,255	15,073
Diluted earnings per share (in won)	*32*		22,252	15,072

See accompanying notes to the consolidated financial statements

SK HYNIX, INC. and Subsidiaries

Consolidated Statements of Changes in Equity

For the years ended December 31, 2018 and 2017

(In millions of won)

		Attributable to owners of the Parent Company							
	Note	Capital stock	Capital surplus	Other equity	Accumulated other comprehensive income (loss)	Retained earnings	Total	Non-controlling interests	Total equity
Balance at January 1, 2017		₩ 3,657,652	4,143,736	(771,913)	(79,103)	17,066,583	24,016,955	6,575	24,023,530
Total comprehensive income									
Profit for the year		-	-	-	-	10,641,512	10,641,512	707	10,642,219
Remeasurements of defined benefit liability, net of tax	*20*	-	-	-	-	2,762	2,762	-	2,762
Loss on valuation of long-term investment asset	*12,24*	-	-	-	(10,735)	-	(10,735)	-	(10,735)
Other comprehensive income from joint venture and associate, net of tax	*11,24*	-	-	-	(26,386)	-	(26,386)	-	(26,386)
Foreign currency translation differences for foreign operations, net of tax	*24*	-	-	-	(386,040)	-	(386,040)	(1,643)	(387,683)
Total comprehensive income		-	-	-	(423,161)	10,644,274	10,221,113	(936)	10,220,177
Transactions with owners of the Parent Company									
Dividends paid	*25*	-	-	-	-	(423,601)	(423,601)	-	(423,601)
Share-based payment transactions		-	-	813	-	-	813	-	813
Total transactions with owners of the Parent Company		-	-	813	-	(423,601)	(422,788)	-	(422,788)
Balance at December 31, 2017		₩ 3,657,652	4,143,736	(771,100)	(502,264)	27,287,256	33,815,280	5,639	33,820,919

See accompanying notes to the consolidated financial statements.

SK HYNIX, INC. and Subsidiaries
Consolidated Statements of Changes in Equity, Continued
For the years ended December 31, 2018 and 2017

(In millions of won)

	Note		Capital stock	Capital surplus	Other equity	Accumulated other comprehensive income (loss)	Retained earnings	Total	Non-controlling interests	Total equity
			Attributable to owners of the Parent Company							
Balance at December 31, 2017		₩	3,657,652	4,143,736	(771,100)	(502,264)	27,287,256	33,815,280	5,639	33,820,919
Adjustments on initial application of K-IFRS No.1109			-	-	-	10,735	(10,735)	-	-	-
Balance at January 1, 2018			3,657,652	4,143,736	(771,100)	(491,529)	27,276,521	33,815,280	5,639	33,820,919
Total comprehensive income										
Profit for the year			-	-	-	-	15,540,111	15,540,111	(127)	15,539,984
Remeasurements of defined benefit liability, net of tax	*20*		-	-	-	-	(77,029)	(77,029)	-	(77,029)
Other comprehensive income from joint venture and associate, net of tax	*11,24*		-	-	-	2,276	-	2,276	-	2,276
Foreign currency translation differences for foreign operations, net of tax	*24*		-	-	-	6,434	-	6,434	1,100	7,534
Total comprehensive income			-	-	-	8,710	15,463,082	15,471,792	973	15,472,765
Transactions with owners of the Parent Company										
Acquisition of treasury shares			-	-	(1,736,514)	-	-	(1,736,514)	-	(1,736,514)
Dividends paid	*25*		-	-	-	-	(706,002)	(706,002)	-	(706,002)
Share-based payment transactions			-	-	1,163	-	-	1,163	-	1,163
Total transactions with owners of the Parent Company			-	-	(1,735,351)	-	(706,002)	(2,441,353)	-	(2,441,353)
Balance at December 31, 2018		₩	3,657,652	4,143,736	(2,506,451)	(482,819)	42,033,601	46,845,719	6,612	46,852,331

See accompanying notes to the consolidated financial statements.

SK HYNIX, INC. and Subsidiaries
Consolidated Statements of Cash Flows
For the years ended December 31, 2018 and 2017

(In millions of won)

	Note		2018	2017
Cash flows from operating activities				
Cash generated from operating activities	35	₩	25,825,017	15,373,261
Interest received			81,323	41,680
Interest paid			(126,029)	(120,332)
Dividends received			15,258	14,841
Income tax paid			(3,568,370)	(618,836)
Net cash provided by operating activities			22,227,199	14,690,614
Cash flows from investing activities				
Net change in short-term financial instruments			4,174,667	(2,776,527)
Net change in short-term investment asset			(4,519,395)	657,523
Decrease in other financial assets			116	308
Increase in other financial assets			(100)	(167)
Collection of loans and other receivables			21,824	18,437
Increase in loans and other receivables			(48,424)	(22,009)
Proceeds from disposal of long-term investment asset			7,118	3,431
Acquisition of long-term investment asset			(4,012,799)	(26,204)
Cash inflows from derivative transactions			-	902
Cash outflows from derivative transactions			-	(1,201)
Proceeds from disposal of property, plant and equipment			131,754	244,897
Acquisition of property, plant and equipment			(16,036,146)	(9,128,303)
Proceeds from disposal of intangible assets			2,532	3,249
Acquisition of intangible assets			(933,139)	(784,911)
Receipt of government grants			17,081	5,900
Acquisition of investments in associates			(200,508)	(114,487)
Acquisition of subsidiary, net of cash acquired			(33,330)	-
Net cash used in investing activities			(21,428,749)	(11,919,162)
Cash flows from financing activities				
Proceeds from borrowings	35		3,125,721	782,330
Repayments of borrowings	35		(2,078,522)	(710,635)
Acquisition of treasury shares			(1,736,514)	-
Dividends paid			(706,002)	(423,601)
Net cash used in financing activities			(1,395,317)	(351,906)
Effect of movements in exchange rates on cash and cash equivalents			(3,805)	(83,341)
Net increase (decrease) in cash and cash equivalents			(600,672)	2,336,205
Cash and cash equivalents at beginning of the year			2,949,991	613,786
Cash and cash equivalents at end of the year		₩	2,349,319	2,949,991

See accompanying notes to the consolidated financial statements.

1. Reporting Entity

(1) General information about SK hynix, Inc. (the "Parent Company" or the "Company") and its subsidiaries (collectively the "Group") is as follows:

The Parent Company manufactures, distributes and sells semiconductor products and its shares have been listed on the Korea Exchange since 1996. The Parent Company's headquarters is located at 2091 Gyeongchung-daero, Bubal-eup, Icheon-si, Gyeonggi-do, South Korea, and the Group has manufacturing facilities in Icheon-si and Cheongju-si, South Korea, and Wuxi and Chongqing, China.

As of December 31, 2018, the shareholders of the Parent Company are as follows:

Shareholder	Number of shares	Percentage of ownership (%)
SK Telecom Co., Ltd.	146,100,000	20.07
National Pension Service	65,890,385	9.05
Other investors	472,011,410	64.84
Treasury shares	44,000,570	6.04
	728,002,365	100.00

The Parent Company's common shares and depositary receipts (DRs) are listed on the Stock Market of Korea Exchange and the Luxembourg Stock Exchange.

1. Reporting Entity, Continued

(2) Details of the Group's consolidated subsidiaries as of December 31, 2018 and 2017 are as follows:

Company	Location	Business	Ownership (%) 2018	Ownership (%) 2017
SK hyeng Inc.	Korea	Construction service	100	100
SK hystec Inc.	Korea	Business support service	100	100
Siliconfile Technologies Inc.[1]	Korea	Development and manufacturing of electronic component	-	100
Happymore Inc.	Korea	Manufacturing and cleaning cleanroom suits	100	100
SK hynix system ic Inc.[1]	Korea	Semiconductor manufacturing and sales	100	100
Happynarae Co., Ltd. [2]	Korea	Industrial material logistics	100	-
SK hynix America Inc.	U.S.A.	Semiconductor sales	97.74	97.74
SK hynix Deutschland GmbH	Germany	Semiconductor sales	100	100
SK hynix Asia Pte. Ltd.	Singapore	Semiconductor sales	100	100
SK hynix Semiconductor Hong Kong Ltd.	Hong Kong	Semiconductor sales	100	100
SK hynix U.K. Ltd.	U.K.	Semiconductor sales	100	100
SK hynix Semiconductor Taiwan Inc.	Taiwan	Semiconductor sales	100	100
SK hynix Japan Inc.	Japan	Semiconductor sales	100	100
SK hynix Semiconductor (Shanghai) Co., Ltd.	China	Semiconductor sales	100	100
SK hynix Semiconductor India Private Ltd.[3]	India	Semiconductor sales	100	100
SK hynix (Wuxi) Semiconductor Sales Ltd.	China	Semiconductor sales	100	100
SK hynix Semiconductor (China) Ltd.[4]	China	Semiconductor manufacturing	100	100
SK hynix Semiconductor (Wuxi) Ltd.[4]	China	Semiconductor manufacturing	-	100
SK hynix Semiconductor (Chongqing) Ltd.[5]	China	Semiconductor manufacturing	100	100
SK hynix Italy S.r.l.	Italy	Semiconductor research and development	100	100
SK hynix memory solutions America Inc.[6]	U.S.A.	Semiconductor research and development	100	100
SK hynix memory solutions Taiwan Ltd.[7]	Taiwan	Semiconductor research and development	100	100
SK hynix memory solutions Eastern Europe LLC.[8]	Belarus	Semiconductor research and development	100	100
SK APTECH Ltd.	Hong Kong	Overseas investment	100	100
SK hynix Venture Hong Kong Ltd.	Hong Kong	Overseas investment	100	100
SK hynix (Wuxi) Investment Ltd.[9]	China	Overseas investment	100	-
SK hynix (Wuxi) Industry Development Ltd.[10]	China	Foreign hospital construction	100	-
SK hynix Happiness (Wuxi) Hospital Management Ltd. [10]	China	Foreign hospital operation	100	-
SK hynix system ic (Wuxi) Co., Ltd.[11]	China	Overseas Semiconductor manufacturing and sales	100	-
SK hynix happy (Wuxi) cleaning Ltd.[10]	China	Building management	100	-
SUZHOU HAPPYNARAE Co., Ltd.[12]	China	Overseas industrial material logistics	100	-
CHONGQING HAPPYNARAE Co., Ltd.[12]	China	Overseas industrial material logistics	100	-
MMT (Money Market Trust)	Korea	Money Market Trust	100	100

1. Reporting Entity, Continued

(2) Details of the Group's consolidated subsidiaries as of December 31, 2018 and 2017 are as follows, Continued:

[1] SK hynix system ic Inc. merged with Siliconfile Technologies Inc. during the year ended December 31, 2018.
[2] The Group obtained control over Happynare Co., Ltd. as of December 28, 2018 by acquisition of 100% its shares from SK telecom Co., Ltd and others.
[3] Subsidiary of SK hynix Asia Pte. Ltd.
[4] SK hynix Semiconductor (China) Ltd. merged SK hynix Semiconductor (Wuxi) Ltd. during the year ended December 31, 2018.
[5] Subsidiary of SK APTECH Ltd.
[6] Name of the subsidiary is changed from SK hynix memory solutions Inc. to SK hynix memory solutions America Inc. during the year ended December 31, 2018.
[7] Name of the subsidiary is changed from SK hynix Flash Solution Taiwan to SK hynix memory solutions Taiwan Ltd. during the year ended December 31, 2018.
[8] Name of the subsidiary is changed from Softeq Flash Solutions LLC. to SK hynix memory solutions Eastern Europe LLC. during the year ended December 31, 2018.
[9] SK hynix (Wuxi) Investment Ltd. was established during the year ended December 31, 2018 and is a subsidiary of SK hynix Semiconductor (China) Ltd.
[10] SK hynix (Wuxi) Industry Development Ltd., SK hynix Happiness (Wuxi) Hospital Management Ltd., and SKhynix happy (wuxi) cleaning Ltd. were established during the year ended December 31, 2018 and are subsidiaries of SK Hynix (Wuxi) Investment Ltd.
[11] SK hynix system ic (Wuxi) Co., Ltd. was estabilshed during the year ended December 31, 2018 and is a subsidiary of SK hynix system ic Inc.
[12] Subsidiary of Happynarae Co., Ltd.

(3) Changes in the consolidated subsidiaries for the year ended December 31, 2018 are as follows:

	Company	Reason
Excluded from consolidation	Siliconfile Technologies Inc.	Excluded due to merger
Excluded from consolidation	SK hynix Semiconductor (Wuxi) Ltd.	Excluded due to merger
Included in consolidation	SK hynix (Wuxi) Investment Ltd.	Included due to new establishment
Included in consolidation	SK hynix (Wuxi) Industry Development Ltd.	Included due to new establishment
Included in consolidation	SK hynix Happiness (Wuxi) Hospital Management Ltd.	Included due to new establishment
Included in consolidation	SK hynix system ic (Wuxi) Co., Ltd.	Included due to new establishment
Included in consolidation	Happynarae Co., Ltd.	Included due to acquisition
Included in consolidation	SUZHOU HAPPYNARAE Co., Ltd.	Included due to acquisition
Included in consolidation	CHONGQING HAPPYNARAE Co., Ltd.	Included due to acquisition
Included in consolidation	SK hynix happy (Wuxi) cleaning Ltd.	Included due to new establishment

1. Reporting Entity, Continued

(4) Major subsidiaries' summarized separate statements of financial position as of December 31, 2018 and 2017 are as follows:

(In millions of won)		2018			2017		
		Assets	Liabilities	Equity	Assets	Liabilities	Equity
SK hynix system ic Inc.	₩	550,323	92,989	457,334	360,254	77,958	282,296
SK hynix America Inc.		3,013,637	2,707,732	305,905	2,522,348	2,259,210	263,138
SK hynix Deutschland GmbH		99,641	60,244	39,397	108,470	70,430	38,040
SK hynix Asia Pte. Ltd.		933,268	848,990	84,278	636,286	559,400	76,886
SK hynix Semiconductor Hong Kong Ltd.		347,109	204,622	142,487	1,043,889	918,305	125,584
SK hynix U.K. Ltd.		536,208	518,036	18,172	325,434	308,999	16,435
SK hynix Semiconductor Taiwan Inc.		449,054	427,498	21,556	566,155	536,592	29,563
SK hynix Japan Inc.		837,362	770,819	66,543	632,590	569,810	62,780
SK hynix Semiconductor (Shanghai) Co., Ltd.		1,199,602	1,116,282	83,320	414,850	379,888	34,962
SK hynix (Wuxi) Semiconductor Sales Ltd.		535,819	492,934	42,885	13,347	12,677	670
SK hynix Semiconductor (China) Ltd.		6,390,490	2,158,715	4,231,775	4,043,100	322,545	3,720,555
SK hynix Semiconductor (Chongqing) Ltd.		540,284	124,451	415,833	388,033	195,849	192,184

(5) Major subsidiaries' summarized separate statements of comprehensive income for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)		2018			2017		
		Revenue	Profit (loss)	Total comprehensive income (loss)	Revenue	Profit (loss)	Total comprehensive income (loss)
SK hynix system ic Inc.	₩	554,264	60,649	60,360	231,537	(7,716)	(7,876)
SK hynix America Inc.		14,296,762	30,800	30,800	11,096,526	(7,243)	(7,243)
SK hynix Deutschland GmbH		503,375	1,380	1,380	476,709	(120)	(120)
SK hynix Asia Pte. Ltd.		3,531,313	3,999	3,999	2,645,084	2,872	2,872
SK hynix Semiconductor Hong Kong Ltd.		3,710,359	11,486	11,486	8,717,022	19,456	19,456
SK hynix U.K. Ltd.		1,517,706	1,005	1,005	1,088,697	953	953
SK hynix Semiconductor Taiwan Inc.		2,955,717	2,475	2,475	2,629,453	12,446	12,446
SK hynix Japan Inc.		1,084,079	(410)	(467)	940,254	1,761	1,761
SK hynix Semiconductor (Shanghai) Co., Ltd.		7,291,257	49,634	49,634	1,332,939	8,230	8,230
SK hynix (Wuxi) Semiconductor Sales Ltd.		4,832,879	43,163	43,163	30,342	92	92
SK hynix Semiconductor (China) Ltd.		2,518,849	84,089	84,089	2,185,341	338,969	338,969
SK hynix Semiconductor (Chongqing) Ltd.		406,839	27,125	27,125	355,982	23,441	23,441

(6) There are no significant non-controlling interests to the Group as of December 31, 2018 and 2017.

2. Basis of Preparation

The consolidated financial statements have been prepared in accordance with Korean International Financial Reporting Standards ("K-IFRS"), as prescribed in the *Act on External Audits of Corporations in the Republic of Korea*.

The consolidated financial statements were authorized for issuance by the board of directors on January 23, 2019, which will be submitted for approval at the shareholders' meeting to be held on March 22, 2019.

This is the first set of the Group's annual financial statements in which K-IFRS No. 1115 *'Revenue from Contracts from Customers'* and K-IFRS No. 1109 *'Financial Instrument'* have been applied. Changes to significant accounting policies are described in note 3-(26).

(1) Basis of measurement

The consolidated financial statements have been prepared on the historical cost basis, except for the following material items in the consolidated statements of financial position:

- derivative financial instruments are measured at fair value
- financial instruments at fair value through profit or loss are measured at fair value
- assets or liabilities for defined benefit plans are recognized at the net of the total present value of defined benefit obligations less the fair value of plan assets

(2) Functional and presentation currency

Financial statements of entities within the Group are presented in functional currency and the currency of the primary economic environment in which each entity operates. Consolidated financial statements of the Group are presented in Korean won, which is the Parent Company's functional and presentation currency.

(3) Use of estimates and judgments

The preparation of the consolidated financial statements in conformity with K-IFRS requires management to make judgments, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

(a) Critical judgments

Information about critical judgments in applying accounting policies that have the most significant effect on the amounts recognized in the consolidated financial statements is included in the following notes for classification of leases.

(b) Assumptions and estimation uncertainties

Information about assumptions and estimation uncertainties that have a significant risk of resulting in a material adjustment within the next fiscal year is included in the following notes for net realizable value of inventories, impairment of development costs and goodwill, recognition and measurement of provisions, measurement of defined benefit obligations, recognition of deferred tax assets, valuation of short and long-term investment assets.

2. Basis of Preparation, Continued

(3) Use of estimates and judgments, Continued

(c) Fair value measurement

The Group establishes fair value measurement policies and procedures as its accounting policies and disclosures require fair value measurements for various financial and non-financial assets and liabilities. Such policies and procedures are executed by the valuation department, which is responsible for the review of significant fair value measurements including fair values classified as level 3 in the fair value hierarchy.

The valuation department regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair values, then the valuation department assesses the evidence obtained from the third parties to support the conclusion that these valuations meet the requirements of IFRS, including the level in the fair value hierarchy in which the valuations should be classified.

The Group reports significant valuation issues to the audit committee.

When measuring the fair value of an asset or a liability, the Group uses observable market data as far as possible. Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows.

Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities
Level 2: inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices)
Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs)

If various inputs used to measure fair value of assets or liabilities fall into different levels of the fair value hierarchy, the Group classifies the assets and liabilities at the lowest level of inputs among the fair value hierarchy, which is significant to the entire measured value. The Group recognizes transfers between levels at the end of the reporting period of which such transfers occurred.

Information about assumptions used for fair value measurements is included in financial risk management, note 6.

3. Significant Accounting Policies

The significant accounting policies applied by the Group in preparation of its consolidated financial statements are explained below. Except for the new accounting standards that are effective for annual periods beginning on or after January 1, 2018, the accounting policies set out below have been applied consistently to all periods presented in these consolidated financial statements.

(1) Operating Segments

An operating segment is a component of the Group that: 1) engages in business activities from which it may earn revenues and incur expenses, including revenues and expenses that relate to transactions with other components of the Group, 2) whose operating results are reviewed regularly by the Group's chief operating decision maker ("CODM") in order to allocate resources and assess its performance, and 3) for which discrete financial information is available. The Group's CODM is the board of directors, who do not receive and therefore do not review discrete financial information for any component of the Group. Consequently, no operating segment information is included in these consolidated financial statements. Entity wide disclosures of geographic, product and customer information are provided in note 4 and 26.

(2) Consolidation

(a) Business combination

A business combination is accounted for by applying the acquisition method, unless it is a combination involving entities or businesses under common control.

The consideration transferred in the acquisition is generally measured at fair value, as are the identifiable net assets acquired. Any goodwill that arises is tested annually for impairment. Any gain on a bargain purchase is recognized in profit or loss immediately. Transaction costs are expensed as incurred and during period of service, except if related to the issue of debt or equity securities according to K-IFRS No. 1032 and K-IFRS No. 1109.

The consideration transferred does not include amounts related to the settlement of pre-existing relationships. Such amounts are generally recognized in profit or loss.

Any contingent consideration is measured at fair value at the date of acquisition. If an obligation to pay contingent consideration that meets the definition of a financial instrument is classified as equity, then it is not remeasured and settlement is accounted for within equity. Otherwise, subsequent changes in the fair value of the contingent consideration are recognized in profit or loss.

If share-based payment awards (replacement awards) are required to be exchanged for awards held by the acquiree's employees (acquiree's awards), then all or a portion of the amount of the acquirer's replacement awards is included in measuring the consideration transferred in the business combination. This determination is based on the market-based measure of the replacement awards compared with the market-based measure of the acquiree's awards and the extent to which the replacement awards relate to pre-combination service.

(b) Non-controlling interests

Non-controlling interests are measured at their proportionate share of the acquiree's identifiable net assets at the date of acquisition.

Changes in the Group's interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

3. Significant Accounting Policies, Continued

(2) Consolidation, Continued

(c) Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity 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 entity. Consolidation of an investee begins from the date the Group obtains control of the investee and cease when the Group loses control of the investee.

(d) Loss of control

If the Group loses control of a subsidiary, the Group derecognizes the assets and liabilities of the former subsidiary from the consolidated statement of financial position and recognizes gain or loss associated with the loss of control attributable to the former controlling interest. Any investment retained in the former subsidiary is recognized at its fair value when control is lost.

(e) Interests in equity-accounted investees

The Group's interest in equity-accounted investees comprise interests in an associate and a joint venture. An associate are these entities in which the Group has significant influence, but not control or joint control, over the entity's financial and operating policies. A joint venture is an arrangement in which the Group has joint control, whereby the Group has rights to the net assets of the arrangement, rather than rights to its assets and obligations for its liabilities.

Interests in associates and the joint venture are initially recognized at cost including transaction costs. Subsequent to initial recognition, their carrying amounts are increased or decreased to recognize the Group's share of the profit or loss and changes in equity of the associate or the joint venture. Distributions from equity-accounted investees are accounted for as deduction from the carrying amounts.

(f) Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealized income and expenses arising from intra-group transactions, are eliminated in preparing the consolidated financial statements. The Group's share of unrealized gain incurred from transactions with equity-accounted investees are eliminated and unrealized loss are eliminated using the same basis if there are no evidence of asset impairments.

(g) Business combinations under common control

The assets and liabilities acquired in the combination of entities or business under common control are recognized at the carrying amounts recognized previously in the consolidated financial statements of the ultimate parent. The difference between consideration transferred and carrying amounts of net assets acquired is added to or deducted from other capital adjustments.

(3) Cash and cash equivalents

Cash and cash equivalents comprise cash balances and call deposits with maturities of three months or less from the acquisition date that are subject to an insignificant risk of changes in their fair value, and are used by the Group in the management of its short-term commitments.

3. Significant Accounting Policies, Continued

(4) Inventories

The cost of inventories is based on the weighted average method (except for goods in-transit that is based on the specific identification method), and includes expenditures incurred in acquiring the inventories, production or conversion costs and other costs incurred in bringing inventories to their existing location and condition. In the case of manufactured inventories and work-in-process, cost includes an appropriate share of production overheads based on the actual capacity of production facilities. However, the normal capacity is used for the allocation of fixed production overheads if the actual level of production is lower than the normal capacity.

Inventories are measured at the lower of cost and net realizable value. Net realizable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and selling expenses. The amount of any write-down of inventories to net realizable value and all losses of inventories shall be recognized as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories, arising from an increase in net realizable value, shall be recognized as a reduction in the amount of inventories recognized as an expense in the period in which the reversal occurs.

(5) Non-derivative financial assets

(a) Initial recognition and measurement

Trade and other receivables, and debt investment are initially recognized when they are originated. Other financial assets and financial liabilities are recognized when the Group becomes a party to the contractual provisions of the instruments.

A financial asset and financial liability (unless it is an account receivable - trade without a significant financing component that is initially measured at the transaction price) are initially measured at fair value plus, for an item not at fair value through profit or loss (FVTPL), transaction costs that are directly attributable to its acquisition.

(b) Classification and subsequent measurements

On initial recognition, a financial asset is classified as measured at: amortized cost; fair value through other comprehensive income (FVOCI) - debt investment; FVOCI - equity investment; or FVTPL. The classification of financial assets is generally based on the business model in which a financial asset is managed and its contractual cash flow characteristics. In case of changing its business model, all affected financial asset are reclssified on the first day of the first reporting period after the change in the business model.

A financial asset is measured at amortized cost if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is to hold assets to collect contractual cash flow; and
- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

A debt investments is measured at FVOCI if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets; and
- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

On initial recognition of an equity investment that is not held for trading, the Group may irrevocably elect to present subsequent changes in the investment's fair value in other comprehensive income. This election is made on an investment-by-investment basis and irrevocable election can be made at initial recognition.

3. Significant Accounting Policies, Continued

(5) Non-derivative financial assets, Continued

(b) Classification and subsequent measurements, Continued

All financial assets not classified as measured at amortized cost or FVOCI as described above are measured at FVTPL. This includes all derivative financial assets. On initial recognition, the Group may irrevocably designate a financial asset that otherwise meets the requirements to be measured at amortized cost or at FVOCI as at FVTPL if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise.

The Group makes an assessment of the objective of the business model in which, financial assets is held at a portfolio level because this best reflects the way the business is managed and information is provided to management. The information considered includes:

- The stated policies and objectives for the portfolio and the operation of those policies in practice;
- how the performance of the business model and the financial assets held within that business model are evaluated and reported to the entity's key management personnel;
- the risks that affect the performance of the business model (and the financial assets held within that business model) and, in particular, the way in which those risks are managed;
- how managers of the business are compensated (e.g. whether the compensation is based on the fair value of the assets managed or on the contractual cash flows collected); and
- the frequency, volume and timing of sales of financial assets in prior periods, the reason for those sales and expectation about future sales activity for financial asset.

Transfers of financial assets to third parties in transactions that do not qualify for derecognition are not considered sales for this purpose, consistent with the Group's continuing recognition of the assets.

For the purposes of this assessment, 'principal' is defined as the fair value of the financial assets on initial recognition. 'Interest' is defined as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during a particular period of time and for other basic lending risks and costs (e.g. liquidity risk and administrative costs), as well as a profit margin.

In assessing whether the contractual cash flows are solely payments of principal and interest, the Group considers the contractual terms of the instrument. This includes assessing whether the financial asset contains a contractual term that could change the timing or amount of contractual cash flows such that it would not meet this condition. In making this assessment, the Group considers:

- contingent events that would change the amount or timing of cash flows;
- terms that may adjust the contractual coupon rate, including variable-rate features;
- prepayment and extension features; and
- terms that limit the Group's claim to cash flows from specified assets (e.g. non-recourse features).

A prepayment feature is consistent with the solely payments of principal and interest criterion if the prepayment amount substantially represents unpaid amounts of principal and interest on the principal amount outstanding, which may include reasonable additional compensation for early termination of the contract. Additionally, for a financial asset acquired at a discount or premium to its contractual par amount, a feature that permits or requires prepayment at an amount that substantially represents the contractual par amount plus accrued (but unpaid) contractual interest (which may also include reasonable additional compensation for early termination) is treated as consistent with this criterion if the fair value of the prepayment feature is insignificant at initial recognition.

3. Significant Accounting Policies, Continued

(5) Non-derivative financial assets, Continued

(b) Classification and subsequent measurements, Continued

The following accounting policies apply to subsequent measurements of financial assets.

Financial assets at FVTPL	These assets are subsequently measured at fair value. Net gains and losses, including any interest or dividend income, are recognized in profit or loss.
Financial assets at amortized cost	These assets are subsequently measured at amortized cost using the effective interest method. The amortized cost is reduced by impairment losses. Interest income, foreign exchange gains and losses and impairment are recognized in profit or loss. Any gain or loss on derecognition is recognized in profit or loss.
Debt investments at FVOCI	These assets are subsequently measured at fair value. Interest income is calculated using the effective interest method. Foreign exchange gains and losses and impairment are recognized in profit or loss. Other net gains and losses are recognized in OCI. On derecognition, gains and losses accumulated in OCI are reclassified to profit or loss.
Equity investments at FVOCI	These assets are subsequently measured at fair value. Dividends are recognized as income in profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognized in OCI and are never reclassified to profit or loss.

(c) De-recognition

The Group derecognizes a financial asset when the contractual rights to the cash flows from the asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all the risks and rewards of ownership of the financial asset are transferred or in which the Group neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

The Group enters into transactions whereby it transfers assets recognized in its statement of financial position, but retain either all or substantially all of the risks and rewards of the transferred assets. In these cases, the transferred assets are not derecognized.

3. Significant Accounting Policies, Continued

(5) Non-derivative financial assets, Continued

(d) Offsetting between financial assets and financial liabilities

Financial assets and financial liabilities are offset and the net amount is presented in the consolidated statement of financial position only when the Group currently has a legally enforceable right to offset the recognized amounts, and there is the intention to settle on a net basis or to realize the asset and settle the liability simultaneously.

(6) Derivative financial instruments

The Group enters into a derivative financial instruments to manage its exposure to interest rate. Embedded derivatives are separated from the host contract and accounted for separately only if the host contract is not a financial assets and certain criteria are met.

Derivatives are initially recognized at fair value. Subsequent to initial recognition, derivatives are measured at fair value, and the changes therein are generally recognized in profit or loss.

The Group designates certain derivatives as hedging instruments to hedge the variability in cash flows associated with highly probable forecast transactions arising from changes in interest rates.

At inception of designated hedging relationships, the Group documents the relationship between the hedging instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions. Furthermore, at the inception of the hedge and on an ongoing basis, the Group documents whether the hedging instrument is highly effective in offsetting changes in fair values or cash flows of the hedged item.

(7) Impairment of financial assets

(a) Recognition of impairment on financial assets

The Group recognizes loss allowances for expected credit losses (ECLs) on:

- financial assets measured at amortized costs; and
- contract assets.

The Group's impairment losses are likely to be recognized a lifetime ECL based on the extent of increase in credit risk since inception except for below asset to be recognized loss allowances measured on 12-month.

- credit risk of debt instruments is low at the end of reporting date
- credit risk has not increased significantly since the initial recognition of debt investment (lifetime ECL: ECL that resulted from all possible default events over the expected life of a financial instrument)

The Group adopted an accounting policy to recognize loss allowances at an amount equal to lifetime expected credit losses for trade receivables and contract assets.

In assessing whether the credit risk on a financial instrument has increased significantly since initial recognition and estimating expected credit loss, The Group considers both quantitative and qualitative information that is reasonable and supportable, including historical experience and forward-looking information that is available without undue cost or effort.

Lifetime expected credit loss that resulted from all possible default events over the expected life of a financial instrument. And 12-month ECLs that resulted from possible default events within the 12 months (or a shorter period if the expected life of the instrument is less than 12 months) after the reporting date.

3. Significant Accounting Policies, Continued

(7) Impairment of financial assets, Continued

(a) Recognition of impairment on financial assets, Continued

The longest period to consider when measuring expected credit losses is the longest term for which the Group is exposed to credit risk.

(b) Measurement of expected credit loss

ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (i.e. the difference between the cash flows due to the entity in accordance with the contract and the cash flows that the Group expects to receive). ECLs are discounted at the effective interest rate of financial instrument.

(c) Credit-impaired financial instrument

A debt instrument carried at amortized cost and fair value through other comprehensive income(FVOCI) is assessed at the end of each reporting period to determine whether there is objective evidence that it is impaired. A financial asset is impaired if objective evidence indicates that the loss event had a negative effect on the estimated future cash flows of that asset that can be estimated reliably.

Objective evidence that a financial asset is impaired includes:

- significant financial difficulty of the issuer or borrower;
- a breach of contract, such as default or delinquency in interest or principal payments;
- the lender, for economic or legal reasons relating to the borrower's financial difficulty, granting to the borrower a concession that the lender would not otherwise consider;
- it becoming probable that the borrower will enter bankruptcy or other financial reorganization; or
- the disappearance of an active market for that financial asset because of financial difficulties

(d) Presentation of credit loss allowance on financial position

For loss allowance on financial assets measured at amortized cost is deducted from the carrying amount of the respective assets, while loss allowance on debt instruments at FVOCI is recognized in OCI.

(e) De-recognition

The Group derecognizes a financial asset when it has no reasonable expectations of recovering the contractual cash flows on a financial asset in its entirety or a portion thereof. The Group assess whether there are reasonable expectations of recovering the contractual cash flows from customers and individually assess the timing and amount of write-off. The Group does not expect that such write-off will be recovered but they may be subject to collection activity according to the Groups past due collection process.

3. Significant Accounting Policies, Continued

(8) Property, plant and equipment

Property, plant and equipment are initially measured at cost. The cost of property, plant and equipment includes expenditures arising directly from the construction or acquisition of the asset, any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management and the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

Subsequent to initial recognition, an item of property, plant and equipment is carried at its cost less any accumulated depreciation and any accumulated impairment losses.

Subsequent costs are recognized in the carrying amount of property, plant and equipment at cost or, if appropriate, as separate items if it is probable that future economic benefits associated with the cost will flow to the Group and it can be measured reliably. The carrying amount of the replaced part is derecognized. The costs of the day-to-day repair and maintenance are recognized in profit or loss as incurred.

Property, plant and equipment, except for land, are depreciated on a straight-line basis over estimated useful lives that appropriately reflect the pattern in which the asset's future economic benefits are expected to be consumed.

Gains and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment and are recognized as other income or expenses.

The estimated useful lives of the Group's property, plant and equipment are as follows:

	Useful lives (years)
Buildings	10 - 50
Structures	10 - 30
Machinery	4 - 15
Vehicles	4 - 10
Others	3 - 15

Depreciation methods, useful lives, and residual values are reviewed at the end of each reporting period and, if appropriate, accounted for as changes in accounting estimates.

(9) Borrowing costs

The Group capitalizes borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset as part of the cost of that asset. Other borrowing costs are recognized in expense as incurred. A qualifying asset is an asset that requires a substantial period of time to get ready for its intended use or sale. Financial assets and inventories that are manufactured or otherwise produced over a short period of time are not qualifying assets. Assets that are ready for their intended use or sale when acquired are not qualifying assets.

To the extent that the Group borrows funds specifically for the purpose of obtaining a qualifying asset, the Group determines the amount of borrowing costs eligible for capitalization as the actual borrowing costs incurred on that borrowing during the period less any investment income on the temporary investment of those borrowings. To the extent that the Group borrows funds generally and uses them for the purpose of obtaining a qualifying asset, the Group determines the amount of borrowing costs eligible for capitalization by applying a capitalization rate to the expenditures on that asset. The capitalization rate is the weighted average of the borrowing costs applicable to the borrowings of the Group that are outstanding during the period, other than borrowings made specifically for the purpose of obtaining a qualifying asset. The amount of borrowing costs that the Group capitalizes during a period does not exceed the amount of borrowing costs incurred during that period.

3. Significant Accounting Policies, Continued

(10) Intangible assets

Intangible assets are measured initially at cost and, subsequently, are carried at cost less accumulated amortization and accumulated impairment losses.

Goodwill arising from business combinations is recognized as the excess of the consideration transferred in the acquisition over the net fair value of the identifiable assets acquired and liabilities assumed. Any deficit is a bargain purchase that is recognized in profit or loss. Goodwill is measured at cost less accumulated impairment losses.

Amortization of intangible assets is calculated on a straight-line basis over the estimated useful lives of intangible assets from the date that they are available for use. The residual value of intangible assets is zero. However, certain intangible assets are determined as having indefinite useful lives and not amortized as there is no foreseeable limit to the period over which the assets are expected to be available for use.

The estimated useful lives of the Group's intangible assets are as follows:

	Useful lives (years)
Industrial rights	5 - 10
Development costs	2
Other intangible assets	4 - 50

Useful lives and the amortization methods for intangible assets with finite useful lives are reviewed at the end of each reporting period. The useful lives of intangible assets that are not being amortized are reviewed at the end of each reporting period to determine whether events and circumstances continue to support indefinite useful life assessments for those assets. Changes are accounted for as changes in accounting estimates.

Expenditures on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, are recognized in profit or loss as incurred. Development expenditures are capitalized only if development costs can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and the Group intends to and has sufficient resources to complete development and to use or sell the asset. Other development expenditures are recognized in profit or loss as incurred.

Subsequent expenditures are capitalized only when they increase the future economic benefits embodied in the specific asset to which it relates. All other expenditures, including expenditures on internally generated goodwill and brands, are recognized in profit or loss as incurred.

3. Significant Accounting Policies, Continued

(11) Government grants

Government grants are not recognized unless there is reasonable assurance that the Group will comply with the grant's conditions and that the grant will be received.

(a) Grants related to assets

Government grants whose primary condition is that the Group purchases, constructs or otherwise acquires non-current assets are deducted in calculating the carrying amount of the asset. The grant is recognized in profit or loss over the useful lives of depreciable assets.

(b) Grants related to income

Government grants which are intended to compensate the Group for expenses incurred are recognized in profit or loss by as deduction of the related expenses.

(12) Investment property

Property held for the purpose of earning rental income or benefiting from capital appreciation is classified as investment property. Investment property is initially measured at its cost. Transaction costs are included in the initial measurement. Subsequently, investment property is carried at cost less accumulated depreciation and impairment losses.

Subsequent costs are recognized in the carrying amount of investment property at cost or, if appropriate, as separate items if it is probable that future economic benefits associated with the cost will flow to the Group and it can be measured reliably. The carrying amount of the replaced part is derecognized. The costs of the day-to-day repair and maintenance are recognized in profit or loss as incurred.

Investment property except for land, are depreciated on a straight-line basis over 10 to 50 years depending on the useful lives.

Depreciation methods, useful lives and residual values are reviewed at the end of each reporting period and, if appropriate, accounted for as changes in accounting estimates.

3. Significant Accounting Policies, Continued

(13) Impairment of non-financial assets

The carrying amounts of the Group's non-financial assets, other than assets arising from employee benefits, inventories, and deferred tax assets, are reviewed at the end of the reporting period to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. Goodwill and intangible assets that have indefinite useful lives or that are not yet available for use, irrespective of whether there is any indication of impairment, are tested for impairment annually by comparing their recoverable amount to their carrying amount.

The Group estimates the recoverable amount of an individual asset; however if it is impossible to measure the individual recoverable amount of an asset, the Group estimates the recoverable amount of cash-generating unit ("CGU"). A CGU is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less costs to sell. The value in use is estimated by applying a pre-tax discount rate that reflect current market assessments of the time value of money and the risks specific to the asset or CGU for which estimated future cash flows have not been adjusted, to the estimated future cash flows expected to be generated by the asset or CGU.

An impairment loss is recognized in loss if the carrying amount of an asset or a CGU exceeds its recoverable amount.

Goodwill acquired in a business combination is allocated to each CGU that is expected to benefit from the synergies arising from business combination. Any impairment identified at the CGU level will first reduce the carrying value of goodwill and then be used to reduce the carrying amount of the other assets in the CGU on a pro rata basis.

Except for impairment losses in respect of goodwill, which are never reversed, an impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortization, if no impairment loss had been recognized.

(14) Leases

The Group classifies and accounts for leases as either a finance or operating lease, depending on the terms. Leases where the Group assumes substantially all of the risks and rewards of ownership are classified as finance leases. All other leases are classified as operating leases.

(a) Finance leases

At the commencement of the lease term, the Group recognizes as finance lease assets and finance lease liabilities in its consolidated statements of financial position, the lower amount of the fair value of the leased property and the present value of the minimum lease payments, each determined at the inception of the lease. Any initial direct costs are added to the amount recognized as an asset.

Minimum lease payments are apportioned between the finance expense and the reduction of the outstanding liability. The finance expense is allocated to each period during the lease term so as to produce a constant periodic rate of interest on the remaining balance of the liability. Contingent rents are charged as expenses in the periods in which they are incurred.

The depreciable amount of a leased asset is allocated to each accounting period during the period of expected use on a systematic basis consistent with the depreciation policy the lessee adopts for depreciable assets that are owned. If there is no reasonable certainty that the lessee will obtain ownership by the end of the lease term, the asset is fully depreciated over the shorter of the lease term and its useful life. The Group reviews whether the leased asset is impaired.

3. Significant Accounting Policies, Continued

(14) Leases, Continued

(b) Operating leases

Leases where the lessor retains a significant portion of the risks and rewards of ownership are classified as operating leases. Payments made under operating leases (net of any incentives received from the lessor) are recognized in profit or loss on a straight-line basis over the period of the lease.

(c) Determining whether an arrangement contains a lease

Determining whether an arrangement is, or contains, a lease is based on the substance of the arrangement and requires an assessment of whether fulfillment of the arrangement is dependent on the use of a specific asset or assets (the asset) and the arrangement conveys a right to use the asset.

At inception or reassessment of the arrangement, the Group separates payments and other consideration required by such an arrangement into those for the lease and those for other elements on the basis of their relative fair values. If the Group concludes for a financial lease that it is impracticable to separate the payments reliably, the Group recognizes an asset and a liability at an amount equal to the fair value of the underlying asset that was identified as the subject of the lease. Subsequently, the liability is reduced as payments are made and an imputed finance expense on the liability recognized using the purchaser's incremental borrowing rate of interest.

(15) Non-derivative financial liabilities

The Group classifies non-derivative financial liabilities into financial liabilities at fair value through profit or loss or other financial liabilities in accordance with the substance of the contractual arrangement and the definitions of financial liabilities. The Group recognizes financial liabilities in the consolidated statement of financial position when the Group becomes a party to the contractual provisions of the financial liability.

(a) Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss include financial liabilities held for trading or designated as such upon initial recognition. Subsequent to initial recognition, financial liabilities at fair value through profit or loss are measured at fair value, and changes therein are recognized in profit or loss. Upon initial recognition, any directly attributable transaction costs are recognized in profit or loss as incurred.

(b) Other financial liabilities

Non-derivative financial liabilities other than financial liabilities at fair value through profit or loss are classified as other financial liabilities. At the date of initial recognition, other financial liabilities are measured at fair value less any directly attributable transaction costs. Subsequent to initial recognition, other financial liabilities are measured at amortized cost using the effective interest rate method.

(c) Derecognition of financial liability

The Group derecognizes financial liability when its contractual obligations are discharged, cancelled or expired. The Group also derecognizes a financial liability, when its terms are modified and the cash flows of the modified liability are substantially different, in which case a new financial liability based on the modified terms is recognized a fair value. On derecognition of a financial liability, the difference between the carrying amount extinguished and the consideration paid (including any non-cash assets transferred of liabilities assumed) is recognized in profit or loss.

3. Significant Accounting Policies, Continued

(16) Employee benefits

(a) Short-term employee benefits

Short-term employee benefits are employee benefits that are due to be settled within 12 months after the end of the reporting period in which the employees render the related service. When an employee has rendered service to the Group during an accounting period, the Group recognizes the undiscounted amount of short-term employee benefits expected to be paid in exchange for that service.

(b) Other long-term employee benefits

Other long-term employee benefits include employee benefits that are settled beyond 12 months after the end of the reporting period in which the employees render the related service, and are calculated at the present value of the amount of future benefit that employees have earned in return for their service in the current and prior periods. Remeasurements are recognized in profit or loss in the period in which they arise.

(c) Retirement benefits: defined benefit plans

As of the end of reporting period, defined benefits liabilities relating to defined benefit plans are recognized as present value of defined benefit obligations, net of fair value of plan assets.

The calculation is performed annually by an independent actuary using the projected unit credit method. When the fair value of plan assets exceeds the present value of the defined benefit obligation, the Group recognizes an asset, to the extent of the present value of any economic benefits available in the form of refunds from the plan or reduction in the future contributions to the plan.

Remeasurements of the net defined benefit liability (asset) comprise of actuarial gains and losses, the return on plan assets excluding amounts included in net interest on the net defined benefit liability (asset), and any change in the effect of the asset ceiling, excluding amounts included in net interest on the net defined benefit liability (asset), and are recognized in other comprehensive income. The Group determines net interests on net defined benefit liability (asset) by multiplying discount rate determined at the beginning of the annual reporting period and considers changes in net defined benefit liability (asset) from contributions and benefit payments. Net interest costs and other costs relating to the defined benefit plan are recognized through profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss on curtailment is recognized immediately in profit or loss. The Group recognizes gains or losses on a settlement of defined benefit plan when the settlement occurs.

(d) Retirement benefits: defined contribution plans

When an employee has provided service for a certain period of time in relation to the defined contribution plan, the contribution to the defined contribution plan is recognized in profit or loss except to be included in the cost of the asset. The contributions to be paid are recognized as liabilities (accrued expenses) less the contributions that have been already paid.

(e) Termination benefits

The Group recognizes a liability and expense for termination benefits at the earlier of the period when the Group can no longer withdraw the offer of those benefits and the period when the Group recognizes costs for a restructuring. If benefits are not payable within 12 months after the end of the reporting period, then they are discounted to their present value.

3. Significant Accounting Policies, Continued

(17) Provisions

Provisions are recognized when the Group has a present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

The risks and uncertainties that inevitably surround many events and circumstances are taken into account in reaching the best estimate of a provision. Where the effect of the time value of money is material, provisions are determined at the present value of the expected future cash flows.

Where some or all of the expenditures required to settle a provision are expected to be reimbursed by another party, the reimbursement is recognized when, and only when, it is virtually certain that reimbursement will be received if the Group settles the obligation. The reimbursement is treated as a separate asset.

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.

A provision is used only for expenditures for which the provision was originally recognized.

(18) Emissions Rights

The Group accounts for greenhouse gases emission right and the relevant liability as below pursuant to the *Act on Allocation and Trading of Greenhouse Gas Emission*.

(a) Greenhouse Gases Emission Right

Greenhouse Gases Emission Right consists of emission allowances, which are allocated from the government free of charge or purchased from the market. The cost includes any directly attributable costs incurred during the normal course of business.

Emission rights held for the purpose of performing the obligation is classified as intangible asset and is initially measured at cost and after initial recognition are carried at cost less accumulated impairment losses. Emission rights held for short-swing profits are classified as current asset and are measured at fair value with any changes in fair value recognized as profit or loss in the respective reporting period.

The Group derecognizes an emission right asset when the emission allowance is unusable, disposed or submitted to government in which the future economic benefits are no longer expected to be probable.

(b) Emission liability

Emission liability is a present obligation of submitting emission rights to the government with regard to emission of greenhouse gas. Emission liability is recognized when it is probable that outflows of resources will be required to settle the obligation and the costs required to perform the obligation are reliably estimable. Emission liability is an amount of estimated obligations for emission rights to be submitted to the government for the performing period. The emission liability is measured based on the expected quantity of emission for the performing period in excess of emission allowance in possession and the unit price for such emission rights in the market at the end of the reporting period.

3. Significant Accounting Policies, Continued

(19) Foreign currencies

(a) Foreign currency transactions

Transactions in foreign currencies are translated to the respective functional currencies of Group entities at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are retranslated to the functional currency at the exchange rate at the reporting data. Non-monetary assets and liabilities denominated in foreign currencies that are measured at fair value are translated to the functional currency at the exchange rate at the date that the fair value was determined.

Foreign currency differences arising on the settlement or retranslation of monetary items are recognized in profit or loss, except for differences arising on the retranslation of the net investment in a foreign operation, which are recognized in other comprehensive income. When a gain or loss on a non-monetary item is recognized in other comprehensive income, any exchange component of that gain or loss is recognized in other comprehensive income. Conversely, when a gain or loss on a non-monetary item is recognized in profit or loss, any exchange component of that gain or loss is recognized in profit or loss.

(b) Foreign operations

If the presentation currency of the Group is different from a foreign operation's functional currency, the financial statements of the foreign operation are translated into the presentation currency using the following methods:

The assets and liabilities of foreign operations, whose functional currency is not the currency of a hyperinflationary economy, are translated to presentation currency at exchange rates at the end of reporting period. The income and expenses of foreign operations are translated to functional currency at exchange rates at the dates of the transactions. Foreign currency differences are recognized in other comprehensive income.

Any goodwill arising on the acquisition of a foreign operation and any fair value adjustments to the carrying amounts of assets and liabilities arising on the acquisition of that foreign operation is treated as assets and liabilities of the foreign operation. Thus, they are expressed in the functional currency of the foreign operation and translated at the exchange rates at the end of reporting date.

When a foreign operation is disposed of, the relevant amount in the translation is transferred to profit or loss as part of the profit or loss on disposal. On the partial disposal of a subsidiary that includes a foreign operation, the relevant proportion of such cumulative amount is reattributed to non-controlling interest. In any other partial disposal of a foreign operation, the relevant proportion is reclassified to profit or loss.

(20) Equity capital

Ordinary shares are classified as equity. Incremental costs directly attributable to the issuance of ordinary shares is 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 purchase, 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.

3. Significant Accounting Policies, Continued

(21) Share-based payment

The Group has granted shares or share options to its employees. For equity-settled share-based payment transactions, the Group measures the goods or services received, and the corresponding increase in equity as a capital adjustment at the fair value of the goods or services received, unless that fair value cannot be estimated reliably. If the Group cannot reliably estimate the fair value of the goods or services received, the Group measures their value, and the corresponding increase in equity, indirectly, by reference to the fair value of the equity instruments granted. If the fair value of the equity instruments cannot be estimated reliably at the measurement date, the Group measures them at their intrinsic value and recognizes the goods or services received based on the number of equity instruments that ultimately vest.

For cash-settled share-based payment transactions, the Group measures the goods or services acquired and the liability incurred at the fair value of the liability. Until the liability is settled, the Group remeasures the fair value of the liability at each reporting date and at the date of settlement, with changes in fair value recognized in profit or loss for the period.

(22) Revenue from contracts with customers

The Group has initially applied K-IFRS No. 1115, *'Revenue from contracts with customers'* from January 1, 2018. The Group's accounting policies relating to revenue from contracts with customers are described in note 26 and the effect of the initial applying of K-IFRS No. 1115 is described in note 3-(26).

(23) Finance income and finance expenses

The Group's finance income and finance expenses include:
- Interest income;
- Interest expense;
- Dividend income;
- The net gain or loss on financial assets at fair value through profit or loss;
- Gain or loss on foreign exchange(currency) translation for financial asset and liabilities;
- Impairment losses and reversals on investment debt securities carried at amortised cost method; and
- The remeasurement gain on the previously held equity interest at the point of business combination

The Group uses effective interest rate method for recognizing interest income and expense. Dividend income is recognized in profit or loss on the date that the Group's right to receive dividend 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; or
- The amortised cost of the financial liability

In calculating interest income and expense, the effective interest rate is applied to the gross carrying amount of the asset (when the asset is not credit-impaired) or to the amortised cost of the liability. However, for financial assets that have become credit-impaired subsequent to initial recognition, interest income is calculated by appling the effective interest rate to the amortised cost of the financial asset. If the asset is no longer credit-impaired, then the calculation of interest income reverts to the gross basis.

3. Significant Accounting Policies, Continued

(24) Income taxes

Income tax expense comprises current and deferred tax. Current and deferred tax are recognized in profit or loss except to the extent that it relates to a business combination, or items recognized directly in equity or in other comprehensive income.

(a) Current tax

Current tax is the expected tax payable or refundable on the taxable profit or loss for the year, using tax rates enacted or substantively enacted at the end of the reporting period and any adjustment to tax payable in respect of previous years. The taxable profit is different from the accounting profit for the period since the taxable profit is calculated excluding the temporary differences, which will be taxable or deductible in determining taxable profit (tax loss) of future periods, and non-taxable or non-deductible items from the accounting profit. The tax expense is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period.

(b) Deferred tax

Deferred tax is recognized, using the asset-liability method, in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes.

The Group recognizes a deferred tax liability for all taxable temporary differences associated with investments in subsidiaries, associates and interests in joint ventures 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. The Group recognizes deferred tax assets for all deductible temporary differences including unused tax loss and tax credit to the extent that it is probable that the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

The carrying amount of a deferred tax asset is reviewed at the end of each reporting period and reduces the carrying amount to the extent that it is no longer probable that sufficient taxable profit will be available to allow the benefit of part or all of that 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 rates (and 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 only if there is a legally enforceable right to offset the related current tax liabilities and assets, and they relate to income taxes levied by the same tax authority and they intend to settle current tax liabilities and assets on a net basis. If there are any additional income tax expense incurred in accordance with dividend payments, such income tax expense is recognized when liabilities relating to the dividend payments are recognized.

3. Significant Accounting Policies, Continued

(25) Earnings per share

The Group presents basic and diluted earnings per share (EPS) data for its ordinary shares. Basic EPS is calculated by dividing the profit or loss attributable to ordinary shareholders of the Parent Company by the weighted average number of ordinary shares outstanding during the period, adjusted for own shares held. Diluted EPS is determined by adjusting the profit or loss attributable to ordinary shareholders and the weighted average number of outstanding ordinary shares, adjusted for own shares held, for the effects of all dilutive potential ordinary shares including convertible notes.

(26) Changes in accounting policies

The Group has initially adopted K-IFRS No. 1115 *'Revenue from Contracts from Customers'* and K-IFRS No. 1109 *'Financial Instruments'* from January 1, 2018. A number of other new standards are effective from January 1, 2018 and they do not have significant impact on the Group's consolidated financial statements.

(a) K-IFRS No. 1115, *'Revenue from Contracts with Customers'*

K-IFRS No. 1115 is a comprehensive framework for determining when and how much revenue is recognized. It replaced K-IFRS No. 1018 '*Revenue*', K-IFRS No. 1011 *'Construction Contract'*, K-IFRS No. 2031 *'Revenue: Barter Transactions Involving Advertising Services'*, K-IFRS No. 2113 *'Customer Loyalty Program'*, K-IFRS No. 2115 *'Agreements for the construction of real estate'* and K-IFRS No. 2118 *'Transfers of assets from customers'*.

The Group has adopted K-IFRS No. 1115, *'Revenue from contracts with customers'* as of January 1, 2018 as the initial application date. The following summarizes the impact on the Group of adopting the standard.

(i) Sales with right of return
In general, the Group's contract with customers allows a customer to return the products. Under K-IFRS No. 1115, the Group initially recognizes revenue, which is measured at the gross transaction price, less the expected level of returns using the guidance on estimating variable considerations and the constraint. The expected level of returns is estimated by using the method the Group expects to better predict the amount of consideration to which it will be entitled. Also, the Group includes an amount of variable consideration in the transaction price only to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the return period expires. The Group recognizes the amounts received or receivable for which the Group does not expect to be entitled as a refund liability.

(ii) Delivery of product ("C-terms")
When applying K-IFRS No. 1115, sales of products and delivery of products (i.e. shipping service) are identified as separate performance obligations in the contracts with customers. However, for transactions for which the customer obtains control over the products upon delivery, which is the Group's most common transaction term, those two performance obligations are not separately identified as the control over the products is transferred upon the completion of delivery. However, for the export transactions for which the shipping terms are on shipment basis ("C-terms"), the two performance obligations are separately accounted for because delivery of products is performed after the control over the products is transferred to the customer. The transaction price allocated to the performance obligation of delivery service is recognized when the obligation of delivery of the product is satisfied with the related shipping costs recognized as cost of sales.

3. Significant Accounting Policies, Continued

(26) Change in accounting policies, Continued

(a) K-IFRS No. 1115, *'Revenue from Contracts with Customers'*, Continued

The following tables summarize the impacts of adopting K-IFRS No. 1115 on the consolidated statement of financial position as of January 1, 2018.

(In millions of won)		December 31, 2017	Adjustments - Sales with right of return	January 1, 2018
Assets				
Current assets				
Other current assets	₩	523,638	17,884	541,522
Others		16,786,806	-	16,786,806
		17,310,444	17,884	17,328,328
Non-current assets		28,108,020	-	28,108,020
Total assets		45,418,464	17,884	45,436,348
Liabilities				
Current liabilities				
Provisions		81,351	(30,672)	50,679
Other current liabilities		51,776	48,556	100,332
Others		7,983,006	-	7,983,006
		8,116,133	17,884	8,134,017
Non-current liabilities		3,481,412	-	3,481,412
Total liabilities		11,597,545	17,884	11,615,429
Equity				
Total equity attributable to owners of the Parent Company		33,815,280	-	33,815,280
Non-controlling interests		5,639	-	5,639
Total equity		33,820,919	-	33,820,919
Total liabilities and equity	₩	45,418,464	17,884	45,436,348

The following tables summarize the impacts of adopting K-IFRS No. 1115 on the consolidated statement of financial position as of December 31, 2018, and the consolidated statement of comprehensive income for the year then ended. There was no material impact on the statement of cash flows for year ended December 31, 2018.

3. Significant Accounting Policies, Continued

(26) Change in accounting policies, Continued

(a) K-IFRS No. 1115, *'Revenue from Contracts with Customers'*, Continued

Details of the impact on the consolidated statement of financial position as of December 31, 2018 are as follows:

(In millions of won)

		As reported	Adjustments - Sales with right of return	Amounts without adoption of K-IFRS No. 1115
Assets				
Current assets				
Other current assets	₩	741,425	(24,261)	717,164
Others		19,152,721	-	19,152,721
		19,894,146	(24,261)	19,869,885
Non-current assets		43,764,189	-	43,764,189
Total assets		63,658,335	(24,261)	63,634,074
Liabilities				
Current liabilities				
Provisions		56,208	55,986	112,194
Other current liabilities		147,838	(80,247)	67,591
Others		12,827,806	-	12,827,806
		13,031,852	(24,261)	13,007,591
Non-current liabilities		3,774,152	-	3,774,152
Total liabilities		16,806,004	(24,261)	16,781,743
Equity				
Total equity attributable to owners of the Parent Company		46,845,719	-	46,845,719
Non-controlling interests		6,612	-	6,612
Total equity		46,852,331	-	46,852,331
Total liabilities and equity	₩	63,658,335	(24,261)	63,634,074

3. Significant Accounting Policies, Continued

(26) Change in accounting policies, Continued

(a) K-IFRS No. 1115, *'Revenue from Contracts with Customers'*, Continued

Details of the impact on the consolidated statement of comprehensive income for the year ended December 31, 2018, are as follows:

(In millions of won)

		As reported	Adjustments - Delivery of product	Amounts without adoption of K-IFRS No. 1115
Revenue	₩	40,445,066	-	40,445,066
Cost of sales		15,180,838	(23,424)	15,157,414
Gross profit		25,264,228	23,424	25,287,652
Selling and administrative expense		4,420,479	23,424	4,443,903
Operating profit		20,843,749	-	20,843,749
Finance income		1,691,955	-	1,691,955
Finance expenses		1,142,134	-	1,142,134
Share of profit of equity-accounted investees		13,007	-	13,007
Other income		112,810	-	112,810
Other expenses		178,357	-	178,357
Profit before income tax		21,341,030	-	21,341,030
Income tax expense		5,801,046	-	5,801,046
Profit for the period		15,539,984	-	15,539,984
Other comprehensive loss		(67,219)	-	(67,219)
Total comprehensive income for the period	₩	15,472,765	-	15,472,765

3. Significant Accounting Policies, Continued

(26) Change in accounting policies, Continued

(b) K-IFRS No. 1109, '*Financial Instruments*'

K-IFRS No. 1109, '*Financial Instruments*' sets out requirements for recognizing and measuring financial assets, financial liabilities and some contracts to buy or sell non-financial items. This standard replaces K-IFRS No. 1039, '*Financial Instrument: Recognition and Measurement*'. The Group has taken advantage of the exemption allowing it not to restate the comparative information for prior periods with respect to classification and measurement (including impairment) changes.

The following table summarizes the impact of transition to K-IFRS No. 1109 on the opening balance of equity as of January 1, 2018.

(In millions of won)		Accumulated other comprehensive income (loss)	Retained earnings
Beginning equity under K-IFRS No. 1039	₩	(502,264)	27,287,256
Reclassification from available-to-sale to FVTPL		10,735	(10,735)
Beginning equity under K-IFRS No. 1109	₩	(491,529)	27,276,521

3. Significant Accounting Policies, Continued

(26) Change in accounting policies, Continued

(b) K-IFRS No. 1109, '*Financial Instruments*' , Continued

Details of reclassification of the financial asset categories upon adoption of K-IFRS No. 1109, which was initially adopted as of January 1, 2018, are as follows:

(In millions of won)

	Original Classification according to K-IFRS No. 1039	New Classification according to K-IFRS No. 1109		Original carrying amount in accordance with K-IFRS No. 1039	New Carring amount in accordance with K-IFRS No. 1109
Cash and cash equivalents	Loans and receivables	Amortized cost	₩	2,949,991	2,949,991
Short-term financial instruments	Loans and receivables	Amortized cost		4,674,862	4,674,862
Short-term investment assets	Financial assets at fair value through profit or loss	FVTPL		929,801	929,801
Trade receivables	Loans and receivables	Amortized cost		5,552,795	5,552,795
Other receivables	Loans and receivables	Amortized cost		80,023	80,023
Other financial assets	Loans and receivables	Amortized cost		273	273
Long-term investment assets[1]	Available-for-sale financial assets	FVTPL		43,226	43,226
			₩	14,230,971	14,230,971

[1] As of January 1, 2018, available-for-sale financial assets for equity investments amounting to ₩43,226 million were reclassified to financial assets measured at FVTPL. As the contractual terms of these assets do not give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding, these assets were not designated as financial assets measured at amortized cost. As a result of this reclassification, as at January 1, 2018, other comprehensive loss of ₩10,735 million was reclassified to retained earnings. There was no change in fair value of these financial assets for the year ended December 31, 2018.

3. Significant Accounting Policies, Continued

(27) Standards issued but not yet effective

The following new standards, amendments to standards are effective for annual periods beginning after January 1, 2018 and earlier application is permitted; however, the Group has not early adopted them in preparing these consolidated financial statements.

(a) K-IFRS No. 1116, '*Leases*'

K-IFRS No. 1116 introduces a comprehensive model for the identification of lease arrangements and accountings treatments for both lessors and lessees. K-IFRS No. 1116 will supersede the current lease guidance including K-IFRS No. 1017 Leases and the related interpretations when it becomes effective. The Group plans to apply K-IFRS No.1116 initially on January 1, 2019 using the modified retrospective approach. Therefore, the cumulative effect of adopting K-IFRS No.1116 will be recognized as an adjustment to the opening balance of retained earnings at January 1, 2019 with no restatement of comparative information.

K-IFRS No. 1116 distinguishes leases and service contracts on the basis of whether an identified asset is controlled by a customer. Distinctions of operating leases and finance leases are removed for lessee accounting, and is replaced by model where a right-of-use asset and corresponding liability have to be recognized for all leases by lessees except for short-term leases and leases of low value assets.

The right-of-use asset is initially measured at cost and subsequently measured at cost (subject to certain exceptions) less accumulated depreciation and impairment losses, adjusted for any remeasurement of the lease liability. The lease liability is initially measured at the present value of the lease payments that are not paid at that date. Subsequently, the lease liability is adjusted for interest and lease payments, as well as the impact of lease modifications, amongst others.

Furthermore, the classification of cash flows will also be affected as operating lease payments under K-IFRS No. 1017 are presented as operating cash flows; whereas under the K-IFRS No. 1116 model, the lease payments will be split into a principal and an interest portion which will be presented as financing and operating cash flows respectively.

In contrast to lessee accounting, K-IFRS No. 1116 substantially carries forward the lessor accounting requirements in K-IFRS No. 1017, and continues to require a lessor to classify a lease either as an operating lease or a finance lease.

As of December 31, 2018, the Group has non-cancellable operating lease commitments. A preliminary assessment indicates that these arrangements will meet the definition of a lease under K-IFRS No. 1116, and hence the Group will recognize a right-of-use asset and a corresponding liability in respect of all these leases unless they qualify for low value or short-term leases upon the application of K-IFRS No. 1116. The new requirement to recognize a right-of use asset and a related lease liability is expected to have a significant impact on the amounts recognized in the Group's consolidated financial statements and the Group is currently assessing its potential impact.

As of the end of reporting period, 1) for finance leases where the Group is a lessee and 2) for operating leases or finance leases where the Group is a lessor, it is unable to estimate the impact of the application of K-IFRS No. 1116 on the amounts recognized in the Group's financial statements.

3. Significant Accounting Policies, Continued

(27) Standards issued but not yet effective, Continued

(b) Other amendments
Management does not expect the following standards and interpretation will have a material impact on the Group's consolidated financial statement.

- K-IFRIC No. 2123 '*Uncertainty Over Income Tax Treatments*'
- K-IFRS No. 1109 '*Financial Instruments'* - Prepayment features with negative compensation
- K-IFRS No. 1028 '*Investment in Associates*' - Long-term Interests in Associates and Joint Ventures
- K-IFRS No. 1019 '*Employee Benefit*' – Plan Amendment, Curtailment or Settlement
- Annual Improvements to K-IFRS 2015-2017 Cycle
- Amendment of '*Conceptual Framework for Financial Reporting*'
- K-IFRS No. 1117 *'Insurance Contract'*

4. Geographic and Customer Information

The Group has a single reportable segment that is engaged in the manufacture and sale of semiconductor products. The management of the Group reviews the operation result of the semiconductor business for reporting information used and reviewed when establishing the Group's business strategy.

(1) The Group's non-current assets (excluding financial assets, loans and other receivables, equity-accounted investees and deferred tax assets) information by region based on the location of subsidiaries as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Korea	₩	32,768,811	23,959,991
China		5,100,869	2,768,494
Taiwan		6,309	5,752
Asia (other than China and Taiwan)		1,401	1,100
U.S.A.		376,307	318,567
Europe		9,908	8,560
	₩	38,263,605	27,062,464

(2) Revenue from customer A, B and C each constitutes more than 10% of the Group's consolidated revenue for the year ended December 31, 2018 amounts to ₩5,407,782 million, (2017: ₩3,690,504 million) ₩5,265,807 million (2017: ₩2,598,482 million) and ₩2,854,041 million (2017: ₩4,113,904 million), respectively.

5. Categories of Financial Instruments

(1) Categories of financial assets as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018		
		Financial assets at fair value through profit or loss	Financial assets at amortized cost	Total
Cash and cash equivalents	₩	-	2,349,319	2,349,319
Short-term financial instruments		-	523,579	523,579
Short-term investment assets		5,496,452	-	5,496,452
Trade receivables		-	6,319,994	6,319,994
Loans and other receivables		-	86,906	86,906
Other financial assets		-	310	310
Long-term investment assets		4,325,550	-	4,325,550
	₩	9,822,002	9,280,108	19,102,110

(In millions of won)

		2017			
		Financial assets at fair value through profit or loss	Available-for-sale financial assets	Loans and receivables	Total
Cash and cash equivalents	₩	-	-	2,949,991	2,949,991
Short-term financial instruments[1]		-	-	4,674,862	4,674,862
Short-term investment asset[1]		929,801	-	-	929,801
Trade receivables		-	-	5,552,795	5,552,795
Loans and other receivables		-	-	80,023	80,023
Other financial assets		-	-	273	273
Long-term investment asset[1]		-	43,226	-	43,226
	₩	929,801	43,226	13,257,944	14,230,971

[1] Short-term financial instruments and available-for-sale financial assets as of December 31, 2017 were reclassified to conform with the classification as of December 31, 2018.

5. Categories of Financial Instruments, Continued

(2) Categories of financial liabilities as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018
		Financial liabilities measured at amortized cost
Trade payables	₩	1,096,380
Other payables		3,681,933
Other non-trade payables		1,894,751
Borrowings		5,281,937
	₩	11,955,001

(In millions of won)

		2017
		Financial liabilities measured at amortized cost
Trade payables	₩	758,578
Other payables		2,724,547
Other non-trade payables		1,343,637
Borrowings		4,171,270
	₩	8,998,032

5. Categories of Financial Instruments, Continued

(3) Details of gain and loss on financial assets and liabilities by category for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017[1]
Financial assets at amortized cost			
Interest income	₩	62,478	54,275
Foreign exchange differences		573,349	(679,287)
Reversal of impairment		44	2,119
		635,871	(622,893)
Financial assets at fair value through profit or loss			
Dividend income		2,136	13
Gain on disposal		41,853	46,674
Gain on valuation		197,919	1,399
Foreign exchange differences		122,375	-
		364,283	48,086
Financial liabilities measured at amortized cost			
Interest expenses		(94,635)	(123,918)
Foreign exchange differences		(355,654)	447,707
		(450,289)	323,789
Financial liabilities at fair value through profit or loss			
Loss on transaction from derivative instruments		-	(11)
	₩	549,865	(251,029)

[1] Gain and loss on financial assets and liabilities for the year ended December 31, 2017 were reclassified to conform with the classification for the year ended December 31, 2018

6. Financial Risk Management

(1) Financial risk management

The Group's activities are exposed to a variety of financial risks: market risk (including foreign exchange risk, 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.

Risk management is carried out by the Parent Company's corporate finance division in accordance with policies approved by the board of directors. The Parent Company's corporate finance division identifies, evaluates and hedges financial risks in close cooperation with the Group's operating units. The board of directors provides written principles for overall risk management, as well as written policies covering specific areas, such as foreign exchange risk, interest rate risk, and credit risk; use of derivative financial instruments and non-derivative financial instruments; and the investment of excess liquidity.

(a) Market risk

(i) Foreign exchange risk

The Group operates internationally and is exposed to foreign exchange risk arising from various currency exposures, primarily with respect to the US dollar, Euro and Japanese Yen. Foreign exchange risk arises from future commercial transactions; recognized assets and liabilities in foreign currencies; and net investments in foreign operations.

Monetary foreign currency assets and liabilities as of December 31, 2018 are as follows:

(In millions of won and millions of foreign currencies)

	Assets			**Liabilities**		
	Foreign currencies		**Korean won equivalent**	**Foreign currencies**		**Korean won equivalent**
USD	9,987	₩	11,166,566	6,002	₩	6,710,666
EUR	19		24,693	443		566,635
JPY	892		9,041	172,526		1,747,998

As of December 31, 2018, effects on profit before income tax as a result of change in exchange rate by 10% are as follows:

(In millions of won)

		If increased by 10%	**If decreased by 10%**
USD	₩	445,590	(445,590)
EUR		(54,194)	54,194
JPY		(173,896)	173,896

6. Financial Risk Management, Continued

(1) Financial risk management, Continued

(a) Market risk, Continued

(ii) Interest rate risk

Interest rate risk of the Group is defined as the risk that the interest expenses arising from borrowings will fluctuate because of changes in future market interest rate. The interest rate risk mainly arises through floating rate borrowings, and is partially offset by interests received from floating rate financial assets.

As of December 31, 2018, the Group is partially exposed to a risk of increase in interest rates. If interest rates on borrowings were 100 basis points higher/lower with all other variables held constant, profit before income tax for the following year would be ₩19,418 million (2017: ₩20,571 million) lower/higher, mainly as a result of higher/lower interest expense on floating rate borrowings and interest income on floating rate financial assets.

(iii) Price risk

The Group invests in equity and debt securities resulted from its business needs and the purpose of liquidity management. The Group's equity and debt securities are exposed to price risk as of December 31, 2018.

(b) Credit risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations, and arises mainly from operating and investing activities. In order to manage credit risk, the Group periodically evaluates the credit worthiness of each customer or counterparty through the analysis of its financial information, historical transaction records and other factors, based on which the Group establishes credit limits for each customer or counterparty.

(i) Trade and other receivables

For each new customer, the Group individually analyzes its credit worthiness before standard payment and delivery terms and conditions are offered. In addition, the Group is consistently managing trade and other receivables by reevaluating the overseas customer's credit worthiness and securing collaterals in order to limit its credit risk exposure.

The Group reviews at the end of each reporting period whether trade and other receivables are impaired and maintains credit insurance policies to manage credit risk exposure from oversea customers. The maximum exposure to credit risk as of December 31, 2018 is the carrying amount of trade and other receivables.

(ii) Other financial assets

Credit risk also arises from other financial assets such as cash and cash equivalents; short-term financial instruments; and deposits with banks and financial institutions as well as short-term and long-term loans mainly due to the bankruptcy of each counterparty to those financial assets. The maximum exposure to credit risk as of December 31, 2018 is the carrying amount of those financial assets. The Group transacts only with banks and financial institutions with high credit ratings, and accordingly management does not expect any significant losses from non-performance by these counterparties.

6. Financial Risk Management, Continued

(1) Financial risk management, Continued

(c) Liquidity risk

Liquidity risk is defined as the risk that the Group is unable to meet its short-term payment obligations on time due to deterioration of its business performance or inability to access financing. The Group forecasts its cash flow and liquidity status and sets action plans on a regular basis to manage liquidity risk proactively.

The Group invests surplus cash in interest-bearing current accounts, time deposits, and demand deposits, choosing instruments with appropriate maturities or sufficient liquidity to provide sufficient head-room as determined by the above-mentioned forecasts.

Contractual maturities of financial liabilities as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018				
		Less than 1 year	1 - 2 years	2 - 5 years	More than 5 years	Total
Borrowings[1]	₩	1,712,851	979,086	2,688,574	94,536	5,475,047
Finance lease liabilities		10,773	10,773	31,860	24,369	77,775
Trade payables		1,096,380	-	-	-	1,096,380
Other payables		3,681,933	-	-	-	3,681,933
Other non-trade payables		1,858,253	-	14,135	-	1,872,388
Financial guarantee contract		4	-	-	-	4
	₩	8,360,194	989,859	2,734,569	118,905	12,203,527

(In millions of won)

		2017				
		Less than 1 year	1 - 2 years	2 - 5 years	More than 5 years	Total
Borrowings[1]	₩	732,902	1,155,876	2,248,059	81,038	4,217,875
Finance lease liabilities		10,773	10,773	32,254	34,748	88,548
Trade payables		758,578	-	-	-	758,578
Other payables		2,724,885	-	-	-	2,724,885
Other non-trade payables		1,317,032	-	3,412	-	1,320,444
Financial guarantee contract		8	-	-	-	8
	₩	5,544,178	1,166,649	2,283,725	115,786	9,110,338

[1] The cash flow includes payment of interest under terms and conditions of borrowing contracts and excludes the amount of finance lease liabilities.

6. Financial Risk Management, Continued

(1) Financial risk management, Continued

(c) Liquidity risk, Continued

The table above analyzes the Group's non-derivative financial liabilities into relevant maturity groups based on the remaining period at the statement of financial position date to the contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows and include estimated interest payments.

(2) Capital management

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern in order to provide returns for shareholders and benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

In order to maintain or adjust the capital structure, the Group may adjust the amount of dividends to shareholders, proceeds and repayments of borrowings, issue new shares or sell assets to reduce debt.

The debt-to-equity ratio and net borrowing ratio as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Total liabilities (A)	₩	16,806,004	11,597,545
Total equity (B)		46,852,331	33,820,919
Cash and cash equivalents; short-term financial instruments; and short-term investment asset (C)		8,369,350	8,554,654
Total borrowings (D)		5,281,937	4,171,270
Debt-to-equity ratio (A/B)		35.87%	34.29%
Net borrowing ratio (D-C)/B[1]		-	-

[1] Does not present net borrowing ratio as of December 31, 2018 and 2017 as the ratio was calculated as negative.

6. Financial Risk Management, Continued

(3) Fair value

Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in valuation techniques as follows:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities
- Level 2: inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices)
- Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs)

(a) The following table presents the carrying amounts and fair values of financial instruments by categories, including their levels in the fair value hierarchy, as of December 31, 2018 and 2017:

(In millions of won)

	Carrying amounts	2018 Level 1	Level 2	Level 3	Total
Financial assets measured at fair value					
Short-term investment asset	₩ 5,496,452	-	5,496,452	-	5,496,452
Long-term investment asset	4,325,550	-	-	4,325,550	4,325,550
	9,822,002	-	5,496,452	4,325,550	9,822,002
Financial assets not measured at fair value					
Cash and cash equivalents[1]	2,349,319	-	-	-	-
Short-term financial instruments[1]	523,579	-	-	-	-
Trade receivables[1]	6,319,994	-	-	-	-
Loans and other receivables[1]	86,906	-	-	-	-
Other financial assets[1]	310	-	-	-	-
	9,280,108	-	-	-	-
Financial liabilities not measured at fair value					
Trade payables[1]	1,096,380	-	-	-	-
Other payables[1]	3,681,933	-	-	-	-
Other non-trade payables[1]	1,894,751	-	-	-	-
Borrowings	5,281,937	-	5,300,120	-	5,300,120
	₩ 11,955,001	-	5,300,120	-	5,300,120

[1] Does not include fair values of financial assets and liabilities of which fair values have not been measured as carrying amounts are reasonable approximation of fair values.

6. Financial Risk Management, Continued

(3) Fair value, Continued

(In millions of won)

		2017				
		Carrying amounts	Level 1	Level 2	Level 3	Total
Financial assets measured at fair value						
Short-term investment asset	₩	929,801	-	929,801	-	929,801
Long-term investment asset		43,226	-	-	43,226	43,226
		973,027	-	929,801	43,226	973,027
Financial assets not measured at fair value						
Cash and cash equivalents[1]		2,949,991	-	-	-	-
Short-term financial instruments[1]		4,674,862	-	-	-	-
Trade receivables[1]		5,552,795	-	-	-	-
Loans and other receivables[1]		80,023	-	-	-	-
Other financial assets[1]		273	-	-	-	-
		13,257,944	-	-	-	-
Financial liabilities not measured at fair value						
Trade payables[1]		758,578	-	-	-	-
Other payables[1]		2,724,547	-	-	-	-
Other non-trade payables[1]		1,343,637	-	-	-	-
Borrowings		4,171,270	-	4,178,598	-	4,178,598
	₩	8,998,032	-	4,178,598	-	4,178,598

[1] Does not include fair values of financial assets and liabilities of which fair values have not been measured as carrying amounts are reasonable approximation of fair values.

6. Financial Risk Management, Continued

(3) Fair value, Continued

(b) Valuation Techniques
The valuation techniques of recurring and non-recurring fair value measurements and quoted prices classified as level 2 or level 3 are as follows:

(In millions of won)

		Fair value	Level	Valuation Techniques
Financial assets at fair value through profit or loss:				
Short-term investment assets	₩	5,496,452	2	Present value technique
Long-term investment assets		4,325,550	3	Present value technique and others

Long-term investments measured at level 3 in the fair value hierarchy include investments in special purpose companies of BCPE Pangea Intermediate Holdings Cayman, L.P. ("SPC1") amounting to ₩2,721,554 million and BCPE Pangea Cayman2 Limited ("SPC2") amounting to ₩1,461,451 million in connection with the acquisition of Toshiba Corporation's semiconductor memory business, or Toshiba Memory Corporation ("TMC") (see note 12). The fair value of the long-term investments is measured based on the equity value of the underlying asset, TMC, which is based on estimated future cash flows based on expected sales and cost structures, and discounted at weighted average capital costs, considering capital structures.

The fair value of equity investment in SPC1 is measured using probability-weighted expected return method that represents the probability-weighted average of possible future cash flows. The fair values of different scenarios (such as initial public offering, merger and acquisition, and liquidation) are determined using either market approach, option-pricing method or present value method based on the TMC's equity value. TMC's estimated equity value is allocated to shareholder's value of each class of shares depending the capital structure of the investment. For the allocation, a waterfall approach is used, which allocates value based on the distribution priority described in SPC1 investment agreement depending on the nature of liquidity transaction or an ultimate liquidation.

The fair value of debt investment in SPC2 convertible bonds is measured based on TMC's equity value, in combination of the value of debenture and the value of conversion right using binomial model.

6. Financial Risk Management, Continued

(3) Fair value, Continued

(b) Valuation Techniques, Continued

The valuation techniques and key inputs used in valuation of the equity investment in SPC1 and investment in SPC2 convertible bonds are as follows:

(In millions of won)

		Fair value	Valuation Techniques	Level 3 inputs	Input Range
Equity investment in SPC1	₩	2,721,554	Present value technique, probability-weighted expected return method, market approach, and option-pricing method	Terminal growth rate	0%
				Weighted-average capital cost	8.7%
				EV/EBITDA multiples	4.6 ~ 5.3
				Cost of equity	10.3%
SPC2 convertible bonds		1,461,451	Present value technique and binomial model	Terminal growth rate	0%
				Weighted-average capital cost	8.7%
				Volatility	18.4%
				Risk free rate	0.13%

In these level 3 significant unobservable inputs, an increase in terminal growth rate, EV/EBITDA multiples and control premium or a decrease in weighted-average capital cost, cost of equity and discount due to lack of marketability will result in higher fair value of the equity investment in SPC1. In addition, an increase in terminal growth rate and volatility and a decrease in weighted-average capital cost will result in higher fair value of the investment in SPC2 convertible bonds, while any change in risk free rate may have either positive or negative impact on the fair value of the investment in SPC2 convertible bonds.

Any positive or negative changes in the above inputs will have a direct impact on the fair value of investments in SPC1 and SPC2, respectively. They are significant, but unobservable. Accordingly, the investments are classified as fair value hierarchy level 3. The changes in these key inputs may have a significant impact on the fair value of investments in SPC1 and SPC2.

6. Financial Risk Management, Continued

(3) Fair value, Continued

(c) There was no transfer between fair value hierarchy levels for the year ended December 31, 2018 and the changes in financial assets classified as level 3 fair value measurements during the year ended December 31, 2018 are as follows:

(In millions of won)

		Beginning Balance[1]	Acquisition	Disposals	Gain on Valuation	Foreign Exchange Difference	Business Combination	Ending Balance
Long-term investment assets	₩	43,226	4,012,799	(1,614)	181,179	87,246	2,714	4,325,550

[1] Beginning balance includes equity instruments amounting to ₩29,700 million which do not have quoted price in an active market for the identical instruments (inputs for level 1). Those are measured at cost in accordance with K-IFRS No. 1039, *'Financial Instrument: Recognition and Measurement'* as fair values of such equity instruments cannot be reliably measured using other valuation techniques as of December 31, 2018.

7. Restricted Financial Instruments

Details of restricted financial instruments as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017	Description
Short-term financial instruments	₩	227,500	227,500	Restricted for supporting small businesses
		6,079	5,695	Pledged for consumption tax
		-	1,287	Others
		233,579	234,482	
Other financial assets		11	11	Bank overdraft guarantee deposit
		265	262	Others
		276	273	
	₩	233,855	234,755	

8. Trade Receivables and Loans and Other Receivables

(1) Details of loans and other receivables as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Trade receivables	₩	6,209,165	5,453,848
Trade receivables to be collected from related parties		110,829	98,947
		6,319,994	5,552,795

(2) Details of loans and other receivables as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Current			
Other receivables	₩	8,465	10,816
Accrued income		3,899	22,308
Short-term loans		4,807	2,886
Short-term guarantee and other deposits		1,221	1,603
		18,392	37,613
Non-current			
Long-term other receivables		54	56
Long-term loans		28,125	11,098
Guarantee deposits		40,117	31,109
Other		218	147
		68,514	42,410
	₩	86,906	80,023

(3) Trade receivables and loans and other receivables, net of provision for impairment, as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018		
		Gross amount	Provision for impairment	Carrying amount
Trade receivables	₩	6,320,042	(48)	6,319,994
Current loans and other receivables		19,715	(1,323)	18,392
Non-current loans and other receivables		69,631	(1,117)	68,514
	₩	6,409,388	(2,488)	6,406,900

(In millions of won)

		2017		
		Gross amount	Provision for impairment	Carrying amount
Trade receivables	₩	5,552,841	(46)	5,552,795
Current loans and other receivables		38,940	(1,327)	37,613
Non-current loans and other receivables		43,497	(1,087)	42,410
	₩	5,635,278	(2,460)	5,632,818

8. Trade Receivables and Loans and Other Receivables, Continued

(4) Details of provision for impairment

Movements in the provision for impairment of trade receivables for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Beginning balance	₩	46	1,837
Reversal		(3)	(1,778)
Foreign exchange difference		-	(13)
Business combination		5	-
Ending balance	₩	48	46

Movements in the provision for impairment of current loans and other receivables for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Beginning balance	₩	1,327	1,371
Provision		-	32
Reversal		(4)	(85)
Foreign exchange difference		-	9
Ending balance	₩	1,323	1,327

Movements in the provision for impairment of non-current loans and other receivables for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Beginning balance	₩	1,087	1,476
Reversal		(37)	(297)
Foreign exchange difference		67	(92)
Ending balance	₩	1,117	1,087

8. Trade Receivables and Loans and Other Receivables, Continued

(5) The aging analyses of trade receivables and loans and other receivables as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018					
		Not impaired					
			Overdue				
		Not past due	Less than 3 months	Over 3 months and less than 6 months	Over 6 months	Impaired	Total
Trade receivables	₩	6,320,038	-	-	-	4	6,320,042
Current loans and other receivables		18,392	-	-	-	1,323	19,715
Non-current loans and other receivables		68,514	-	-	-	1,117	69,631
	₩	6,406,944	-	-	-	2,444	6,409,388

(In millions of won)

		2017					
		Not impaired					
			Overdue				
		Not past due	Less than 3 months	Over 3 months and less than 6 months	Over 6 months	Impaired	Total
Trade receivables	₩	5,551,276	1,560	-	1	4	5,552,841
Current loans and other receivables		37,654	-	-	-	1,286	38,940
Non-current loans and other receivables		42,410	-	-	-	1,087	43,497
	₩	5,631,340	1,560	-	1	2,377	5,635,278

9. Inventories

(1) Details of inventories as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018		
		Acquisition cost	Inventory valuation allowance	Carrying amount
Merchandise	₩	1,648	(14)	1,634
Finished goods		1,532,188	(127,749)	1,404,439
Work-in-process		2,327,178	(208,197)	2,118,981
Raw materials		486,436	(24,894)	461,542
Supplies		433,017	(17,138)	415,879
Goods in transit		20,258	-	20,258
	₩	4,800,725	(377,992)	4,422,733

(In millions of won)

		2017		
		Acquisition cost	Inventory valuation allowance	Carrying amount
Finished goods	₩	544,978	(111,573)	433,405
Work-in-process		1,653,778	(36,889)	1,616,889
Raw materials		322,283	(26,031)	296,252
Supplies		278,422	(7,618)	270,804
Goods in transit		23,089	-	23,089
	₩	2,822,550	(182,111)	2,640,439

(2) The amount of the inventories recognized as cost of sales and loss on valuation allowance of inventories charged to cost of sales for the years ended December 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Inventories recognized as cost of sales	₩	15,178,673	12,700,702
Loss on valuation allowance of inventories		195,881	117,911

10. Other Current and Non-current Assets

Details of other current and non-current assets as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Current			
Advance payments	₩	113,030	34,887
Prepaid expenses		260,064	222,411
Value added tax refundable		343,821	263,287
Contract asset		24,294	-
Others		216	3,053
		741,425	523,638
Non-current			
Long-term advance payments		96,817	183,489
Long-term prepaid expenses		528,837	553,231
		625,654	736,720
	₩	1,367,079	1,260,358

11. Investments in Associates and Joint Ventures

(1) Details of investments in associates and joint ventures as of December 31, 2018 and 2017 are as follows:

(In millions of won)

				2018			2017	
Type	**Investee**	**Location**	**Business**	**Ownership (%)**	**Net asset value**	**Carrying amount**	**Ownership (%)**	**Carrying amount**
Associate	Stratio, Inc. [1]	U.S.A.	Development and manufacuring semiconductor	9.12	79	2,079	9.12	2,105
	SK China Company Limited [1]	China	Consulting and Investment	11.87	193,701	246,052	11.87	244,912
	Gemini Partners Pte. Ltd.	Singapore	Consulting	20.00	2,601	2,601	20.00	4,003
	TCL Fund[1]	Hong Kong	Investment	11.06	3,464	3,464	11.06	2,634
	SK South East Asia Investment Pte. Ltd.[2]	Singapore	Consulting and Investment	20.00	111,810	111,810	-	-
	Hushan Xinju (Chengdu) Venture Investment Center(Smartsource)[3]	China	Venture Capital	46.30	3,241	3,241	-	-
Joint venture	HITECH Semiconductor (Wuxi) Co., Ltd.	China	Manufacturing semiconductor parts	45.00	109,708	109,708	45.00	106,210
	Hystars Semiconductor (Wuxi) Co., Ltd.[4]	China	Foundry Factory Construction	50.10	81,820	83,239	-	-
					506,424	562,194		359,864

[1] The Group is able to exercise significant influence through its right to appoint a director to the board of directors of each investee. Accordingly, the investments in these investees have been classified as associate.

[2] The Group acquired 20.00% shares in SK South East Asia Investment Pte. Ltd. during the year ended December 31, 2018. The investments have been classified as associate as the Group is able to exercise significant influence.

[3] The Group is able to exercise significant influence by SK hyix (Wuxi) Investment Ltd. acquiring 46.30% equity interest in Hushan Xinju (Chengdu) Venture Investment Center(Smartsource). Accordingly, the investments are classified as an associate.

[4] SK hynix system ic Inc. acquired 50.10% shares in Hystars Semiconductor (Wuxi) Co., Ltd. during year ended December 31, 2018. The Group classified it as joint venture because it only has joint control over the investee based on investment agreement.

11. Investments in Associates and Joint Ventures, Continued

(2) Changes in investments in associates and joint ventures for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018							
		Beginning balance	Acquisition	Disposal	Share of profit (loss)	Other equity movement	Dividend	Impairment	Ending balance
Stratio, Inc.	₩	2,105	-	-	(30)	4	-	-	2,079
SK China Company Limited		244,912	-	-	2,394	(1,254)	-	-	246,052
Gemini Partners Pte. Ltd.		4,003	-	-	256	37	-	(1,695)	2,601
TCL Fund		2,634	1,123	(254)	79	(31)	(87)	-	3,464
SK South East Asia Investment Pte. Ltd.		-	110,880	-	-	930	-	-	111,810
Hushan Xinju (Chengdu) Venture Investment Center(Smartsource)		-	3,225	-	(14)	30	-	-	3,241
HITECH Semiconductor (Wuxi) Co., Ltd.		106,210	-	-	12,347	4,271	(13,120)	-	109,708
Hystars Semiconductor (Wuxi) Co., Ltd.		-	85,280	-	(330)	(1,711)	-	-	83,239
	₩	359,864	200,508	(254)	14,702	2,276	(13,207)	(1,695)	562,194

(In millions of won)

		2017					
		Beginning balance	Acquisition	Share of profit (loss)	Other equity movement	Dividend	Ending balance
Stratio, Inc.	₩	2,151	-	(30)	(16)	-	2,105
SK China Company Limited		-	257,169	-	(12,257)	-	244,912
Gemini Partners Pte. Ltd.		5,199	-	(1,084)	(112)	-	4,003
TCL Fund		2,219	526	16	(127)	-	2,634
HITECH Semiconductor (Wuxi) Co., Ltd.		121,447	-	13,465	(13,874)	(14,828)	106,210
	₩	131,016	257,695	12,367	(26,386)	(14,828)	359,864

11. Investments in Associates and Joint Ventures, Continued

(3) Associate and joint venture's statements of financial position as of December 31, 2018 and 2017 are as follows:

(In millions of won)		2018			
		Current assets	Non-current assets	Current liabilities	Non-current liabilities
Stratio, Inc.	₩	403	617	159	-
SK China Company Limited		646,779	1,148,281	65,037	97,633
Gemini Partners Pte. Ltd.		5,357	7,649	-	-
TCL Fund		915	33,596	3,188	-
SK South East Asia Investment Pte. Ltd.		559,050	-	-	-
Hushan Xinju (Chengdu) Venture Investment Center(Smartsource)		6,187	814	-	-
HITECH Semiconductor (Wuxi) Co., Ltd.		211,273	376,266	114,756	228,987
Hystars Semiconductor (Wuxi) Co., Ltd.		145,509	19,295	1,490	-

(In millions of won)		2017			
		Current assets	Non-current assets	Current liabilities	Non-current liabilities
Stratio, Inc.	₩	681	577	111	-
SK China Company Limited		812,882	934,872	54,752	70,213
Gemini Partners Pte. Ltd.		6,227	5,314	2	-
TCL Fund		7,863	15,957	-	-
HITECH Semiconductor (Wuxi) Co., Ltd.		192,905	334,678	79,725	211,835

(4) Associate and joint venture's statements of comprehensive income (loss) for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)		2018		2017	
		Revenue	Profit (loss) for the period	Revenue	Profit (loss) for the period
Stratio, Inc.	₩	88	(330)	33	(339)
SK China Company Limited		94,966	20,176	-	-
Gemini Partners Pte. Ltd.		-	1,279	183	(5,423)
TCL Fund		-	713	-	152
SK South East Asia Investment Pte. Ltd.		-	-	-	-
Hushan Xinju (Chengdu) Venture Investment Center(Smartsource)		-	(31)	-	-
HITECH Semiconductor (Wuxi) Co., Ltd.		621,528	27,438	585,904	29,923
Hystars Semiconductor (Wuxi) Co., Ltd.		-	(658)	-	-

12. Long-term Investment Asset

(1) Details of long-term investment assets as of December 31, 2018 and 2017 are as follows:

(In millions of won)

	2018			2017
	Ownership (%)/ Type	Acquisition cost	Book value	Book value
ProMOS Technologies Inc.	13.34	₩ 21,847	-	-
JNT Frontier Private Equity Unit	Certificate	684	684	684
Daishin Aju IB Investment Co., Ltd. Equity Unit	Certificate	453	453	483
Seoul Investment Early & Green Venture Fund	Certificate	1,180	1,180	1,513
TS 2011-4 Technology Transfer & Business Equity Unit	Certificate	144	144	318
L&S Venture Capital Equity Unit	Certificate	1,121	1,121	1,170
KTC-NP-Growth Equity Unit	Certificate	1,685	1,685	2,155
Intellectual Discovery, Ltd.	7.05	4,000	1,376	1,699
Semiconductor Growth Fund	Certificate	25,000	24,878	17,250
Exnodes Inc.	Convertible bond	716	716	716
Keyssa, Inc.	2.26	6,174	838	832
MEMS DRIVE, INC.	2.86	2,246	919	844
CHINA WALDEN VENTURE INVESTMENTS II, L.P.	Certificate	7,611	7,611	6,116
AutoTech Fund I, L.P.	Certificate	2,871	2,789	1,444
IMEC.XPAND COMM.VA	Certificate	1,607	1,607	1,607
RENO SUB-SYSTEM, INC.	2.68	2,246	226	204
NetSpeed Systems, Inc.[1]	-	-	-	558
CHINA WALDEN VENTURE INVESTMENTS III, L.P.	Certificate	3,470	3,487	-
TransLink Capital Partners IV, L.P.	Certificate	1,627	1,627	-
Impact Venture Capital I, LP	Certificate	2,199	2,707	-
BCPE Pangea Intermediate Holdings Cayman, L.P.[2]	Certificate	2,637,097	2,721,554	-
BCPE Pangea Cayman2 Limited[2]	Convertible bond	1,278,893	1,461,451	-
FemtoMetrix, Inc.	Convertible bond	3,209	3,209	-
TidalScale, Inc.	4.26	3,360	3,360	-
GigaIO Networks, Inc.	6.00	1,678	1,678	-
Aeye, Inc.	1.50	2,819	2,819	-
AutoTech Fund II, L.P.	Certificate	281	281	-
Nautilus Ventures Partners Fund II, L.P.	Certificate	1,118	1,118	-
Construction Guarantee	0.01	709	779	709
Information & Communication Financial Cooperative	0.01	15	21	15
Beijing Starblaze Technology Co., Ltd.	5.43	3,273	3,255	3,273
Shanghai Natlinear Electronics Co., Ltd.	4.12	1,636	1,628	1,636
Shanghai IoT Phase II Venture Capital Fund Partnership, L.P.	Certificate	5,909	5,909	-

12. Long-term Investment Asset, Continued

(1) Details of long-term investment assets as of December 31, 2018 and 2017 are as follows, Continued:

(In millions of won)

	2018			2017
	Ownership (%)/ Type	Acquisition cost	Book value	Book value
Beijing Zettastone Technology Co., Ltd.	5.13	1,618	1,628	-
Beijing Horizon Robotics Technology Co., Ltd.	2.69	56,029	56,029	-
Shanghi Sirtus Microelectronics Technology Co., Ltd.	4.55	4,069	4,069	-
Mirae Aseet Social Enterprise Fund II	Certificate	275	275	-
Posco Social Enterprise Fund	Certificate	367	367	-
IBK Investment Securities, SE Fund I	Certificate	1,480	1,487	-
Shinhan AIM Social Enterprise Private Equity I	Certificate	600	585	-
	₩	4,091,016	4,325,550	43,226

[1] The Group sold whole amount of NetSpeed Systems, Inc.'s preferred stock (book value of ₩558 million) and recognized the gain on disposal of long-term investment assets with amount of ₩5,255 million during the year ended December 31, 2018.

[2] In 2017, pursuant to the approval from the Board of Directors, the Group participated in a consortium that includes Bain Capital ("Bain Consortium") in connection with the acquisition of a stake in TMC. During the year ended December 31, 2018, the acquisition of TMC was completed and the Group made investment amounting to JPY 266,000 million in SPC1, which holds equity interests in TMC, as a limited partner and acquired convertible bonds of JPY 129,000 million issued by SPC2, which may be later convertible to 15% stake in TMC upon certain events. The Group does not control or have any significant influence on SPC1 or SPC 2 as its management and decision-making rights for SPC1 and SPC2 are limited. Accordingly, the investments in both SPC1 and SPC2 are accounted for as debt instruments and classified as financial assets measured at fair value through profit or loss.

(2) Changes in the carrying amount of long-term investment assets for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Beginning balance	₩	43,226	147,779
Acquisition		4,012,799	26,204
Disposal		(1,614)	(115,720)
Gain (loss) on valuation		181,179	(14,807)
Foreign exchange difference		87,246	(230)
Business combination		2,714	-
Ending balance	₩	4,325,550	43,226

13. Property, Plant and Equipment

(1) Changes in property, plant and equipment for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018							
		Land	Buildings	Structures	Machinery	Vehicles	Others	Construction -in-progress	Total
Beginning net book amount	₩	581,541	2,930,753	839,620	16,130,068	777	442,221	3,137,621	24,062,601
Changes during 2018									
Acquisitions		313,288	1,087,457	390,687	10,512,072	11,486	353,658	4,355,503	17,024,151
Receipt of government grants		-	(14,976)	-	-	(25)	-	-	(15,001)
Business combination		-	-	-	18	-	973	-	991
Disposals		-	(25,545)	(3,133)	(93,989)	-	(1,301)	(28,562)	(152,530)
Depreciation		-	(146,962)	(67,392)	(5,500,710)	(914)	(188,178)	-	(5,904,156)
Transfers[1]		124,356	707,556	124,659	1,619,073	-	15,823	(2,590,483)	984
Exchange differences and others		1,044	(8,336)	(2,625)	(24,034)	(9)	115	(30,578)	(64,423)
Ending net book amount		1,020,229	4,529,947	1,281,816	22,642,498	11,315	623,311	4,843,501	34,952,617
Acquisition cost		1,020,229	5,561,516	1,760,456	57,335,240	14,333	1,572,747	4,843,501	72,108,022
Accumulated depreciation		-	(992,088)	(459,536)	(34,524,095)	(2,997)	(949,408)	-	(36,928,124)
Accumulated impairment		-	(23,699)	(19,104)	(164,916)	-	(28)	-	(207,747)
Government grants		-	(15,782)	-	(3,731)	(21)	-	-	(19,534)
	₩	1,020,229	4,529,947	1,281,816	22,642,498	11,315	623,311	4,843,501	34,952,617

[1] Investment property was transferred to property, plant and equipment during the year ended December 31, 2018.

13. Property, Plant and Equipment, Continued

(1) Changes in property, plant and equipment for the years ended December 31, 2018 and 2017 are as follows, Continued :

(In millions of won)

		2017							
		Land	Buildings	Structures	Machinery	Vehicles	Others	Construction -in-progress	Total
Beginning net book amount	₩	575,755	2,514,376	516,145	13,196,508	1,041	435,643	1,537,934	18,777,402
Changes during 2017									
Acquisitions		7,950	216,035	279,553	6,642,678	117	161,007	2,980,042	10,287,382
Receipt of government grants		-	(1,000)	-	-	-	-	-	(1,000)
Disposals		(2,220)	(2,141)	(3,180)	(164,301)	(1)	(507)	(47,615)	(219,965)
Depreciation		-	(112,343)	(49,851)	(4,301,152)	(379)	(155,051)	-	(4,618,776)
Transfers		1,483	330,333	108,366	876,697	-	6,463	(1,323,342)	-
Exchange differences and others		(1,427)	(14,507)	(11,413)	(120,362)	(1)	(5,334)	(9,398)	(162,442)
Ending net book amount		581,541	2,930,753	839,620	16,130,068	777	442,221	3,137,621	24,062,601
Acquisition cost		581,541	3,807,324	1,262,928	46,463,886	3,081	1,217,216	3,137,621	56,473,597
Accumulated depreciation		-	(851,655)	(404,204)	(30,163,696)	(2,304)	(774,959)	-	(32,196,818)
Accumulated impairment		-	(23,699)	(19,104)	(165,509)	-	(35)	-	(208,347)
Government grants		-	(1,217)	-	(4,613)	-	(1)	-	(5,831)
	₩	581,541	2,930,753	839,620	16,130,068	777	442,221	3,137,621	24,062,601

(2) Details of depreciation expense allocation for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Cost of sales	₩	5,421,324	4,213,339
Selling and administrative expenses		365,508	292,325
Other expenses		10,152	7,647
Development costs and other		107,172	105,465
	₩	5,904,156	4,618,776

(3) Certain property, plant and equipment are pledged as collaterals for borrowings of the Group as of December 31, 2018 (see note 34).

(4) The Group capitalized borrowing costs amounting to ₩33,086 million (2017: ₩3,964 million) on qualifying assets during the year ended December 31, 2018. Borrowing costs were calculated using a capitalization rate of 3.08% (2017: 1.53%) for the year ended December 31, 2018.

13. Property, Plant and Equipment, Continued

(5) The Group leases certain machinery and others from Hansu Technical Service Ltd. and others under finance lease agreements.

The book value of the machinery and others subject to finance lease agreement amounted to ₩73,069 million as of December 31, 2018 (as of December 31, 2017: ₩79,161 million). The machinery and others are pledged as collateral for the finance lease liabilities.

The Group leases certain machinery and others from Macquarie Capital and others under operating lease agreements. The payment schedule of minimum lease payments under operating lease agreements as of December 31, 2018 is as follows:

(In millions of won)

		Minimum lease payments
No later than 1 year	₩	156,126
Later than 1 year		157,322
	₩	313,448

(6) Details of insured assets as of December 31, 2018 is as follows:

(In millions of won)

	Insured assets		Insured amount	Insurance Company
Package insurance	Property, plant and equipment; investment property; inventories; and business interruption	₩	80,875,070	Hyundai Marine & Fire Insurance Co., Ltd. and others
Fire insurance	Property, plant and equipment; investment property		91,760	
Erection all risks insurance	Property, plant and equipment		11,659,003	
		₩	92,625,833	

In addition to the assets stated above, vehicle and delivery equipment are insured by vehicle comprehensive insurance and liability insurance.

14. Intangible Assets

(1) Changes in intangible assets for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018				
		Goodwill	Industrial property rights	Development costs	Others	Total
Beginning net book amount	₩	695,073	104,853	882,250	565,114	2,247,290
Changes during 2018						
Internal development		-	-	610,954	-	610,954
External acquisition		-	12,767	-	309,418	322,185
Disposals		-	(5,175)	-	(2,901)	(8,076)
Receipt of government grants		-	-	-	(2,080)	(2,080)
Business combination		3,207	-	-	22,539	25,746
Amortization		-	(16,380)	(334,766)	(172,949)	(524,095)
Impairment		-	-	(4,482)	-	(4,482)
Exchange differences		11,531	-	-	(203)	11,328
Ending net book amount		709,811	96,065	1,153,956	718,938	2,678,770
Acquisition cost		709,811	186,057	2,900,071	1,272,127	5,068,066
Accumulated amortization and impairment		-	(89,992)	(1,746,115)	(521,179)	(2,357,286)
Government grants		-	-	-	(32,010)	(32,010)
	₩	709,811	96,065	1,153,956	718,938	2,678,770

(In millions of won)

		2017				
		Goodwill	Industrial property rights	Development costs	Others	Total
Beginning net book amount	₩	730,204	98,963	629,882	456,542	1,915,591
Changes during 2017						
Internal development		-	-	511,647	-	511,647
External acquisition		-	26,572	-	246,692	273,264
Disposals		-	(4,872)	-	(1,076)	(5,948)
Amortization		-	(15,810)	(259,279)	(132,265)	(407,354)
Impairment		-	-	-	(769)	(769)
Exchange differences		(35,131)	-	-	(4,010)	(39,141)
Ending net book amount		695,073	104,853	882,250	565,114	2,247,290
Acquisition cost		695,073	184,971	2,293,388	950,432	4,123,864
Accumulated amortization and impairment		-	(80,118)	(1,411,138)	(354,424)	(1,845,680)
Government grants		-	-	-	(30,894)	(30,894)
	₩	695,073	104,853	882,250	565,114	2,247,290

(2) Details of amortization expense allocation for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Cost of sales	₩	65,885	46,308
Selling and administrative expenses		456,269	360,183
Development costs		1,941	863
	₩	524,095	407,354

14. Intangible Assets, Continued

(3) Goodwill impairment tests
Goodwill impairment tests are undertaken annually. As the Group has only one CGU, goodwill was allocated to one CGU. Recoverable amount of the CGU was determined based on fair value less costs to sell, which was determined using the current stock price as of December 31, 2018. No impairment loss of goodwill was recognized since the recoverable amount is higher than carrying value of the CGU as of December 31, 2018.

(4) Details of development costs

(a) Detailed criteria for capitalization of development costs
The Group's development projects for a new product proceeds in the process of review and planning phases (Phase 0 ~ 4) and product design and mass production phases (Phase 5 ~ 8). The Group recognizes expenditures incurred after Phase 4 in relation with the development for new technology is recognized as an intangible asset. Expenditures incurred at phase 0 through 4 are recognized as expenses.

(b) Development cost capitalized and expenses on research and development
Among costs associated with development activities, ₩610,954 million (2017: ₩511,647 million) that met capitalization criteria, were capitalized as development cost for the year ended December 31, 2018. In addition, costs associated with research activities and other development expenditures that did not meet the criteria in the amount of ₩2,284,000 million (2017: ₩1,975,386 million) were recognized as expenses for the year ended December 31, 2018.

(c) Details of development costs as of December 31, 2018 and 2017 are as follows:
(In millions of won)

	2018			
	Individual Asset		**Book value**	**Residual amortization period**
DRAM	1xnm B	₩	112,681	7 months
	1ynm[1]		345,001	23 months
	1znm[2]		7,261	-
NAND	3D(72)		37,055	6 months
	3D(96)[2]		406,615	-
	3D(128)[2]		167,043	-
CIS	Hi-1333		4,298	13 months
	Hi-1336[2]		30,599	-
	Hi-1631[2]		43,403	-
		₩	1,153,956	

[1] The name of development cost is changed from 1xynm to 1ynm during the year ended December 31, 2017.
[2] Amortization has not started as of December 31, 2018.

14. Intangible Assets, Continued

(4) Details of development costs, Continued

(c) Details of development costs as of December 31, 2018 and 2017 are as follows, Continued :

(In millions of won)

	2017			
	Individual Asset		**Book value**	**Residual amortization period**
DRAM	1xnm A	₩	305,848	19 months
	1xynm[1]		192,260	-
NAND	F14		3,990	4 months
	3D(48)		42,343	9 months
	3D(72)[1]		111,164	18 months
	3D(96)[1]		186,488	-
	3D(128)[1]		8,635	-
CIS	Hi-1332		2,520	9 months
	Hi-1333[1]		7,695	-
	Hi-1336[1]		7,235	-
	Hi-1221[1]		3,431	-
	Hi-1631[1]		10,641	-
		₩	882,250	

[1] Amortization has not started as of December 31, 2017.

(d) The Group recognizes ₩4,482 million as an impairment loss in development costs for the year ended December 31, 2018. Meanwhile, there is no impairment losses and reversals of impairment in development costs for the year ended December 31, 2017. There are no accumulated impairment losses in development costs as of December 31, 2018 and 2017 by writing off recognized impairment loss with acquisition cost.

15. Investment Property

(1) Changes in investment property for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Beginning net book amount	₩	2,468	2,573
Depreciation		(84)	(105)
Transfer[1]		(984)	-
Ending net book amount		1,400	2,468
Acquisition cost		2,911	5,170
Accumulated depreciation		(1,511)	(2,702)
	₩	1,400	2,468

[1] Investment property was transferred to property, plant and equipment during the year ended December 31, 2018.

(2) The depreciation expense of ₩84 million was charged to cost of sales for the year ended December 31, 2018 (2017: ₩105 million).

(3) Rental income from investment property during the year ended December 31, 2018 was ₩308 million (2017: ₩495 million).

16. Other Payables

Details of other payables as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Current			
Accrued expenses	₩	1,879,520	1,340,225
Non-current			
Rent deposits payable		14,135	3,412
Long-term accrued expenses		1,096	-
		15,231	3,412
	₩	1,894,751	1,343,637

17. Borrowings

(1) Details of borrowings as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Current			
Short-term borrowings	₩	585,788	192,686
Current portion of long-term borrowings		578,665	361,258
Current portion of debentures		449,850	219,836
		1,614,303	773,780
Non-current			
Long-term borrowings		2,161,566	2,080,333
Debentures		1,506,068	1,317,157
		3,667,634	3,397,490
	₩	5,281,937	4,171,270

(2) Details of short-term borrowings as of December 31, 2018 and 2017 are as follows:

(In millions of won)

	Financial Institutions	Interest rate per annum in 2018 (%)		2018	2017
General borrowings	Shinhan Bank	3.76	₩	1,000	-
	Shinhan Bank	3.92		3,920	-
	The Export-Import Bank of Korea	-		-	107,140
	City Bank	3M USD LIBOR + 1.00		22,341	53,466
	Industrial & Commercial Bank of China	-		-	21,387
	China Bank	-		-	10,693
	China Development Bank	3M USD LIBOR + 1.50		558,527	-
			₩	585,788	192,686

17. Borrowings, Continued

(3) Details of long-term borrowings as of December 31, 2018 and 2017 are as follows:

(In millions of won)	Financial institutions	Interest rate per annum in 2018 (%)[1]		2018	2017
Local currency borrowings:					
Funds for equipment	Korea Development Bank	2.02~2.50	₩	500,000	500,000
Finance lease liabilities	Hansu Technical Service Ltd.	3.56~3.71		66,757	74,557
Funds for equipment	NongHyup Bank	1.00		1,248	1,170
Finance lease liabilities	Veolia Water Industrial Development Co., Ltd.	4.00		1,400	1,732
				569,405	577,459
Foreign currency borrowings:					
General borrowings	The Export-Import Bank of Korea	3M USD LIBOR + 1.00~1.40		978,233	910,690
		3M JPY LIBOR + 0.57		810,544	-
	Woori Bank	-		-	107,140
		3M USD LIBOR + 0.98		125,787	160,710
	China Bank	3M USD LIBOR + 1.70		7,484	-
Funds for equipment	Korea Development Bank	3M USD LIBOR + 1.15		55,905	107,140
		3M USD LIBOR + 0.95		125,787	160,710
		-		-	214,280
	KEB Hana Bank	3M USD LIBOR + 1.23		44,724	85,712
	NongHyup Bank	3M USD LIBOR + 1.33		22,362	64,284
	Standard Chartered Bank Korea Ltd.	-		-	53,466
				2,170,826	1,864,132
				2,740,231	2,441,591
Less: Current maturities				(578,665)	(361,258)
			₩	2,161,566	2,080,333

[1] As of December 31, 2018, the annual interest rates are as follows:

Type	Interest rate per annum as of December 31, 2018
3M USD LIBOR	2.80%
3M JPY LIBOR	-0.08%

17. Borrowings, Continued

(4) Details of debentures as of December 31, 2018 and 2017 are as follows:

(In millions of won)

	Maturity date	Interest rate per annum in 2018 (%)		2018	2017
Unsecured notes in local currency:					
212th	May 30, 2019	5.35	₩	450,000	450,000
214-1st	Aug. 26, 2020	2.27		210,000	210,000
214-2nd	Aug. 26, 2022	2.63		140,000	140,000
215-1st	Nov. 25, 2018	-		-	70,000
215-2nd	Nov. 25, 2020	2.56		100,000	100,000
215-3rd	Nov. 25, 2022	2.75		10,000	10,000
216-1st	Feb. 19, 2018	-		-	70,000
216-2nd	Feb. 19, 2021	2.22		180,000	180,000
216-3rd	Feb. 19, 2023	2.53		80,000	80,000
217-1st	May 27, 2018	-		-	80,000
217-2nd	May 27, 2021	2.30		150,000	150,000
218th	March 14, 2023	3.01		300,000	-
219-1st	August 27, 2023	2.48		250,000	-
219-2nd	August 27, 2025	2.67		90,000	-
				1,960,000	1,540,000
Less: Discounts on debentures				(4,082)	(3,007)
Current portion				(449,850)	(219,836)
			₩	1,506,068	1,317,157

(5) Finance lease liability

Lease liabilities are effectively secured as the rights to the leased asset belong to the lessor.

Details of future minimum lease payments to the lessor as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Total minimum lease payment			
No later than 1 year	₩	10,773	10,773
Between 1 and 5 years		42,633	43,027
Later than 5 years		24,369	34,748
		77,775	88,548
Discount on present value		(9,618)	(12,259)
Net minimum lease payment			
No later than 1 year		10,563	10,563
Between 1 and 5 years		38,218	38,550
Later than 5 years		19,376	27,176
	₩	68,157	76,289

18. Other Current and Non-current Liabilities

Details of other current and non-current liabilities as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Current			
Advance receipts	₩	8,973	3,040
Unearned income		186	81
Withholdings		49,770	39,862
Deposits received		1,036	989
Contract liabilities		80,373	-
Others		7,500	7,804
		147,838	51,776
Non-current			
Other long-term employee benefits		74,403	63,960
Long-term advance receipts		4,900	4,900
		79,303	68,860
	₩	227,141	120,636

19. Provisions

(1) Details of changes in provisions for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018			
		Beginning balance	Increase	Utilization	Ending Balance
Warranty	₩	3,807	8,848	(8,663)	3,992
Sales returns[1]		-	-	-	-
Legal claims		9,460	5,881	(9,460)	5,881
Emission allowances		37,412	8,923	-	46,335
	₩	50,679	23,652	(18,123)	56,208

[1] Upon adoption of K-IFRS No. 1115, the amount expected to be incurred for future returns and the Group's right to collect the product from the customer have been recognized as other current liabilities and other current assets respectively.

(In millions of won)

		2017			
		Beginning balance	Increase	Utilization	Ending Balance
Warranty	₩	2,997	7,682	(6,872)	3,807
Sales returns[1]		13,317	118,564	(101,209)	30,672
Legal claims		400	9,460	(400)	9,460
Emission allowances		26,108	11,999	(695)	37,412
	₩	42,822	147,705	(109,176)	81,351

[1] The Group estimated the expected sales returns based on historical results and adjusts sales and cost of sales, respectively. Accordingly, related gross profit and estimated expenses related to the return (such as transportation costs) are recorded as provisions for sales returns.

(2) Provisions for warranty

The Group estimates the expected warranty costs based on historical results and accrues provisions for warranty.

(3) Provisions for legal claims

The Group recognizes provisions for legal claims when the Group has a present legal or constructive obligation as a result of past events and an outflow of resources required to settle the obligation is probable and the amount can be reliably estimated.

(4) Provision for emission allowances

The Group recognizes estimated future payment for the number of emission certificates required to settle the Group's obligation exceeding the actual number of certificates on hand as emission allowances according to the Act on Allocation and Trading of Greenhouse Gas Emission Permits.

20. Defined Benefit Liabilities

Under the defined benefit plan, the Group pays employee benefits to retired employees in the form of a lump sum based on their salaries and years of service at the time of their retirement. Accordingly, the Group is exposed to a variety of actuarial assumption risks such as risk associated with expected years of service, interest risk, and market (investment) risk.

(1) Details of defined benefit liabilities as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Present value of defined benefit obligations	₩	1,609,055	1,330,559
Fair value of plan assets		(1,608,832)	(1,337,848)
Net defined benefit liabilities (assets)	₩	223	(7,289)
Defined benefit liabilities		5,387	6,096
Defined benefit assets[1]		(5,164)	(13,385)

[1] The Parent Company and certain subsidiaries' fair value of plan assets in excess of the present value of defined benefit obligations amounted to ₩5,164 million and ₩13,385 million as of December 31, 2018 and 2017 is presented as defined benefit assets.

(2) Principal actuarial assumptions as of December 31, 2018 and 2017 are as follows:

	2018 (%)	2017 (%)
Discount rate for defined benefit obligations	2.64 ~ 3.78	3.81 ~ 4.35
Expected rate of salary increase	2.70 ~ 5.83	2.20 ~ 5.46

(3) Weighted average durations of defined benefit obligations as of December 31, 2018 and 2017 are 11.64 and 11.47 years, respectively.

(4) Changes in defined benefit obligations for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Beginning balance	₩	1,330,559	1,195,047
Current service cost		179,689	156,777
Interest cost		56,465	46,877
Transfer from associates		1,077	546
Remeasurements:		73,727	(23,406)
Demographic assumption		3,138	-
Financial assumption		102,639	(47,319)
Adjustment based on experience		(32,050)	23,913
Benefits paid		(36,798)	(45,241)
Business combination		4,300	-
Effect of movements in exchange rates		36	(41)
Ending balance	₩	1,609,055	1,330,559

20. Defined Benefit Liabilities, Continued

(5) Changes in plan assets for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Beginning balance	₩	1,337,848	888,559
Contributions		276,739	460,772
Interest income		56,651	34,880
Transfer from associates		1,837	550
Benefits paid		(34,768)	(27,383)
Business combination		3,009	-
Remeasurements		(32,484)	(19,530)
Ending balance	₩	1,608,832	1,337,848

(6) The amounts recognized in profit or loss for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Current service cost	₩	179,689	156,777
Net interest expense		(186)	11,997
	₩	179,503	168,774

(7) The amounts in which defined benefit plan related expenses are included for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Cost of sales	₩	101,944	95,301
Selling and administrative expenses		77,559	73,473
	₩	179,503	168,774

(8) Details of plan assets as of December 31, 2018 and December 31, 2017 are as follows:

(In millions of won)

		2018	2017
Deposits	₩	1,607,552	1,336,484
Other		1,280	1,364
	₩	1,608,832	1,337,848

Actual return on plan assets for the years ended December 31, 2018 and 2017 amounted to ₩24,167 million and ₩15,350 million, respectively.

20. Defined Benefit Liabilities, Continued

(9) As of December 31, 2018, the Group funded defined benefit obligations through insurance plans with Mirae Asset Life Insurance Co., Ltd. and other insurance companies. The Group's reasonable estimation of contribution to the plan assets for the year ending December 31, 2019 is ₩358,495 million under the assumption that the Group maintains the defined benefit plan.

(10) The sensitivity analysis of the defined benefit obligations as of December 31, 2018 to changes in the principal assumptions is as follows:

(In millions of won)

		Effects on defined benefit obligation	
		Increase of rate	**Decrease of rate**
Discount rate (if changed by 1%)	₩	(164,970)	194,258
Expected rate of salary increase (if changed by 1%)		193,911	(167,692)

The sensitivity analysis does not consider dispersion of all cash flows that are expected from the plan and provides approximate values of sensitivity for the assumptions used.

(11) Information about the maturity profile of the defined benefit obligation as of December 31, 2018 is as follows:

(In millions of won)

		2018				
		Less than 1 year	**1 - 5 years**	**5 - 10 years**	**10 - 20 years**	**Total**
Benefits paid	₩	47,327	373,165	903,336	3,300,971	4,624,799

Information about the maturity profile is based on undiscounted amount of defined benefit obligation and classified to employee's expected years of remaining services.

(12) The Group adopted defined contribution plan for retirement benefit for employees subject to peak wage system. Contributions to defined contribution plans amounting to ₩216 million (2017: ₩76 million) was recognized as cost of sales for the year ended December 31, 2018.

21. Deferred Income Tax

(1) Changes in deferred income tax assets and liabilities for the years ended December 31, 2018 and 2017 without taking into consideration the offsetting of balances within the same tax jurisdiction, are as follows:

(In millions of won)

		2018				
		January 1, 2018	**Profit or loss**	**Equity**	**Foreign exchange differences**	**December 31, 2018**
Inventories, net	₩	47,169	55,513	-	130	102,812
Property, plant and equipment, net		236,870	(96,703)	-	594	140,761
Defined benefits liabilities, net		416	(30,020)	29,182	(187)	(609)
Short-term and long-term investment assets and others		43,191	(76,175)	-	-	(32,984)
Employee benefits		34,166	5,785	-	3	39,954
Provisions		18,268	794	-	108	19,170
Other assets and other liabilities		14,743	9,840	-	-	24,583
Accrued expenses		13,641	35,242	-	-	48,883
Others		47,832	17,408	-	(8,587)	56,653
Deferred tax assets for temporary differences, net		456,296	(78,316)	29,182	(7,939)	399,223
Tax credit carryforwards recognized		7,813	6,693	-	684	15,190
Tax loss carryforwards recognized		130,120	(14,286)	-	7,172	123,006
Deferred tax assets recognized	₩	594,229	(85,909)	29,182	(83)	537,419

(In millions of won)

		2017				
		January 1, 2017	**Profit or loss**	**Equity**	**Foreign exchange differences**	**December 31, 2017**
Inventories, net[1]	₩	16,936	30,369	-	(152)	47,153
Property, plant and equipment, net[1]		30,023	215,639	-	(8,792)	236,870
Defined benefits liabilities, net		60,889	(59,344)	(1,114)	(15)	416
Short-term and long-term investment assets and others[1]		34,334	4,785	4,072	-	43,191
Employee benefits		28,671	5,490	-	(3)	34,158
Provisions[1]		11,582	19,237	-	(137)	30,682
Accrued expenses[1]		26,004	(12,363)	-	-	13,641
Others[1]		38,259	13,207	-	(1,505)	49,961
Deferred tax assets for temporary differences, net		246,698	217,020	2,958	(10,604)	456,072
Tax credit carryforwards recognized		360,131	(351,182)	-	(912)	8,037
Tax loss carryforwards recognized		180,807	(31,852)	-	(18,835)	130,120
Deferred tax assets recognized	₩	787,636	(166,014)	2,958	(30,351)	594,229

[1] Inventories, property, plant and equipment, short-term and long-term investment assets, provisions, accrued expenses and others as of December 31, 2017 are reclassified to conform with the classification as of December 31, 2018.

21. Deferred Income Tax, Continued

(2) As of December 31, 2018, the deductible temporary differences that are not recognized as deferred tax assets (liabilities) are as follows:

(In millions of won)

		2018	2017
Investments in subsidiaries, associates, and joint ventures and others	₩	(5,139)	317,133
deductible temporary differences		17,756	60,511

22. Derivative Financial Instruments

(1) There was no derivative financial instruments as of December 31, 2018 and December 31, 2017.

(2) Details of gains and losses from derivative instruments for the year ended December 31, 2017 are as follows (2018: nil):

(In millions of won)

		2017			
		Gain on valuation	Loss on valuation	Gain on transaction	Loss on transaction
Interest rates swap	₩	-	-	902	913

23. Capital Stock, Capital Surplus and Other Equity

(1) The Parent Company has 9,000,000,000 authorized shares and the face value per share is ₩5,000 as of December 31, 2018. The number of shares issued, common stock, capital surplus and other capital as of December 31, 2018 and 2018, are as follows:

(In millions of won, thousands of shares)

		2018	2017
Issued shares[1]		731,530	731,530
Capital stock:			
Common stock	₩	3,657,652	3,657,652
Capital surplus:			
Additional paid in capital		3,625,797	3,625,797
Others		517,939	517,939
		4,143,736	4,143,736
Other equity:			
Acquisition cost of treasury shares		(2,508,427)	(771,913)
Stock option		1,976	813
	₩	(2,506,451)	(771,100)
Number of treasury shares		44,001	22,001

[1] As of December 31, 2018, total number of shares is 728,002 thousand shares, which differs from total issued shares due to the effect of stock retirement.

(2) The Group's number of outstanding shares is decreased to 684,002 thousand shares as of ended December 31,2018 due to acquisition of treasury shares.

24. Accumulated Other Comprehensive Loss

(1) Details of accumulated other comprehensive loss as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Equity-accounted investees – share of other comprehensive income (loss)	₩	(18,166)	(20,442)
Loss on valuation of available-for-sale financial asset[1]		-	(10,735)
Foreign operations – foreign currency translation differences		(464,653)	(471,087)
	₩	(482,819)	(502,264)

[1] Due to the application of K-IFRS No. 1109, available-for-sale financial assets for equity investments were reclassified to financial assets measured at financial assets at fair value through profit or loss. As a result of this reclassification, as at January 1, 2018, other comprehensive loss of ₩10,735 million was reclassified to retained earnings.

(2) Changes in accumulated other comprehensive income (loss) for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018			
		Beginning	Change	Effect of significant change in accounting policy	Ending
Equity-accounted investees – share of other comprehensive income (loss)	₩	(20,442)	2,276	-	(18,166)
Loss on valuation of long-term investment assets		(10,735)	-	10,735	-
Foreign operations – foreign currency translation differences		(471,087)	6,434	-	(464,653)
	₩	(502,264)	8,710	10,735	(482,819)

(In millions of won)

		2017		
		Beginning	Change	Ending
Equity-accounted investees – share of other comprehensive income (loss)	₩	5,944	(26,386)	(20,442)
Loss on valuation of available-for-sale financial assets		-	(10,735)	(10,735)
Foreign operations – foreign currency translation differences		(85,047)	(386,040)	(471,087)
	₩	(79,103)	(423,161)	(502,264)

25. Retained Earnings and Dividends

(1) Details of retained earnings as of December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Legal reserve[1]	₩	178,954	108,354
Discretionary reserve[2]		235,506	235,506
Unappropriated retained earnings		41,619,141	26,943,396
	₩	42,033,601	27,287,256

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

[2] Discretionary reserve is a reserve for technology development.

(2) Dividends of the Parent Company

(a) Details of dividends for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won and In thousands of shares)

		2018	2017
Type of dividends		Cash Dividends	Cash Dividends
Outstanding ordinary shares		684,002	706,002
Par value (in won)	₩	5,000	5,000
Dividend rate		30%	20%
Total dividends	₩	1,026,003	706,002

(b) Dividend payout ratio for the years ended December 31, 2018 and 2017 is as follows:

(In millions of won)

		2018	2017
Dividends	₩	1,026,003	706,002
Profit attributable to owners of the Parent Company		15,540,111	10,641,512
Dividend payout ratio		6.60%	6.63%

(c) Dividend yield ratio for the years ended December 31, 2018 and 2017 is as follows:

(In won)

		2018	2017
Dividends per share	₩	1,500	1,000
Closing stock price		60,500	76,500
Dividend yield ratio		2.48%	1.31%

26. Revenue

The nature and impact on the Group of initial adopting the K-IFRS No. 1115 *'Revenue from contracts with customers'* are described in note 3-(26). Comparative information has not been restated to reflect the new requirement under the method of application of the standard.

(1) Details of the Group's revenue for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Sale of goods	₩	40,388,846	30,035,297
Providing services		56,220	74,137
	₩	40,445,066	30,109,434

(2) Details of the Group's revenue by product and service types for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
DRAM	₩	32,370,936	22,887,259
NAND Flash		7,420,857	6,648,748
Others		653,273	573,427
	₩	40,445,066	30,109,434

(3) The Group's revenue information by region based on the location of selling entities for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Korea	₩	840,491	1,207,464
China		15,785,993	10,074,686
Taiwan		2,950,067	2,626,577
Asia (other than China and Taiwan)		4,609,601	3,574,788
U.S.A.		14,278,161	11,063,503
Europe		1,980,753	1,562,416
	₩	40,445,066	30,109,434

(4) Details of the Group's revenue by the timing of revenue recognition are as follows:

(In millions of won)

		2018	2017
Performance obligations satisfied at a point in time	₩	40,388,846	30,035,297
Performance obligations satisfied over time		56,220	74,137
	₩	40,445,066	30,109,434

26. Revenue, Continued

(5) Revenue recognition policies and performance obligation

Revenue is measured based on promised consideration in a contract with a customer. The Group recognizes revenue when (or as) the Group transfers a promised good to a customer.

Revenue recognition policies regarding the nature and timing of performance obligations satisfaction, significant financing component in the contract are as follows:

	Nature of goods or services and timing of performance obligation satisfaction	Revenue recognition under K-IFRS No. 1115
Sale of goods	Revenue is recognized when (or as) goods are transferred to a customer and the customer obtains control of that asset, which is typically upon delivery or shipment depending on the terms of the contract. When the good is defective, the customer is granted the right to return the defective goods in exchange for a functioning product or cash.	Revenue is measured at the amount of consideration for the sale of goods, reflecting the expected amount of return estimated through historical information. The Group's right to recover products from customers on settling the refund liability is recognized as asset and refund liability is recognized as well. Settling a refund liability shall initially be measured by reference to the former carrying amount of the product less any expected costs to recover those products. Refund liability is included in other current liabilities (See note 18) and right to recover products from customers on settling the refund liability is included in other current assets (See note 10).The Group updates the measurement of the asset arising from changes in expectations about products to be returned at the end of each reporting period.

27. Selling and Administrative Expenses

Selling and administrative expenses for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Selling and administrative expenses:			
Salaries	₩	564,923	467,824
Defined benefit plan		27,200	25,841
Employee benefits		115,892	87,299
Commission		369,307	232,799
Depreciation		130,229	96,153
Amortization		442,389	348,519
Freight and custody charge		27,412	38,920
Legal cost		34,032	33,251
Rental		13,301	13,633
Taxes and dues		31,785	17,132
Training		32,636	27,105
Advertising		92,025	83,748
Utilities		11,603	14,480
Supplies		103,384	82,108
Repair		24,938	35,871
Travel and transportation		15,483	11,166
Sales promotion		64,837	57,180
Sales repair		6,243	7,682
Others		28,859	30,168
		2,136,478	1,710,879
Research and development:			
Expenditure on research and development		2,894,954	2,487,033
Development cost capitalized		(610,954)	(511,647)
		2,284,000	1,975,386
	₩	4,420,478	3,686,265

28. Expenses by Nature

Nature of expenses for the years ended December 31, 2018 and 2017 is as follows:

(In millions of won)

		2018	2017
Changes in finished goods and work-in-process	₩	(1,473,125)	(528,298)
Raw materials, supplies and consumables		5,659,357	4,257,017
Employee benefit		3,669,809	3,059,690
Depreciation and amortization		6,309,070	4,912,260
Royalty		172,615	221,789
Commission		1,675,122	1,254,084
Utilities		1,131,394	971,489
Repair		1,023,685	946,132
Outsourcing		1,072,241	895,996
Others		361,148	397,949
Total[1]	₩	19,601,316	16,388,108

[1] Total expenses consist of cost of sales and selling and administrative expenses.

29. Finance Income and Expenses

Finance income and expenses for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Finance income:			
Interest income	₩	62,478	54,275
Dividend income		2,136	13
Foreign exchange differences[1]		1,386,287	893,047
Gain from derivative instruments		-	902
Gain on valuation of short-term investment assets[2]		16,740	1,399
Gain on valuation of long-term investment assets[2]		182,461	-
Gain on disposal of short-term investment assets[2]		36,349	15,754
Gain on disposal of long-term investment assets[2]		5,504	31,078
		1,691,955	996,468
Finance expenses:			
Interest expenses		94,635	123,918
Foreign exchange differences[1]		1,046,217	1,124,628
Loss from derivative instruments		-	913
Loss on disposal of long-term investment asset		-	158
Loss on valuation of long-term investment asset		1,282	-
		1,142,134	1,249,617
Net finance income(expenses)	₩	549,821	(253,149)

[1] The foreign exchange differences of long-term investment assets amounting to ₩87,246 million are included.
[2] Gain(loss) related to investment assets for the year ended December 31, 2017 were reclassified to conform with the classification for the year ended December 31, 2018.

30. Other Income and Expenses

(1) Other income for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Gain on disposal of property, plant and equipment	₩	39,403	35,161
Gain on disposal of intangible asset		-	758
Others		73,407	41,963
	₩	112,810	77,882

(2) Other expenses for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Loss on disposal of property, plant and equipment	₩	59,738	10,229
Loss on disposal of intangible assets		5,545	4,872
Loss on disposal of trade receivables		9,031	7,049
Loss on impairment of intangible assets		4,483	769
Donations		62,041	76,195
Others		37,520	19,746
	₩	178,358	118,860

31. Income Tax Expense

(1) Income tax expense for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)		2018	2017
Current tax:			
Current tax on profits for the year	₩	5,728,798	2,687,405
Adjustments for the current tax liabilities attributable to prior year, but recognized in current year		(13,661)	(56,072)
		5,715,137	2,631,333
Deferred tax:			
Changes in net deferred tax assets		85,909	166,014
Income tax expense	₩	5,801,046	2,797,347

(2) The relationship between tax expense and accounting profit for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)		2018	2017
Profit before income tax	₩	21,341,029	13,439,566
Tax calculated at domestic tax rates applicable to profits in the respective countries		5,858,421	3,204,233
Tax effects of:			
Tax-exempt income		(39,732)	(157)
Non-deductible expenses		10,008	4,703
Change in unrecognized deferred tax assets		88,614	(113,829)
Tax credit		(137,671)	(126,213)
Adjustments for the current tax liabilities attributable to prior year, but recognized in current year		(13,661)	(56,072)
Others		35,067	(115,318)
Income tax expense	₩	5,801,046	2,797,347

(3) Income taxes recognized in other comprehensive income (loss) for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)		2018	2017
Remeasurements of defined benefit liabilities	₩	29,182	(1,114)
Gain on valuation of available-for-sale financial assets		-	4,072
	₩	29,182	2,958

32. Earnings per Share

Basic earnings per share is calculated by dividing the profit attributable to ordinary shareholders of the Parent Company by the weighted average number of outstanding ordinary shares during the years.

(1) Basic earnings per share for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won, except for shares and per share information)

		2018	2017
Profit attributable to ordinary shareholders of the Parent Company	₩	15,540,111	10,641,512
Weighted average number of outstanding ordinary shares[1]		698,278,083	706,001,795
Basic earnings per share (in won)	₩	22,255	15,073

[1] Weighted average number of outstanding ordinary shares is calculated as follows:

(In shares)

	2018	2017
Outstanding ordinary shares	728,002,365	728,002,365
Acquisition of treasury shares	(29,724,282)	(22,000,570)
Weighted average number of outstanding ordinary shares	698,278,083	706,001,795

(2) Diluted earnings per share for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won, except for shares and per share information)

		2018	2017
Profit attributable to ordinary shareholders of the Parent Company	₩	15,540,111	10,641,512
Weighted average number of diluted outstanding ordinary shares[1]		698,364,251	706,038,232
Diluted earnings per share (in won)	₩	22,252	15,072

[1] Weighted average number of diluted ordinary shares outstanding is calculated as follows:

(In shares)

	2018	2017
Weighted average number of outstanding ordinary shares	698,278,083	706,001,795
Stock options	86,168	36,437
Weighted average number of diluted outstanding ordinary shares	698,364,251	706,038,232

33. Transactions with Related Parties and Others

(1) Details of related parties as of December 31, 2018 are as follows:

Type	Name of related parties
Associates	Stratio, Inc., SK China Company Limited, Gemini Partners Pte. Ltd., TCL Fund, SK South East Asia Investment Pte. Ltd., Hushan Xinju (Chengdu) Venture Investment Center(Smartsource)
Joint venture	HITECH Semiconductor (Wuxi) Co., Ltd., Hystars Semiconductor (Wuxi) Co., Ltd.
Other related parties	SK Telecom Co., Ltd., which has significant influence over the Group, SK Holdings Co., Ltd., which has control over SK Telecom Co., Ltd., and their subsidiaries

(2) Significant transactions for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018			
	Company	Operating revenue and others	Operating expense and others	Asset acquisition	Dividend income
Associates	SK China Company Limited	₩ -	9,699	-	-
Joint venture	HITECH Semiconductor (Wuxi) Co., Ltd.	3,442	621,986	1,901	13,120
	Hystars Semiconductor (Wuxi) Co., Ltd.	162	-	-	-
Other related parties	SK Telecom Co., Ltd.[1]	313	162,342	46,122	-
	SK Holdings Co., Ltd.[2]	1,465	231,180	539,447	-
	ESSENCORE Limited	917,320	-	-	-
	SK Engineering & Construction Co., Ltd.	4,038	25,882	2,484,366	-
	SK Energy Co., Ltd.	4,040	71,059	-	-
	SK Networks Co., Ltd.	-	7,190	10,600	-
	SKC Solmics Co., Ltd.	-	21,724	1,439	-
	Chungcheong energy service Co., Ltd.	-	19,112	203	-
	SK Materials Co., Ltd.	-	68,957	-	-
	SK Siltron Co., Ltd.	4,392	338,741	-	-
	Others	461	358,935	68,464	-
Other	Happynarae Co., Ltd.[3]	39	576,043	68,630	-
		₩ 935,672	2,512,850	3,221,172	13,120

[1] Operating expense and others include dividend payments of ₩146,100 million.
[2] For the year ended December 31, 2018, royalty paid for the use of the SK brand amounted to ₩61,955 million.
[3] The transactions are incurred before the acquisition of Happynarae Co., Ltd.

33. Transactions with Related Parties and Others, Continued

(2) Significant transactions for the years ended December 31, 2018 and 2017 are as follows, Continued:

(In millions of won)

			2017			
	Company		Operating revenue and others	Operating expense and others	Asset acquisition	Dividend income
Associates	SK China Company Limited	₩	-	5,836	-	-
Joint venture	HITECH Semiconductor (Wuxi) Co., Ltd.		5,782	582,745	-	14,828
Other related parties	SK Telecom Co., Ltd.[1]		318	96,441	24,183	-
	SK Holdings Co., Ltd.[2]		994	174,556	142,913	-
	ESSENCORE Limited		749,238	-	-	-
	SK Engineering & Construction Co., Ltd.		27,433	7,290	1,464,735	-
	SK Energy Co., Ltd.		5,075	54,682	-	-
	SK Networks Co., Ltd.		-	5,350	-	-
	SKC Solmics Co., Ltd.		-	30,486	1,020	-
	Chungcheong energy service Co., Ltd.		10	16,062	10	-
	SK Materials Co., Ltd.		3	50,657	-	-
	SK Siltron Co., Ltd.		1,538	84,791	-	-
	Others		667	166,867	29,787	-
Other	Happynarae Co., Ltd.[3]		34	455,632	36,516	-
		₩	791,092	1,731,395	1,699,164	14,828

[1] Operating expense and others include dividend payments of ₩87,660 million.
[2] For the year ended December 31, 2017, royalty paid for the use of the SK brand amounted to ₩34,882 million.
[3] The transaction is incurred before Happynarae Co., Ltd. is included in a consolidation scope and the Group acquired control over the Happynarae Co., Ltd. during the year ended December 31, 2018.

33. Transactions with Related Parties and Others, Continued

(3) The balances of significant transactions as of December 31, 2018 and 2017 are as follows:

(In millions of won)

	2018			
	Company		Trade receivables and others	Other payables and others
Associates	SK China Company Limited	₩	1	9,060
Joint venture	HITECH Semiconductor (Wuxi) Co., Ltd.		33	102,932
	Hystars Semiconductor (Wuxi) Co., Ltd.		19	-
Other related parties	SK Telecom Co., Ltd.		3,339	15,489
	SK Holdings Co., Ltd.		1,876	144,225
	ESSENCORE Limited		71,673	-
	SK Engineering & Construction Co., Ltd.		12,910	744,935
	SK Energy Co., Ltd.		5,350	9,005
	SK Networks Co., Ltd.		790	1,452
	SKC Solmics Co., Ltd.		57	8,113
	Chungcheong energy service Co., Ltd.		4	3,644
	SK Materials Co., Ltd.		443	18,214
	SK Siltron Co., Ltd. [1]		156,023	37,070
	Others		14,918	120,955
		₩	267,436	1,215,094

(In millions of won)

	2017			
	Company		Trade receivables and others	Other payables and others
Associates	SK China Company Limited	₩	-	5,610
Joint venture	HITECH Semiconductor (Wuxi) Co., Ltd.		-	90,782
Other related parties	SK Telecom Co., Ltd.		94	3,014
	SK Holdings Co., Ltd.		5,530	108,038
	ESSENCORE Limited		90,367	-
	SK Engineering & Construction Co., Ltd.		7,327	946,517
	SK Energy Co., Ltd.		500	10,505
	SK Networks Co., Ltd.		-	1,395
	SKC Solmics Co., Ltd.		-	3,393
	Chungcheong energy service Co., Ltd.		11	2,128
	SK Materials Co., Ltd.		-	11,692
	SK Siltron Co., Ltd. [1]		150,521	21,071
	Others		90	93,433
Other	Happynarae Co., Ltd. [2]		3	55,126
		₩	254,443	1,352,704

[1] The Group has paid ₩150,000 million in advance for the purchase of wafers during the year ended December 31, 2017 (See note 34).
[2] The transaction is incurred before Happynarae Co., Ltd. is included in a consolidation scope and the Group acquired control over the Happynarae Co., Ltd. during the year ended December 31, 2018.

33. Transactions with Related Parties and Others, Continued

(4) Key management compensation

Key management includes the Parent Company's directors, members of the board of directors, chief financial officer, and internal auditors. The compensation paid to key management for employee services for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

Details		2018	2017
Salaries	₩	106,408	106,291
Defined benefit plan related expenses		10,516	8,840
Share-based payment		1,163	813
Others		19	13
	₩	118,106	115,957

(5) The significant transactions between the Group and the companies that are in the same conglomerate group according to '*Fair Trade Law*' as of December 31, 2018 and 2017 are as follows. These entities are not related parties according to K-IFRS No. 1024, '*Related Party Disclosures*'.

(In millions of won)

	2018					
	Company		Operating revenue and others	Operating expense and others	Asset acquisition	Dividend income
Companies in the Conglomerate	SK Chemicals Co., Ltd.	₩	-	1,216	-	-
	SK Bioscience Co., Ltd.		-	125	-	-
		₩	-	1,341	-	-

(In millions of won)

	2017					
	Company		Operating revenue and others	Operating expense and others	Asset acquisition	Dividend income
Companies in the Conglomerate	SK Discovery Co., Ltd.	₩	-	1,204	-	-
	SK Chemicals Co., Ltd.		-	38	-	-
		₩	-	1,242	-	-

33. Transactions with Related Parties and Others, Continued

(6) The balances of significant transactions between the Group and the companies that are in the same conglomerate group designated by '*Fair Trade Law*'. The details of the balances as of December 31, 2018 and 2017 are as follows. These entities are not related parties according to K-IFRS No. 1024, '*Related Party Disclosures*'.

(In millions of won)

	2018			
	Company		**Trade receivables and others**	**Other payables and others**
Companies in the Conglomerate	SK Discovery Co., Ltd.	₩	5	-
	SK Chemicals Co., Ltd.		1,253	331
	SK Bioscience Co., Ltd.		884	13
		₩	2,142	344

(In millions of won)

	2017		
	Company		**Other payables and others**
Companies in the Conglomerate	SK Discovery Co., Ltd.	₩	339
	SK Chemicals Co., Ltd.		38
		₩	377

(7) The Group's acquisitions of subsidiaries during the year ended December 31, 2018 are presented in note 1 and note 37 and the Group's acquisitions and additional interests in associates during the year ended December 31, 2018 are presented in note 11.

34. Commitments and Contingencies

(1) The details of litigations and claims of the Group as of December 31, 2018 are as follows:

(a) Lawsuit from Netlist, Inc.
Netlist, Inc. filed a lawsuit against the Parent Company and its subsidiaries including SK hynix America Inc. alleging infringement of multiple patents to U.S. District Court for the Central District of California, USA, on August 31, 2016 and June 14, 2017, to US International Trade Commission on September 1, 2016 and on October 31, 2017, to the German District court of Munich and the Beijing Intellectual Property Court, respectively on July 11, 2017. As of December 31, 2018, the patent infringement lawsuits filed by Netlist, Inc. in the U.S. have not been finalized and the final result cannot be predicted.

Meanwhile, the lawsuit filed to the U.S. International Trade Commission on September 1, 2016 was finalized on January 16, 2018 with the conclusion that the Parent Company and its subsidiaries did not infringe the patents of Netlist, Inc. Netlist, Inc. filed a petition on March 26, 2018.

In addition, regarding the lawsuit filed to the Beijing Intellectual Property Court on July 11, 2017, the Patent Reexamination Board (“PRB”) determined that the patent was invalid on May 30, 2018. Accordingly, the patent infringement lawsuit was dismissed on June 26, 2018. Netlist, Inc. did not appeal PRB's decision that invalidated the patent and the decision was finalized.

In addition, regarding the lawsuit filed to the German District court of Munich on July 11, 2017, the Court determined that the Group did not infringe the patent litigation of Netlist, Inc. on January 31, 2019.

(b) Price-fixing class-action lawsuits in North America
On April 27, 2018, a purported class-action lawsuit was filed against the Parent Company and its subsidiary, SK hynix America Inc. in the U.S. District Court for the Northern District of California asserting claims based on alleged price-fixing of DRAM products during the period from June 1, 2016 to February 1, 2018. Similar lawsuits were subsequently filed in federal court in the U.S., as well as in Canadian courts in British Columbia, Quebec and Ontario. As of December 31, 2018, the lawsuits filed have not been finalized and the Group is unable to predict the outcome of these matters and therefore cannot estimate the range of possible loss.

(c) The antitrust investigation in China
The State Administration for Market Regulation of China initiated to investigate the violation of the antitrust law regarding on primary DRAM businesses’ sales in China in May 2018. The pending case currently is under investigation. As of December 31, 2018, the Group is are unable to predict the outcome of these matters and therefore cannot estimate the range of possible loss.

(d) Other patent infringement claims and litigation
In addition to the above litigations, the Group has responded to various disputes related to intellectual property rights and has recognized a liability when it represents a present obligation as a result of past event and is probable that an outflow of resources will arise and a loss can be reliably estimated.

(2) Technology and patent license agreements
The Group has entered into a number of patent license agreements with several companies. The related royalties are paid on a lump-sum or running basis in accordance with the respective agreements. The lump-sum royalties are expensed over the contract period using the straight-line method.

(3) Contract for supply of industrial water
The Group has entered into a new contract with Veolia Water Industrial Development Co., Ltd. ("Veolia") under which the Group purchases industrial water from Veolia during period of June, 2018 through May, 2023. According to the contract, the Group is obligated to pay base service charges, which are predetermined and additional service charges which are variable according to the amount of water used.

34. Commitments and Contingencies, Continued

(4) Post- process service contract with HITECH Semiconductor (Wuxi) Co., Ltd.(HITECH)
The Group has entered into an agreement with HITECH to be provided with post-process service by HITECH. The conditions of the service provided includes package, package test, modules and others. According to the agreement, the Group is liable to guarantee a certain level of margin to HITECH.

(5) Assets provided as collateral

Details of assets provided as collateral as of December 31, 2018 are as follows:

(In millions of won)

		Book value	Pledged amount	Remark
Land	₩	1,260		
Buildings		6,779	941,284	Borrowings for equipment and others
Machinery		599,550		
	₩	607,589	941,284	

Other than the above assets provided as collateral, the finance lease assets of the Group are pledged as collateral for the finance lease liabilities in accordance with the finance lease contracts.

(6) Financing agreements

Details of credit lines with financial institutions as of December 31, 2018 are as follows:

(In millions of won and millions of foreign currencies)

	Financial Institution	Commitment	Currency	Amount
The Parent Company	KEB Hana Bank and others	Import finance including usance	USD	225
		Export finance including bills bought	USD	50
		Comprehensive limit contract for import and export	USD	960
		Accounts receivable factoring contracts which have no right to recourse	KRW	140,000
SK hynix Semiconductor (China) Ltd.	Agricultural Bank of China and others	Import finance including usance	RMB	1,548
			USD	392
SK hynix America Inc. and other sales entities	Citibank and others	Accounts receivable factoring contracts which have no right to recourse	USD	249
Domestic subsidiaries	KEB Hana Bank and others	Import finance including usance	USD	45
		Finance secured by accounts receivable	KRW	46,000
		Agent agreement for payment of goods received	KRW	12,500

34. Commitments and Contingencies, Continued

(7) Details of guarantees provided to others as of December 31, 2018 are as follows:

(In millions of won)

		Amount	Remark
Employees	₩	4	Guarantees for employees' borrowings relating to employee stock ownership

(8) Capital commitments
The Group's unrecorded commitments in relation to the capital expenditures on property, plant and equipment as of December 31, 2018 and 2017 are ₩1,857,092 million and ₩661,588 million, respectively.

(9) Long-term purchase agreement for raw materials
The Group has entered into a procurement agreement with SK Siltron Co., Ltd. from 2019 to 2023 for stable supply of wafer with an advanced payment of ₩150,000 million during the year ended December 31, 2017. In addition, SK Siltron Co., Ltd. has committed to provide certain portion of its investment assets as collateral to secure the advanced payment of ₩150,000 million prepaid by the Group.

(10) Investment in TMC

In regards to the Group's interests in TMC through its investments in SPC1 and SPC2, equity shares in TMC owned, directly or indirectly, by the Group are limited to a certain percentage during certain periods after the date of acquisition. In addition, during the periods, the Group does not have the right in appointing TMC's directors and is unable to exercise significant influence over decision-making for TMC's operation and management.

35. Statements of Cash Flows

(1) Reconciliations between profit for the year and net cash inflow from operating activities for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Profit for the year	₩	15,539,984	10,642,219
Adjustment			
Income tax expense		5,801,046	2,797,347
Defined benefit plan		179,503	168,774
Depreciation		5,904,156	4,618,776
Depreciation of investment property		84	105
Amortization		524,095	407,354
Share-based compensation expenses		1,163	813
Loss on disposal of property, plant and equipment		59,738	10,229
Loss on disposal of intangible assets		5,545	4,872
Loss on impairment of intangible assets		4,483	769
Loss on valuation of long-term investment asset		1,282	-
Interest expense		94,635	123,918
Loss on foreign currency translation		181,210	246,316
Gain on equity method investments, net		(14,702)	(12,367)
Gain on disposal of property, plant and equipment		(39,403)	(35,161)
Gain on disposal of intangible assets		-	(758)
Gain on valuation of short-term investment assets		(16,740)	(1,399)
Gain on disposal of short-term investment assets		(36,349)	(15,754)
Gain on valuation of long-term investment assets		(182,461)	-
Gain on disposal of long-term investment assets		(5,504)	(31,078)
Loss on derivative instruments, net		-	11
Interest income		(62,478)	(54,275)
Gain on foreign currency translation		(126,094)	(310,978)
Impairment loss on associate investment		1,695	-
Others, net		7,047	3,664
Changes in operating assets and liabilities			
Increase in trade receivables		(547,255)	(2,964,272)
Decrease (increase) in loans and other receivables		38,102	(36,541)
Increase in inventories		(1,782,384)	(634,623)
Increase in other assets		(98,632)	(302,967)
Decrease in trade payables		58,773	514,751
Increase in other payables		(16,161)	(110)
Decrease in other non-trade payables		542,437	666,770
Increase (decrease) in provisions		(25,183)	38,860
Increase in other liabilities		118,986	4,081
Payment of defined benefit liabilities		(8,862)	(15,313)
Contributions to plan assets		(276,739)	(460,772)
Cash generated from operating activities	₩	25,825,017	15,373,261

35. Statements of Cash Flows, Continued

(2) Details of significant transactions without inflows and outflows of cash for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
In-kind investment for SK China Company Limited	₩	-	143,209
Increase in other payables related to acquisition of property, plant and equipment		954,918	1,154,195
Transfer of investment property to property, plant and equipment		984	-

(3) Changes in liabilities arising from financial activities for the years ended December 31, 2018 and 2017 are as follows:

(In millions of won)

		2018	2017
Beginning balance	₩	4,171,270	4,335,978
Cash flows from financing activities			
Proceeds from borrowings		3,125,721	782,329
Repayments of borrowings		(2,078,522)	(710,635)
Foreign currency differences		61,857	(238,112)
Present value discount (interest expense)		1,611	1,710
Ending balance	₩	5,281,937	4,171,270

36. Share-based payment

(1) The Group granted equity-settled stock options to the Group's key management during the year ended December 31, 2018 and the stock options as of December 31, 2018 are as follows:

(In shares)

	Total numbers of share option granted	Exercised	Forfeited or Cancelled	Outstanding at December 31, 2018
1st	99,600	-	-	99,600
2nd	99,600	-	-	99,600
3rd	99,600	-	-	99,600
4th	7,747	-	-	7,747
5th	7,223	-	-	7,223
	313,770	-	-	313,770

	Grant date	Service Period for Vesting	Exercisable Period	Exercise price (in won)
1st	March 24, 2017	March 24, 2017 - March 24, 2019	March 25, 2019 - March 24, 2022	48,400
2nd	March 24, 2017	March 24, 2017 - March 24, 2020	March 25, 2020 - March 24, 2023	52,280
3rd	March 24, 2017	March 24, 2017 - March 24, 2021	March 25, 2021 - March 24, 2024	56,460
4th	January 01, 2018	January 1, 2018 - December 31, 2019	January 1, 2020 - December 31, 2022	77,440
5th	March 28, 2018	March 28, 2018 - March 28, 2020	March 29, 2020 - March 28 2023	83,060

(2) Measurement of fair value

The compensation cost is calculated by applying a binomial option-pricing model in estimating the fair value of the option at grant date. The inputs used are as follows:

	1st	2nd	3rd	4th	5th
Expected volatility	23.23%	23.23%	23.23%	22.50%	25.30%
Estimated fair value of share option (in won)	10,026	9,613	9,296	16,687	18,362
Dividend yield ratio	1.20%	1.20%	1.20%	0.78%	1.23%
Risk free ratio	1.86%	1.95%	2.07%	2.38%	2.46%

(3) The compensation expense for the year ended December 31, 2018 was ₩1,163 million (2017: ₩ 813 million).

37. Business Combination

(1) The Group acquired control over Happynarae Co., Ltd. and its subsidiaries as of December 28, 2018 by purchasing 100% share of Happynarae Co., Ltd. to increase effectiveness of procurement process and creating social value. The Group paid amount of ₩63,147 million in cash as transferred consideration and the amount of ₩3,208 million is recognized as goodwill.

(2) Detail of consideration paid, fair value of acquired assets and assumed liabilities are as follows:

(In millions of won)

		2018
Consideration paid		
Cash and cash equivalents	₩	63,147
Recognized assets and liabilities		
Cash and cash equivalents		29,817
Short-term financial instruments		23,000
Trade receivables, and other receivables net		129,649
Inventories, net		1,634
Long-term investment assets		2,714
Property, plant and equipment, net		991
Intangible assets, net		22,539
Other asset		6,164
Trade payables and other payables		(143,804)
Deferred tax liabilities		(4,646)
Current tax liabilities		(3,427)
Defined benefit liabilities, net		(1,291)
Other liabilities		(3,401)
Identifiable net asset		59,939
Goodwill	₩	3,208