IMPORTANT NOTICE

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NOTHING IN THIS ELECTRONIC TRANSMISSION CONSTITUTES AN OFFER OF SECURITIES FOR SALE IN ANY JURISDICTION WHERE IT IS UNLAWFUL TO DO SO. THE SECURITIES HAVE NOT BEEN, AND WILL NOT BE, REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE “SECURITIES ACT”), AND SUBJECT TO CERTAIN EXCEPTIONS, MAY NOT BE OFFERED OR SOLD WITHIN THE UNITED STATES. THE SECURITIES ARE BEING OFFERED AND SOLD OUTSIDE THE UNITED STATES IN RELIANCE ON REGULATION S AND WITHIN THE UNITED STATES TO “QUALIFIED INSTITUTIONAL BUYERS” IN RELIANCE ON RULE 144A UNDER THE SECURITIES ACT (“RULE 144A”). PROSPECTIVE PURCHASERS ARE HEREBY NOTIFIED THAT SELLERS OF THE SECURITIES MAY BE RELYING ON THE EXEMPTION FROM THE PROVISIONS OF SECTION 5 OF THE SECURITIES ACT PROVIDED BY RULE 144A. FOR A DESCRIPTION OF THESE AND CERTAIN FURTHER RESTRICTIONS ON OFFERS, SALES AND TRANSFERS OF THE SECURITIES AND DISTRIBUTION OF THIS OFFERING CIRCULAR, SEE “PLAN OF DISTRIBUTION” AND “TRANSFER RESTRICTIONS.”

THE SECURITIES HAVE NOT BEEN APPROVED OR DISAPPROVED BY THE U.S. SECURITIES AND EXCHANGE COMMISSION, ANY STATE SECURITIES COMMISSION IN THE UNITED STATES OR ANY OTHER U.S. REGULATORY AUTHORITY, NOR HAVE ANY OF THE FOREGOING AUTHORITIES PASSED UPON OR ENDORSED THE MERITS OF THE OFFERING OF THE SECURITIES OR THE ACCURACY OR ADEQUACY OF THIS OFFERING CIRCULAR. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE IN THE UNITED STATES.

THE FOLLOWING OFFERING CIRCULAR MAY NOT BE FORWARDED OR DISTRIBUTED TO ANY OTHER PERSON AND MAY NOT BE REPRODUCED IN ANY MANNER WHATSOEVER. ANY FORWARDING, DISTRIBUTION OR REPRODUCTION OF THIS DOCUMENT IN WHOLE OR IN PART IS UNAUTHORIZED. FAILURE TO COMPLY WITH THIS DIRECTIVE MAY RESULT IN A VIOLATION OF THE SECURITIES ACT OR THE APPLICABLE LAWS OF OTHER JURISDICTIONS. ANY INVESTMENT DECISION SHOULD BE MADE ON THE BASIS OF THE FINAL TERMS AND CONDITIONS OF THE RELEVANT SECURITIES. IF YOU HAVE GAINED ACCESS TO THIS TRANSMISSION CONTRARY TO ANY OF THE FOREGOING RESTRICTIONS, YOU ARE NOT AUTHORIZED AND WILL NOT BE ABLE TO PURCHASE ANY OF THE SECURITIES DESCRIBED THEREIN.

Confirmation of your representation: In order to be eligible to view the Offering Circular or make an investment decision with respect to the securities, an investor must be either (I) outside the United States as defined in Regulation S under the Securities Act and the securities are purchased pursuant to Regulation S or (II) a qualified institutional buyer within the meaning of Rule 144A (“QIB”). The Offering Circular is being sent at your request and by accepting the e-mail and accessing the Offering Circular, you shall be deemed to have represented to the Company that (1) you and any customers you represent are either (a) a QIB or (b) outside of the United States and that the e-mail address that you gave to the Company and to which this e-mail has been delivered is not located in the United States and, to the extent you purchase the securities, you will be doing so pursuant to Regulation S and (2) you consent to the delivery of the Offering Circular and any amendments and supplements thereto by electronic transmission.

You are reminded that the following Offering Circular has been delivered to you on the basis that you are a person into whose possession the following Offering Circular may be lawfully delivered in accordance with the laws of jurisdiction in which you are located and you may not, nor are you authorized to, deliver or disclose the contents of the following Offering Circular to any other person. If this is not the case, you must return this Offering Circular to the Company immediately.

The materials relating to the offering do not constitute, and may not be used in connection with, an offer or solicitation in any place where offers or solicitations are not permitted by law. If a jurisdiction requires that the offering be made by a licensed broker or dealer and the initial purchasers or any affiliate of the initial purchasers is a licensed broker or dealer in that jurisdiction, the offering shall be deemed to be made by the initial purchasers or such affiliate on behalf of the issuer in such jurisdiction.

The following Offering Circular has been sent to you in an electronic form. You are reminded that documents transmitted via this medium may be altered or changed during the process of electronic transmission and consequently, none of BNP Paribas, Citigroup Global Markets Inc., Crédit Agricole Corporate and Investment Bank, Credit Suisse (Hong Kong) Limited, The Hongkong and Shanghai Banking Corporation Limited, J.P. Morgan Securities plc and Merrill Lynch International (collectively, the “Initial Purchasers”) nor any person who controls any of them nor any director, officer, employee nor agent of any of them or affiliate of any such person accepts any liability or responsibility whatsoever in respect of any difference between the Offering Circular distributed to you in electronic format and the hard copy version available to you on request from the Initial Purchasers.

You should not reply by e-mail to this announcement, and you may not purchase any securities by doing so. Any reply e-mail communications, including those you generate by using the “Reply” function on your e-mail software, will be ignored or rejected. You are responsible for protecting against viruses and other destructive items. Your use of this e-mail is at your own risk and it is your responsibility to take precautions to ensure that it is free from viruses and other items of a destructive nature.

OFFERING CIRCULAR **STRICTLY CONFIDENTIAL**

SK hynix Inc.

(a corporation organized under the laws of the Republic of Korea)

US$500,000,000 1.000% Notes due 2024
US$1,000,000,000 1.500% Notes due 2026
US$1,000,000,000 2.375% Notes due 2031

SK hynix Inc. (the “Company”) is offering US$500,000,000 aggregate principal amount of 1.000% Notes due 2024 (the “2024 Notes”), US$1,000,000,000 aggregate principal amount of 1.500% Notes due 2026 (the “2026 Notes”) and US$1,000,000,000 aggregate principal amount of 2.375% Notes due 2031 (the “2031 Notes,” and together with the 2024 Notes and the 2026 Notes, the “Notes”). The 2024 Notes will mature on January 19, 2024 and will bear interest at the rate of 1.000% per annum from, and including, January 19, 2021 to, but excluding, January 19, 2024. The 2026 Notes will mature on January 19, 2026 and will bear interest at the rate of 1.500% per annum from, and including, January 19, 2021 to, but excluding, January 19, 2026. The 2031 Notes will mature on January 19, 2031 and will bear interest at the rate of 2.375% per annum from, and including, January 19, 2021 to, but excluding, January 19, 2031. Interest on each of the Notes will be payable semi-annually in arrears on January 19 and July 19 of each year, commencing July 19, 2021. The Company may, at its option, redeem all, but not some only, of the Notes at any time at their principal amount plus accrued interest in the event of certain changes in tax law as described under “Terms and Conditions of the Notes — Redemption and Purchase — Redemption for Taxation Reasons.”

The Notes will be unsecured and will be the direct, unconditional and unsubordinated general obligations of the Company and will rank *pari passu* among themselves and at least equally with all other outstanding unsecured and unsubordinated general obligations of the Company, except as may be required by mandatory provisions of law.

The 2031 Notes are being issued as “green bonds” under the SK hynix Green Financing Framework. See “Use of Proceeds.”

Approvals in-principle have been received from the Singapore Exchange Securities Trading Limited (the “SGX-ST”) for the listing and quotation of the Notes on the SGX-ST. The SGX-ST assumes no responsibility for the correctness of any of the statements made, opinions expressed or reports contained in this Offering Circular. Approval in-principle from, admission to the Official List of, and the listing and quotation of the Notes on, the SGX-ST are not to be taken as an indication of the merits of the Company or the Notes.

The Notes are each expected to be rated “Baa2” by Moody’s Investors Service, Inc. (“Moody’s”) and “BBB-” by S&P Global Ratings, a division of S&P Global, Inc. (“S&P”). A rating is not a recommendation to buy, sell or hold securities and may be subject to revision, suspension or withdrawal at any time by the assigning rating organization.

The Notes have not been and will not be registered under the U.S. Securities Act of 1933, as amended (the “Securities Act”), and subject to certain exceptions, may not be offered or sold within the United States. The Notes are being offered and sold outside the United States in reliance on Regulation S under the Securities Act (“Regulation S”) and within the United States to “qualified institutional buyers” in reliance on Rule 144A under the Securities Act (“Rule 144A”). Prospective purchasers are hereby notified that sellers of the Notes may be relying on the exemption from the provisions of Section 5 of the Securities Act provided by Rule 144A. For a description of these and certain further restrictions on offers, sales and transfers of the Notes and distribution of this Offering Circular, see “Plan of Distribution” and “Transfer Restrictions.”

The Notes have not been approved or disapproved by the U.S. Securities and Exchange Commission, any State securities commission in the United States or any other U.S. regulatory authority, nor have any of the foregoing authorities passed upon or endorsed the merits of the offering of the Notes or the accuracy or adequacy of this Offering Circular. Any representation to the contrary is a criminal offense in the United States.

Investing in the Notes involves risks. See “Risk Factors” beginning on page 11 to read about certain risk factors you should consider before investing in the Notes.

Issue Price:

2024 Notes: **99.806%**

2026 Notes: **99.861%**

2031 Notes: **98.988%**

(in each case, plus accrued interest, if any, from January 19, 2021)

Delivery of the Notes in book-entry form will be made on or about January 19, 2021.

Joint Bookrunners and Lead Managers

BNP PARIBAS **BofA Securities** **Citigroup**
Crédit Agricole CIB **Credit Suisse** **HSBC**
J.P. Morgan

The date of this Offering Circular is January 13, 2021.

TABLE OF CONTENTS

You should rely only on the information contained in this Offering Circular. The Company has not authorized anyone to provide you with information that is different. This Offering Circular may only be used where it is legal to sell these securities. The information in this Offering Circular may only be accurate as of the date of this Offering Circular.

IN CONNECTION WITH THIS OFFERING, TO THE EXTENT PERMITTED BY, AND IN ACCORDANCE WITH, APPLICABLE LAWS AND REGULATIONS, ANY OF THE INITIAL PURCHASERS APPOINTED AS A STABILIZATION MANAGER (THE "STABILIZATION MANAGER") (OR PERSONS ACTING ON BEHALF OF THE STABILIZATION MANAGER) MAY OVER-ALLOT OR EFFECT TRANSACTIONS WITH A VIEW TO SUPPORTING THE MARKET PRICE OF THE NOTES AT A LEVEL HIGHER THAN THAT WHICH MIGHT OTHERWISE PREVAIL. HOWEVER, THERE IS NO ASSURANCE THAT THE STABILIZATION MANAGER (OR PERSONS ACTING ON BEHALF OF THE STABILIZATION MANAGER) WILL UNDERTAKE SUCH STABILIZATION. ANY STABILIZATION MAY BEGIN ON OR AFTER THE DATE ON WHICH ADEQUATE PUBLIC DISCLOSURE OF THE TERMS OF THE OFFER OF THE NOTES IS MADE AND, IF BEGUN, MAY BE ENDED AT ANY TIME, BUT IT MUST END NO LATER THAN THE EARLIER OF 30 DAYS AFTER THE ISSUE DATE OF THE NOTES AND 60 DAYS AFTER THE DATE OF THE ALLOTMENT OF THE NOTES.

THE NOTES HAVE NOT BEEN AND WILL NOT BE REGISTERED UNDER THE FINANCIAL INVESTMENT SERVICES AND CAPITAL MARKETS ACT OF KOREA. ACCORDINGLY, THE NOTES MAY NOT BE OFFERED, SOLD OR DELIVERED, DIRECTLY OR INDIRECTLY, IN KOREA OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, ANY RESIDENT OF KOREA (AS SUCH TERM IS DEFINED UNDER THE FOREIGN EXCHANGE TRANSACTIONS ACT OF KOREA AND ITS PRESIDENTIAL DECREE) OR TO OTHERS FOR RE-OFFERING OR RESALE, DIRECTLY OR INDIRECTLY, IN KOREA OR TO ANY RESIDENTS OF KOREA, EXCEPT AS OTHERWISE PERMITTED UNDER APPLICABLE KOREAN LAWS AND REGULATIONS. IN ADDITION, DURING THE FIRST YEAR AFTER THE ISSUANCE OF THE NOTES, THE NOTES MAY NOT BE TRANSFERRED TO ANY RESIDENT OF KOREA OTHER THAN A KOREAN QUALIFIED INSTITUTIONAL BUYER (A "KOREAN QIB," AS DEFINED IN THE REGULATION ON ISSUANCE AND PUBLIC DISCLOSURE, ETC. OF SECURITIES OF KOREA) WHO IS REGISTERED WITH THE KOREA FINANCIAL INVESTMENT ASSOCIATION AS A KOREAN QIB, PROVIDED THAT THE AMOUNT OF THE NOTES ACQUIRED BY SUCH KOREAN QIBS IN THE PRIMARY MARKET IS LIMITED TO NO MORE THAN 20% OF THE AGGREGATE ISSUE AMOUNT OF THE NOTES.

No person has been authorized in connection with any offering of the Notes to give any information or make any representation other than as contained in this Offering Circular and, if given or made, such information or representation must not be relied upon as having been authorized by the Company, by any Agent (as defined in the "Terms and Conditions of the Notes") or by the Initial Purchasers (as defined in "Plan of Distribution"). This Offering Circular does not constitute an offer to sell or a solicitation of an offer to buy any Notes by any person except in compliance with all applicable laws and regulations. No representation or warranty, express or implied, is made by the Initial Purchasers or any of their affiliates or advisors, or any Agent, as to the accuracy or completeness of the information contained in this Offering Circular, and nothing contained in this Offering Circular is, or shall be relied upon as, a promise or representation by the Initial Purchasers or their affiliates or advisors, or any Agent. Neither the delivery of this Offering Circular nor any sale made in connection with this Offering Circular shall under any circumstances imply that the information in this Offering Circular is correct as of any date subsequent to the date of this Offering Circular or constitute a representation that there has been no change or development reasonably likely to involve a material adverse change in the Company's affairs since the date of this Offering Circular. Each Initial Purchaser and each Agent accordingly disclaims any and all responsibility or liability whether arising in tort or contract or otherwise which it might otherwise have in respect of the information contained in this Offering Circular, any other information provided by the Company in connection with the offering or any other such statement. Each person receiving this Offering Circular acknowledges that such person has not relied on the Initial Purchasers or any of their affiliates or advisors in connection with investigation of the accuracy of such information or such person's investment decisions.

The Notes have not been registered with or approved or disapproved by the U.S. Securities and Exchange Commission, any state securities commission or other regulatory authority, nor has any of the foregoing authorities passed upon or endorsed the merits of this offering or the accuracy or adequacy of this Offering Circular. Any representation to the contrary is a criminal offense.

Notification under Section 309B(1)(c) of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA") — The Company has determined, and hereby notifies all relevant persons (as defined in Section 309A(1) of the SFA), that the Notes are prescribed capital markets products (as defined in the Securities and Futures (Capital Markets Products) Regulations 2018 of Singapore) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

This Offering Circular does not constitute, and may not be used for purposes of, an offer, invitation or solicitation by anyone in any jurisdiction or in any circumstances in which such offer, invitation or solicitation is not authorized or to any person to whom it is unlawful to make such offer, invitation or solicitation. The distribution of this Offering Circular and the offering of the Notes in certain jurisdictions may be restricted by law. Persons into whose possession this Offering Circular may come are required by the Company and the Initial Purchasers to inform themselves about and to observe the relevant restrictions. For a description of certain restrictions on offers and sales of the Notes and distribution of this Offering Circular, see "Plan of Distribution—Selling Restrictions" and "Transfer Restrictions." No action is being taken in any jurisdiction to permit an offering to the general public of Notes or the distribution of this Offering Circular in any jurisdiction where action would be required for those purposes.

In making an investment decision, prospective investors must rely on their own examination of the Company and the terms of the offering of the Notes, including the merits and risks involved. The Company is not and no Agent is making any representation to any purchaser of the Notes regarding the legality of an investment in the Notes by such purchaser under any legal investment or similar laws or regulations. The contents of this Offering Circular should not be construed as providing legal, business, accounting or tax advice.

CERTAIN DEFINED TERMS AND CONVENTIONS

References to "Korea" or the "Republic" are references to The Republic of Korea. References to the "Government" are references to the government of the Republic of Korea. All references to the "Issuer" or the "Company" herein are references to SK hynix Inc. and its subsidiaries, as the context requires.

In this Offering Circular, references to "Won" or "₩" are to the currency of Korea and all references to "U.S. dollars" or "US$" are to the currency of the United States of America. This Offering Circular contains a translation of certain Won amounts into U.S. dollars at specified rates solely for the convenience of the reader. These translations should not be construed as representations that the Won amounts actually represent such U.S. dollar amounts or could be converted into U.S. dollars at the rates indicated. Unless otherwise specified, all conversions of Won into U.S. dollars were made at the base rate under the market average exchange rate system, announced by Seoul Money Brokerage Services, Ltd. in Seoul, between U.S. dollars and Won, rounded to the nearest tenth of one Won (the "Market Average Exchange Rate"). Unless otherwise specified, all conversions of Won into U.S. dollars have been made at the Market Average Exchange Rate in effect on September 30, 2020, which was ₩1,173.5 to US$1.00. For a discussion of historical information regarding the rate of exchange between Won and the U.S. dollar, see "Exchange Rate Information." No representation is made that the Won or U.S. dollar amounts referred to in this Offering Circular could have been or could be converted into U.S. dollars or Won, as the case may be, at any particular rate or at all.

ENFORCEABILITY OF CIVIL LIABILITIES

The Company is a corporation organized under the laws of Korea. A majority of its directors and officers and certain other persons named in this Offering Circular reside in Korea, and a significant portion of the assets of the directors and officers and certain other persons named in this Offering Circular and a substantial majority of the Company's assets are located in Korea. As a result, it may not be possible for you to effect service of process within the United States upon such persons or to enforce against them or against the Company in U.S. courts judgments predicated upon the civil liability provisions of the federal securities laws of the United States. There is doubt as to the enforceability in Korea, either in original actions or in actions for enforcement of judgments of U.S. courts, of civil liabilities predicated on the U.S. federal securities laws.

AVAILABLE INFORMATION

To permit compliance with Rule 144A under the Securities Act in connection with the sale of the Notes, the Company will be required under the Fiscal Agency Agreement to be entered into as of the closing date of this offering (the "Fiscal Agency Agreement") between the Company and The Bank of New York Mellon, as the fiscal agent (the "Fiscal Agent") with respect to the Notes, to furnish, upon request, to a Holder (as defined in "Terms and Conditions of the Notes") of a Note and a prospective investor designated by such Holder, the information required to be delivered under Rule 144A(d)(4) under the Securities Act unless at the time of the request the Company is a reporting company under Section 13 or Section 15(d) of the United States Securities Exchange Act of 1934, as amended (the "Exchange Act"), or the Company is exempt from the registration requirements of Section 12(g) of the Exchange Act (and therefore is required to publish on the Company's website, in English, certain information pursuant to Rule 12g3-2(b) under the Exchange Act). In accordance with the Fiscal Agency Agreement, the Fiscal Agent also will make available for inspection by Holders of the Notes upon prior written notice and satisfaction of proof of holding, at the corporate trust office of the Fiscal Agent or, in certain cases, arrange for the mailing to such Holders, certain reports or communications received from the Company. See "Terms and Conditions of the Notes."

PRESENTATION OF FINANCIAL INFORMATION

The Company's audited consolidated financial statements as of and for the years ended December 31, 2017, 2018 and 2019 included in this Offering Circular have been prepared in accordance with the Korean International Financial Reporting Standards ("K-IFRS"), which may differ in certain respects from generally accepted accounting principles in other countries, including generally accepted accounting principles in the United States and International Financial Reporting Standards applied in other countries. The Company's unaudited condensed consolidated interim financial statements as of September 30, 2020 and for the three and nine months ended September 30, 2019 and 2020 included in this Offering Circular have been prepared in accordance with K-IFRS No. 1034 "*Interim Financial Reporting*."

All financial information, descriptions and other information regarding the Company are, unless indicated otherwise, given on a consolidated basis. Any discrepancies in the tables included in this Offering Circular between the listed amounts and totals thereof are due to rounding.

SUMMARY

The following summary highlights information appearing elsewhere in this Offering Circular and does not contain all of the information you should consider in making your investment decision. You should read this summary together with the more detailed information, including the financial statements and the related notes, appearing elsewhere in this Offering Circular. You should carefully consider, among other things, the matters discussed in "Risk Factors."

The Company is one of the world's largest memory semiconductor companies and engages in the design, manufacture and sale of advanced memory semiconductors. In the dynamic random access memory ("DRAM") market, the Company is ranked second globally based on revenue with a market share of 29.4% in the first nine months of 2020, according to market research conducted by Omdia ("Omdia"). In addition, the Company was the fifth largest supplier of NAND flash memory in terms of revenue, with a worldwide market share of 11.0% in the first nine months of 2020, according to Omdia. The Company's memory products, consisting of both DRAM and NAND flash memory products, can be used in virtually all electronic devices, including PCs, servers, graphic cards, mobile devices such as smartphones and tablets, and other consumer electronics products. The Company has also expanded its product portfolio into non-memory semiconductors, including complementary metal-oxide semiconductor ("CMOS") image sensors that are used to perform the role of electronic film in digital photographing devices such as smartphones, tablets, PC laptops and surveillance cameras, as well as engaging in the foundry business through SK hynix system ic Inc. ("SK hynix system ic"), a wholly-owned subsidiary.

The Company sells a wide variety of DRAM and NAND flash memory products with various configuration options, architectures and performance characteristics tailored to meet application- and customer-specific needs. The Company believes that it is one of the world's leading companies in developing DRAM with advanced specifications, particularly those relating to higher density, faster data-processing speed and lower power consumption. The Company is continually developing higher-density modules, solid-state drives ("SSDs") and other customized DRAM and NAND flash memory products that are optimized for use in specific applications. The Company believes that offering customized products provides opportunities to mitigate the negative effects of the cyclicality of the memory products market, and its customized products typically command higher prices than commodity DRAM typically used in PCs because of their superior performance and specifically tailored characteristics.

The Company owns and operates wafer fabrication facilities ("fabs") in Icheon and Cheongju, Korea and Wuxi, China. The Company also owns and operates assembly and testing facilities for back-end processing of its products in Icheon and Cheongju, Korea and Chongqing, China. As part of the Company's efforts to reduce unit manufacturing costs, improve manufacturing yields and enhance its profitability, the Company periodically phases out the operations of its older fabs as well as upgrading them to new fabs that implement more advanced processing technologies. In addition to regular maintenance and enhancement of existing fabs, the Company completed its initial preparations to commence manufacturing operations of its M16 fab in Icheon, Korea starting in 2021, subject to market conditions. As part of its efforts to ensure its long-term competitiveness, the Company has also announced initiatives to construct an integrated industrial complex in Yongin, Korea for its next generation of fabs and research and development facilities. The Company currently plans to start construction of its first fab in the Yongin complex in 2022.

In order to maintain its technological leadership, as well as to access new markets for its products, the Company engages in strategic initiatives, including entering into joint ventures and joint product development and supply agreements. From time to time, the Company may also acquire equity stakes in other industry players to further strengthen its business relationships as well as acquire complementary businesses that further strengthen the Company's leading position in the industry. On October 20, 2020, the Company announced its agreement to acquire the NAND flash memory and storage business of Intel Corporation ("Intel'), which includes the NAND SSD business and the NAND component and wafer business as well as the NAND flash memory manufacturing facility in Dalian, China (the "Dalian Manufacturing Facility"), for approximately US$9 billion. The acquisition is subject to governmental approvals, which the Company will endeavor to obtain by late 2021, as well as other customary closing conditions. See "Business — Strategic Alliances, Investments and Acquisitions."

The Company's revenue was ₩30,109 billion in 2017, ₩40,445 billion in 2018, ₩26,991 billion in 2019, ₩20,064 billion in the first nine months of 2019 and ₩23,934 billion in the first nine months of 2020. The Company recorded profit for the year of ₩10,642 billion in 2017, ₩15,540 billion in 2018 and ₩2,016 billion in 2019, and profit for the period of ₩2,135 billion in the first nine months of 2019 and ₩2,991 billion in the first nine months of 2020. The Company had total assets of ₩64,789 billion and total equity of ₩47,943 billion as of December 31, 2019 and total assets of ₩69,267 billion and total equity of ₩50,499 billion as of September 30, 2020.

THE OFFERING

The following is a brief summary of the terms of the offering and is qualified in its entirety by the remainder of this Offering Circular. Words and expressions defined in "Terms and Conditions of the Notes" have the same meanings in this summary.

Issuer	SK hynix Inc.
Offering	US$500,000,000 1.000% Notes due 2024;
	US$1,000,000,000 1.500% Notes due 2026; and
	US$1,000,000,000 2.375% Notes due 2031
Issue Price	2024 Notes: 99.806% of the principal amount of the 2024 Notes.
	2026 Notes: 99.861% of the principal amount of the 2026 Notes.
	2031 Notes: 98.988% of the principal amount of the 2031 Notes.
Issue Date	January 19, 2021
Maturity Date	2024 Notes: January 19, 2024
	2026 Notes: January 19, 2026
	2031 Notes: January 19, 2031
Interest	1.000% per annum for the 2024 Notes, 1.500% per annum for the 2026 Notes and 2.375% per annum for the 2031 Notes, in each case, from, and including, January 19, 2021 to, but excluding, the applicable maturity date, payable semi-annually in arrears on January 19 and July 19 in each year. See "Terms and Conditions of the Notes — Interest."
Ranking of the Notes	The Notes constitute direct, unconditional, unsubordinated and unsecured obligations of the Company and shall at all times rank *pari passu* and without any preference or priority among themselves and with all other present and future direct, unconditional, unsubordinated and unsecured obligations of the Company, except as may be required by mandatory provisions of law. See "Terms and Conditions of the Notes — Status."
Certain Covenants	The Notes contain certain limitations on the ability of the Company to create or permit to be outstanding any mortgage, charge, lien, pledge or other security interest upon the whole or any part of its property, assets or revenues, present or future to secure certain types of

	indebtedness and to engage in a consolidation, merger or sale of all or substantially all of its assets. See “Terms and Conditions of the Notes — Certain Covenants.”
Taxation and Additional Amounts	Payment of principal and interest in respect of the Notes, including payment of any additional amounts, by or on behalf of the Company, shall be made free and clear of, and without withholding or deduction for, or on account of, any present or future taxes, duties, assessments or governmental charges of whatever nature imposed, levied, collected, withheld or assessed by or on behalf of the Relevant Jurisdiction, except as required by applicable law. In that event, the Company will, subject to certain exceptions and limitations, pay to a holder of any Note such additional amounts as may be necessary in order that every net payment by the Company or a paying agent of the principal of and interest on the Notes and any other amounts payable on the Notes after withholding or deduction for or on account of any present or future tax, duty, assessment or governmental charge imposed or levied by a Relevant Jurisdiction will not be less than the amount provided for in the Notes to be then due and payable thereunder. See “Terms and Conditions of the Notes — Taxation” and “Taxation — Korean Taxation.”
Redemption for Taxation Reasons	Prior to the applicable maturity date, each of the Notes will be redeemable at the option of the Company at any time in whole, but not in part, at 100% of their principal amount plus accrued and unpaid interest, if any, to the date fixed for redemption, in the event of certain changes in the tax law of the Relevant Jurisdiction. See “Terms and Conditions of the Notes — Redemption and Purchase — Redemption for Taxation Reasons.”
Change of Control	Noteholders will have the right to require the Company to redeem all or any part of their Notes at a purchase price equal to 100% of their principal amount plus accrued and unpaid interest, if any, to the date of redemption, upon the occurrence of a Change of Control Triggering Event as described under “Terms and Conditions of the Notes — Redemption and Purchase — Change of Control Put Right.”
Further Issuances	The Company may from time to time, without notice to or the consent of the holders of the Notes, create and issue further debt securities ranking *pari passu* with the Notes in all respects so that such further issue shall be consolidated and form a single series with the outstanding Notes.

Listing	Approvals in-principle have been received from the SGX-ST for the listing and quotation of the Notes on the SGX-ST. For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of S$200,000 (or its equivalent in foreign currencies). Accordingly, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of US$200,000. For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, in the event that a global note is exchanged for the Notes in certificated form, the Company will appoint and maintain a paying agent in Singapore, where the Notes may be presented or surrendered for payment or redemption. In addition, in the event that a global note is exchanged for the Notes in certificated form, an announcement of such exchange will be made by or on behalf of the Company through the SGX-ST and such announcement will include all material information with respect to the delivery of the Notes in certificated form, including details of the paying agent in Singapore.
Use of Proceeds	The net proceeds from the sale of the 2024 Notes are estimated to be US$496,530,000, the net proceeds from the sale of the 2026 Notes are estimated to be US$993,610,000, and the net proceeds from the sale of the 2031 Notes are estimated to be US$984,880,000, in each case, after deduction of underwriting commissions but not estimated offering expenses. The net proceeds from the 2024 Notes and the 2026 Notes will be used principally for general corporate purposes, including repayment of outstanding borrowings and capital expenditures. See “Use of Proceeds.” The net proceeds from the 2031 Notes will be allocated toward the financing or refinancing, in whole or in part, of Eligible Projects (as defined in “Use of Proceeds”) in accordance with the SK hynix Green Financing Framework, which is in alignment with the Green Bond Principles 2018 published by the International Capital Markets Association. See “Use of Proceeds.”
Ratings	The Notes are each expected to be rated “Baa2” by Moody’s and “BBB-” by S&P. Such ratings of the Notes do not constitute a recommendation to buy, sell or hold the Notes and may be subject to revision or withdrawal at any time by the rating organizations. Such ratings should be evaluated independently of any other rating of the Notes, of other securities of the Company or of the Company.

Form and Denomination	The Notes offered hereby will each be issued in registered form, without detachable coupons, in the minimum denomination of US$200,000 and integral multiples of US$1,000 in excess thereof. The Notes may each be held and transferred, and will be offered and sold, in the principal amount of US$200,000 and integral multiples of US$1,000 in excess thereof. The Notes initially offered and sold outside the United States in reliance on Regulation S (the "Unrestricted Notes") will originally be represented by one or more unrestricted global notes (the "Unrestricted Global Notes"). Notes initially offered and sold in the United States to qualified institutional buyers ("QIBs") in reliance on Rule 144A (the "Restricted Notes") will originally be represented by one or more restricted global notes (the "Restricted Global Notes," and together with the Unrestricted Global Notes, the "Global Notes"). The Global Notes will be deposited with a custodian for and registered in the name of a nominee of The Depository Trust Company ("DTC"). Except as described herein, interests in the Global Notes will be shown on, and transfers thereof will be effected only through, records maintained by DTC and its participants, including Euroclear Bank SA/NV ("Euroclear") and Clearstream Banking, S.A. ("Clearstream") and their accountholders. The Notes may not be sold or otherwise transferred except in accordance with the restrictions described under "Transfer Restrictions."
Delivery of the Notes	Delivery of the Notes, against payment in same-day funds, is expected on or about January 19, 2021.
Risk Factors	See "Risk Factors" for a discussion of certain factors that investors should consider in connection with an investment in the Notes.
Fiscal Agent, Principal Paying Agent, Registrar and Transfer Agent	The Bank of New York Mellon will act as the fiscal agent (the "Fiscal Agent"), principal paying agent, transfer agent and registrar under the Fiscal Agency Agreement for the Notes.
Governing Law	The Notes and the Fiscal Agency Agreement are governed by, and will be construed in accordance with, the laws of the State of New York.

Security Codes		Restricted Notes	Unrestricted Notes
	2024 Notes		
	CUSIP:	78392B AA5	Y8085F AZ3
	ISIN:	US78392BAA52	USY8085FAZ37
	2026 Notes		
	CUSIP:	78392B AB3	Y8085F BA7
	ISIN:	US78392BAB36	USY8085FBA76
	2031 Notes		
	CUSIP:	78392B AC1	Y8085F BD1
	ISIN:	US78392BAC19	USY8085FBD16
LEI	988400XAIK6XISWQV045		

SUMMARY FINANCIAL DATA

The following tables present summary financial and other information of the Company. The summary financial information as of December 31, 2018 and 2019 and for the years ended December 31, 2017, 2018 and 2019 are derived from the audited consolidated financial statements as of and for the years ended December 31, 2017 and 2018 ("2018 Annual Financial Statements") and the audited consolidated financial statements as of and for the years ended December 31, 2018 and 2019 ("2019 Annual Financial Statements") of the Company included elsewhere in this Offering Circular, which have been prepared in accordance with K-IFRS. The summary financial information presented as of September 30, 2020 and for the nine months ended September 30, 2019 and 2020 are derived from the unaudited condensed consolidated interim financial statements as of September 30, 2020 and for the three and nine months ended September 30, 2019 and 2020 ("Interim Financial Statements") of the Company included elsewhere in this Offering Circular, which have been prepared in accordance with K-IFRS No. 1034 "*Interim Financial Reporting*."

The Company's results of operations for the nine months ended September 30, 2020 may not be indicative of its result of operations for any future interim period or for the full year 2020.

Consolidated Statements of Comprehensive Income Data

	For the Year Ended December 31,			For the Nine Months Ended September 30,	
	2017	2018	2019	2019	2020
			(In billions of Won)		
Revenue	₩ 30,109	₩ 40,445	₩ 26,991	₩ 20,064	₩ 23,934
Cost of sales	12,702	15,181	18,825	13,551	15,555
Gross Profit	17,408	25,264	8,165	6,513	8,380
Selling and administrative expenses	3,686	4,420	5,453	4,036	4,333
Operating profit	13,721	20,844	2,713	2,477	4,047
Finance income	996	1,692	1,248	1,305	1,139
Finance expenses	1,250	1,142	1,515	1,114	1,130
Share of profit of equity-accounted investees	12	13	23	15	13
Other income	78	113	88	81	62
Other expenses	119	178	114	88	126
Profit before income tax	13,440	21,341	2,443	2,676	4,004
Income tax expense	2,797	5,801	426	541	1,013
Profit for the period	10,642	15,540	2,016	2,135	2,991

Consolidated Statements of Financial Position Data

	As of December 31,				As of September 30,	
	2018		2019		2020	
			(In billions of Won)			
Assets						
Current assets:						
Cash and cash equivalents	₩	2,349	₩	2,306	₩	2,807
Short-term financial instruments		524		298		452
Short-term investment assets		5,496		1,390		1,497
Trade receivables, net		6,320		4,262		5,476
Inventories, net		4,423		5,296		6,151
Other current assets		782		905		654
Total current assets		19,894		14,458		17,036
Non-current assets:						
Investments in associates and joint ventures	₩	562	₩	769	₩	1,279
Long-term trade receivables, net		—		45		—
Long-term investment assets		4,326		4,382		4,630
Loans and other receivables, net		69		109		70
Property, plant and equipment, net		34,953		39,950		40,712
Intangible assets, net		2,679		2,571		3,502
Right-of-use assets, net		—		1,251		1,289
Deferred tax assets		544		671		681
Other non-current assets		633		585		68
Total non-current assets		43,764		50,332		52,231
Total assets		63,658		64,789		69,267
Liabilities						
Current liabilities:						
Trade payables	₩	1,096	₩	1,043	₩	1,014
Other payables		3,682		2,368		1,927
Other non-trade payables		1,880		1,258		1,392
Borrowings		1,614		2,738		3,594
Current tax liabilities		4,556		89		520
Lease liabilities		—		205		215
Other current liabilities		204		174		190
Total current liabilities		13,032		7,874		8,852
Non-current liabilities:						
Long-term other payables	₩	—	₩	—	₩	312
Other non-trade payables		15		18		8
Borrowings		3,668		7,786		8,109
Defined benefit liabilities, net		5		54		278
Deferred tax liabilities		7		16		61
Lease liabilities		—		996		1,027
Other financial liabilities		—		16		31
Other non-current liabilities		79		88		90
Total non-current liabilities		3,774		8,972		9,916
Total liabilities		16,806		16,846		18,768
Equity						
Equity attributable to owners of the parent company:						
Capital stock	₩	3,658	₩	3,658	₩	3,658
Capital surplus		4,144		4,144		4,144
Other equity		(2,506)		(2,505)		(2,504)
Accumulated other comprehensive loss		(483)		(299)		(40)
Retained earnings		42,034		42,931		45,221
		46,846		47,928		50,479
Non-controlling interests		7		15		20
Total equity		46,852		47,943		50,499
Total liabilities and equity		63,658		64,789		69,267

Other Financial Data

	For the Year Ended December 31,			For the Nine Months Ended September 30,	
	2017	2018	2019	2019	2020
	(In billions of Won)				
Capital expenditures[1]	₩ 9,128	₩ 16,036	₩ 13,920	₩ 11,389	₩ 7,539
Net cash inflow from operating activities	14,691	22,227	6,483	3,900	9,053
Net cash outflow from investing activities	(11,919)	(21,429)	(10,451)	(8,031)	(8,861)
Net cash inflow (outflow) from financing activities	(352)	(1,395)	3,903	2,953	301
Adjusted EBITDA[2]	18,747	27,272	11,266	8,785	11,227

(1) Capital expenditures represent cash outflows for acquisition of property, plant and equipment.

(2) "Adjusted EBITDA" for a given period is defined as operating profit for such period under K-IFRS, excluding depreciation and others. Adjusted EBITDA is not a measure defined under K-IFRS and should not be construed as an alternative to operating profit, cash flows from operating activities or profit for the period, as determined under K-IFRS; however, Adjusted EBITDA is a widely used financial indicator of a company's ability to incur and service debt. Adjusted EBITDA should not be considered in isolation or construed as an alternative to cash flows, profit for the period or any other measure of performance or as an indicator of the Company's operating performance, liquidity, profitability or cash flows generated by operating, investing or financing activities. Adjusted EBITDA is presented herein because the Company believes Adjusted EBITDA is a useful supplement to cash flows data as a measure of its performance and its ability to generate cash flows from operations to cover debt service and taxes. The Company's Adjusted EBITDA presented herein may not be comparable to similarly titled measures presented by other companies. Investors should not compare the Company's Adjusted EBITDA to the Adjusted EBITDA presented by other companies because not all companies use the same definition of Adjusted EBITDA.

A reconciliation of the Company's operating profit to Adjusted EBITDA is as follows:

	For the Year Ended December 31,			For the Nine Months Ended September 30,	
	2017	2018	2019	2019	2020
	(In billions of Won)				
Operating profit	₩ 13,721	₩ 20,844	₩ 2,713	₩ 2,477	₩ 4,047
Depreciation and others [1]	5,026	6,428	8,553	6,308	7,180
Adjusted EBITDA	18,747	27,272	11,266	8,785	11,227

(1) "Depreciation and others" consist of depreciation of property, plant and equipment, depreciation of investment property and amortization. Depreciation and others for the year ended December 31, 2019 and the nine months ended September 30, 2019 and 2020 also include the depreciation of right-of-use assets.

RISK FACTORS

An investment in the Notes is subject to numerous risks, including those listed below. Investors should carefully consider the following risks as well as the other information contained in this Offering Circular before purchasing the Notes. These risks could materially affect the Company's ability to meet its obligations under the Notes. In such case, investors may lose all or part of their investment in, and the expected return on, the Notes.

Risks Relating to the Company

The memory semiconductor industry is subject to cyclical fluctuations, including recurring periods of oversupply, which may result in volatility in the Company's operating results.

The Company's DRAM products accounted for 75.2% of its total sales in 2019 and 70.6% in the first nine months of 2020, and the Company's NAND flash products accounted for 19.0% of its total sales in 2019 and 23.8% in the first nine months of 2020. Accordingly, the Company's business is affected by market conditions in the highly cyclical memory semiconductor industry. The industry's cyclicality results primarily from fluctuations in demand for the end products that use memory semiconductors, particularly from the information and technology industry and the consumer electronics industry, which are sensitive to general conditions in the global economy, as well as fluctuations in the manufacturing capacity available to produce memory semiconductors. Uncertainties in the global economy have increased in recent years, with global financial and capital markets experiencing substantial volatility. In particular, the ongoing pandemic of a new strain of coronavirus ("COVID-19") has materially and adversely affected the global economy and financial markets in 2020. See "—The ongoing global COVID-19 pandemic and any possible recurrence of other types of widespread infectious diseases could materially adversely affect the Company's business, results of operations or financial condition." Such uncertainties have been caused by, and continue to be exacerbated by, among other things, deterioration in economic and trade relations between major economies (particularly between the United States and China), the slowdown of economic growth in China and other major emerging market economies, adverse economic and political conditions in Europe and Latin America and continuing geopolitical and social instability in various parts of the Middle East, as well as the lack of clarity regarding the timing and method of the United Kingdom's exit from the European Union. Any future deterioration in global economic conditions may result in a decline in demand for the Company's memory semiconductors.

The long lead times for new facilities to become operational have in some cases resulted in significant increases in the industry's production capacity coinciding with weakening demand, resulting in global oversupply of products and declining prices. Demand growth expectations in the end markets that use memory semiconductors have typically been accompanied by increased capital investment by manufacturers. In addition, semiconductor manufacturers worldwide have migrated to finer line-width process and advanced stacking technologies, which have increased the number of bits produced per wafer. These capital investments and adoption of new technologies may result in increases in the supply of memory semiconductors that are not matched by commensurate growth in demand in the end markets for such products. From time to time, the memory semiconductor industry has experienced significant and sometimes prolonged periods of oversupply and weak prices.

As a result of such fluctuations in global demand as well as in the manufacturing capacity available to produce memory semiconductors, the Company's results of operations may be volatile from period to period. Following a period of strong global demand for memory semiconductors in 2017 and the first half of 2018, the prices of memory products decreased starting in the second half of 2018, reflecting weakening demand and a general oversupply in the market, which in turn negatively impacted the Company's results of operations in 2019. The Company's revenue increased from

₩30,109 billion in 2017 to ₩40,445 billion in 2018 but decreased to ₩26,991 billion in 2019. The Company's profit for the year increased from ₩10,642 billion in 2017 to ₩15,540 billion in 2018 but decreased to ₩2,016 billion in 2019. Following a rebound of prices of memory products in the first half of 2020 that was partially driven by a recovery of global demand for server memory products, which was in part due to the increase of remote working arrangements due to COVID-19, the average price of our memory products decreased in the third quarter of 2020. The Company's revenue increased by 19.3% from ₩20,064 billion in the first nine months of 2019 to ₩23,934 billion in the first nine months of 2020, and its profit for the period increased by 40.1% from ₩2,135 billion in the first nine months of 2019 to ₩2,991 billion in the first nine months of 2020.

An actual or anticipated deterioration in market conditions may result in a decline in demand for the Company's products that may have a negative impact on the prices at which they can be sold. In such a case, the Company will likely face pressure to reduce prices and may need to rationalize its production capacity and reduce fixed costs. The Company's ability to significantly reduce expenditures for production facilities and research and development during an industry downturn is limited because of the need to maintain its competitive position. If the Company is unable to reduce its expenses sufficiently to offset reductions in prices and sales volume, the Company's margins will deteriorate and its business, financial condition and results of operations may be materially and adversely affected.

The ongoing global COVID-19 pandemic and any possible recurrence of other types of widespread infectious diseases could materially adversely affect the Company's business, results of operations or financial condition.

If severe health epidemics were to occur in any area where any of the Company's assets, suppliers or customers are located, the Company's business, results of operations or financial condition could be adversely affected. In particular, COVID-19, an infectious disease caused by severe acute respiratory syndrome coronavirus 2 that is known to have been first transmitted to humans in November 2019 and has spread globally, has materially and adversely affected the global economy and financial markets in recent months. The World Health Organization declared COVID-19 as a pandemic in March 2020. In light of Government recommendations for social distancing, the Company has periodically implemented remote work arrangements for a portion of its workforce, particularly for employees in areas severely impacted by the pandemic. In November 2020, the Company temporarily suspended for three days the operations of its assembly and testing facility in Chongqing, China in response to an occurrence of COVID-19 among its employees. While the Company does not believe that such arrangements have had a material adverse impact on its business, a prolonged outbreak of COVID-19 may result in further disruptions in the normal operations of the Company's business, including implementation of further work arrangements requiring employees to work remotely and restrictions on overseas and domestic business travel, which may lead to a reduction in labor productivity.

Other risks associated with a prolonged outbreak of COVID-19 or other types of widespread infectious diseases include:

- an increase in unemployment among, and/or decrease in disposable income of, consumers who purchase the products manufactured by the Company's customers and a decline in overall consumer confidence and spending levels, which in turn may decrease demand for the Company's products;

- disruption in the normal operations of the businesses of the Company's customers, which in turn may decrease demand for the Company's products;

- disruption in the supply of raw materials, components and equipment from the Company's vendors;

- disruption in the delivery of the Company's products to its customers;
- disruption in the normal operations of the Company's business resulting from contraction of COVID-19 by the Company's employees, which may necessitate its employees to be quarantined and/or its manufacturing facilities or offices to be temporarily shut down;
- depreciation of the Won against major foreign currencies, which in turn may increase the cost of imported raw materials, components and equipment;
- unstable global and Korean financial markets, which may adversely affect the Company's ability to meet its funding needs on a timely and cost-effective basis; and
- decreases in the fair value of the Company's investments in companies that may be adversely affected by the pandemic.

It is not possible to predict the duration or full magnitude of harm from COVID-19. In the event that COVID-19 or other types of widespread infectious diseases cannot be effectively and timely contained, the Company's business, financial condition and results of operations may be materially adversely affected.

The memory semiconductor industry is highly competitive and the Company's failure to successfully compete would adversely affect its business.

The Company operates in an intensely competitive market, which has been characterized by erosion of selling prices, frequent product enhancements from changes in technology and relatively short product life cycles. During the past decade, intensified competition in the memory semiconductor industry has also led to consolidation as well as the formation of strategic alliances, such as a joint venture between Kioxia Holdings Corporation ("Kioxia" and formerly Toshiba Memory Corporation) and Western Digital Corporation ("Western Digital") targeting the NAND flash memory market. The Company's major competitors in the DRAM market include Samsung Electronics Co., Ltd. ("Samsung Electronics") and Micron Technology, Inc. ("Micron Technology"). The Company's major competitors in the NAND flash memory market include Samsung Electronics, Kioxia, Micron Technology, Western Digital and Intel Corporation ("Intel").

The Company competes in its principal product lines based on the following factors:

- pricing;
- manufacturing costs, yields and product availability;
- product performance, quality and reliability;
- successful and timely development of new products and manufacturing processes;
- ability to deliver in large volumes on a timely basis and the ability to meet changes in the customers' demands;
- marketing and distribution capability;
- customer service, including technical support; and
- brand recognition and financial strength.

Entry into memory semiconductor manufacturing requires substantial capital expenditures and significant technological and manufacturing expertise. Although the Company believes that its existing investment, experience and technological expertise provide "time to market" and economies of scale advantages, the Company faces increasing competition from emerging companies that may significantly expand the scale of their operations, as well as from potential repositioning and expansion by storage solution companies and existing customers that develop memory solutions in-house.

Some of the Company's existing and new competitors may have greater financial, marketing, technical or other resources than the Company. Greater resources may allow such competitors to respond to changes in market demand more quickly and produce, market and distribute enhanced products, as well as withstand downturns in the memory semiconductor markets in which the Company competes. There is no assurance that the Company will be able to continue to compete successfully, and its failure to do so could have a material adverse effect on its business, financial condition and results of operations.

The Company's future long-term growth depends to a significant extent on its ability to increase production capacity.

The Company's future long-term growth will be dependent on its ability to continue to expand its production capacity and total output beyond current levels. As part of the Company's efforts to reduce unit manufacturing costs, improve manufacturing yields and enhance its profitability, the Company periodically phases out the operations of its older fabs as well as upgrading them to new fabs that implement more advanced processing technologies. In addition to regular maintenance and enhancement of existing fabs, the Company completed its initial preparations to commence manufacturing operations of its M16 fab in Icheon, Korea starting in 2021, subject to market conditions. In the second quarter of 2020, the Company also completed the construction of a semiconductor foundry plant in Wuxi, China through a joint venture with Wuxi Industrial Development Group, an investment firm under the Wuxi regional government in China. SK hynix system ic holds a 50.1% interest in the joint venture. Mass production at the newly constructed semiconductor foundry plant is expected to begin in early 2021. As part of its efforts to ensure its long-term competitiveness, the Company has also announced initiatives to construct an integrated industrial complex in Yongin, Korea for its next generation of fabs and research and development facilities. The Company currently plans to start construction of its first fab in the Yongin complex in 2022.

The Company's ability to expand and successfully operate additional production facilities and increase output is subject to significant risks and uncertainties, including:

- its ability to secure adequate purchase orders from customers to maintain optimal production utilization rates;
- its ability to raise sufficient funds to build and operate new production facilities, including securing adequate working capital for labor costs and the purchase of raw materials and other supplies;
- delays and cost overruns associated with the build-out of additional facilities due to factors, many of which may be beyond the Company's control, such as delays in government approvals, problems with equipment vendors or raw material suppliers and equipment malfunctions and breakdowns; and
- diversion of significant management attention and other resources.

The Company's cash outflows for acquisition of property, plant and equipment amounted to ₩9,128 billion in 2017, ₩16,036 billion in 2018, ₩13,920 billion in 2019 and ₩7,539 billion in the first nine months of 2020. The Company's capital expenditures in 2020 were lower than in 2019, and the Company currently expects its capital expenditures in 2021 to be comparable to those in 2020. The Company periodically adjusts its capital expenditure plans on an on-going basis subject to market demand for the Company's products, the production outlook of the global memory semiconductor industry as well as global economic conditions in general. The Company may delay or not implement some of its announced capital expenditure plans based on its assessment of such market conditions. If the Company is unable to expand its production capacity and ramp up its operations within its anticipated timeframe and budgeted costs, the Company may not be able to meet customer demand and pursue additional economies of scale and growth, which could have a material adverse effect on the Company's business, financial condition and results of operations.

The Company's revenue and profitability may decline if it is unable to obtain adequate supplies of raw materials and equipment in a timely manner and at reasonable prices.

The Company requires timely and adequate supplies of raw materials and equipment in order to manufacture its products. The Company sources most of its raw materials, including wafers, from suppliers in Korea, Japan and the United States. The Company is not dependent on any one supplier for a substantial portion of its raw material requirements for assembly and testing, and the Company believes that it generally has access to alternative sources of supply for its principal raw materials. However, from time to time, the Company and other semiconductor manufacturers have experienced shortages and increase in lead times for delivery of raw materials, which in turn have resulted in interruptions in production and delivery of products in the past. To minimize the potential for significant interruptions of supplies of principal raw materials, the Company has entered into multi-year supply agreements with its key material suppliers and plans to enter into similar agreements with other major suppliers, as well as diversify the geographic location of key suppliers.

Like other memory semiconductor manufacturers, the Company also depends on a limited number of manufacturers in the Netherlands, the United States and Japan for its key equipment. The Company generally seeks to obtain testing equipment with similar functionality from various vendors. However, the Company's purchases of high-end equipment meeting the Company's standards are limited to several manufacturers. In periods of high market demand, the lead times from order to delivery of such equipment can be as long as six to twenty-four months. The Company seeks to manage this process through early reservation of appropriate delivery slots and constant communication with its equipment suppliers. However, unavailability of equipment, delays in delivery of key equipment or failure of equipment to meet the Company's specifications could delay implementation of the Company's expansion plans and impair its ability to timely deliver products to its customers.

It is possible that any of the Company's key supplier relationships could be interrupted or terminated due to events beyond the Company's control, including international supply disruptions caused by geopolitical issues, natural disasters or severe health pandemics such as COVID-19. For example, in July 2019, Japan's Ministry of Economy, Trade and Industry began applying more stringent procedures on the export and transfer of certain controlled items and related technologies to Korea, and the Japanese cabinet passed measures in August 2019 to remove Korea from Japan's "white list" of preferred trading nations. Japanese suppliers are required to apply for an export license for each individual supply contract for certain materials, including extra-deep ultraviolet photoresistors and hydrogen fluoride, which are chemicals used in manufacturing memory semiconductors. This export license application process, which typically takes 90 days or longer, has caused delays in imports of such raw materials to Korea. In response, the Company is striving to diversify the geographical location of its supplier base particularly by increasing the concentration of suppliers in Korea, but there can be no assurance that the Company will be able to secure sufficient supplies of the relevant raw materials that meet its quality standards from alternative suppliers in a timely manner and at reasonable prices to satisfy its long-term needs. In the event that similar trade restrictions are imposed in the future by foreign governments in countries where the Company's key suppliers are located, the Company's failure to mitigate the impact of such restrictions could materially and adversely affect its operations.

If the Company is unable to obtain adequate amounts of key raw materials and equipment in a timely manner and at a reasonable cost, the production of its products could be disrupted, which would negatively impact the Company's business, financial condition and results of operations.

The complexity of memory semiconductor production makes the Company highly susceptible to potential manufacturing issues.

Manufacturing memory semiconductors is a highly complex and precise process, requiring production in a tightly controlled, clean environment. Even very small impurities in raw materials, flaws in the wafer fabrication process, defects in the masks used to print circuits on a wafer or other factors can cause a substantial percentage of wafers to be rejected or numerous chips on each wafer to be nonfunctional. The Company may experience problems in achieving an acceptable success rate in the manufacture of wafers, and the likelihood of facing such difficulties is higher in connection with the transition to new manufacturing methods. From time to time, the Company has experienced minor disruptions in its manufacturing process as a result of temporary power outages. The Company may also experience manufacturing problems in its assembly and test operations as a result of the introduction of new packaging materials. In addition, as technological advances in semiconductors become more rapid, manufacturing activities become more complex and prone to problems. Disruption of operations may also occur due to fire, flood or other natural disasters or calamities, human error, or acts of terrorism or war. Any interruption of wafer fabrication at any of the Company's facilities resulting in the failure to achieve acceptable manufacturing yields or inability to meet its customers' requirements would adversely affect the Company's business, financial condition and results of operations.

The Company's long-term profitability depends on its ability to respond to rapid technological changes in the manufacturing process in a timely and cost effective manner.

The average selling prices of memory semiconductors have declined in general and are expected to continually decline with time irrespective of industry-wide cyclical fluctuations, as a result of, among other factors, technological advancements and cost reductions in the memory semiconductor manufacturing process. The Company may be able to take advantage of temporary higher selling prices typically associated with the launch of new products or the emergence of external factors that increase demand, but such prices will likely decline over time, and in certain cases, very rapidly. If the average per-bit selling price for DRAM and NAND flash memory products that the Company produces decreases faster than the pace at which the Company is able to reduce its per-bit manufacturing costs, the Company's gross margins would decrease. Accordingly, the Company's ability to respond to rapid technological changes in the manufacturing process and achieve higher manufacturing yields in a timely and cost effective manner is critical to its long-term profitability.

Due to the competitive nature of the memory semiconductor market, manufacturers are continually seeking the most efficient production methods to maintain a low cost base. For example, the Company is investing in enhancing its 3D NAND technology, which enables NAND flash memory cells to be stacked vertically in multiple layers, and is working toward transitioning its mass production of NAND flash memory products from utilizing 3D 72 and 96 layers to 3D 128 layers technology. If the Company does not anticipate enhancements in manufacturing technology and fails to adopt new process technologies in a timely and cost effective manner, it may not be able to produce products that meet its customers' demands at competitive prices. Although new technologies typically yield more chips per wafer once ramp-up has been successfully completed, yields are typically low during the initial early stage of transition where new technologies are applied to existing manufacturing process. There is no guarantee that the Company will not experience material delays in connection with future migrations to new technologies. If the Company is unable to respond to rapid technological changes in the manufacturing process in a timely and cost effective manner, it may lose its market share, which in turn could have a material adverse effect on its business, financial condition and results of operations.

Requirements of the customers in the information and technology industry and the consumer electronics industry are continually and rapidly evolving, and the Company's success depends on its ability to anticipate and respond to these changes and trends.

Memory semiconductors are becoming increasingly diversified in terms of specifications, with customers demanding solutions that are optimized for their particular needs to manufacture specific electronic devices, including PCs, servers, graphic cards, mobile devices such as smartphones and tablets, and other consumer electronics products. The Company's continued success will depend on its ability to respond quickly to evolving customer requirements and industry standards in its target markets and to offer its customers a variety of products with reliable quality and advanced features.

If the Company's products do not keep pace with evolving industry standards, the Company could be required to invest significant resources to redesign its products to ensure compatibility with relevant standards. If the Company is slow to anticipate changing trends and respond to such changes in a timely manner, it could miss opportunities to capture potential customers, and it could lose its existing customers. In order for the Company to respond effectively to these and other market trends, it needs to dedicate significant resources to product design, research and development and marketing. There can be no assurance that the Company will have sufficient financial resources to fund all of the required research to develop technical innovations and meet changing industry standards. If the Company is unable to invest sufficient resources to satisfy the diversifying memory needs of its customers, or if it does so in an inefficient or untimely manner, it may lose its market share, which in turn could have a material adverse effect on its business, financial condition and results of operations.

The Company sells a substantial portion of its products to a select group of key customers in the United States and China, and any significant decrease in their order levels will negatively affect the Company's business.

A substantial portion of the Company's sales is attributable to a limited number of customers located in the United States and China. The Company's top two customers in 2019 accounted for, in the aggregate, 29.6% of the Company's total revenue. In the first nine months of 2020, the Company's top three customers accounted for, in the aggregate, 37.0% of the Company's total revenue. The Company cannot provide any assurance that its key customers will continue to place orders with the Company in the future at the same levels as in prior periods, or at all. The Company typically enters into mutually non-binding long-term supply arrangements of one to three years with its customers, which usually do not establish fixed pricing and volume commitments. Key customers may reduce quantities purchased, delay or cancel purchase orders or elect to terminate their business relationship with the Company at any time for a number of reasons, including industry consolidation through mergers and acquisitions. Because much of the Company's costs and operating expenses are relatively fixed, termination of business relationships with key customers or significant reductions in sales to any key customers would have a material adverse effect on the Company's business, financial condition and results of operations.

In recent years, the Company has also increasingly relied on sales to customers in China and the United States, and prolonged tensions in economic and trade relations between the two countries may have a material adverse effect on demand for the Company's products from key customers in such countries. Ongoing tensions between the United States and China and tariffs and other trade restrictions imposed by them on each other, including restrictions and penalties imposed by their respective governmental agencies such as the Bureau of Industry and Security of the U.S. Department of Commerce, may lead to a decrease in the volume of products manufactured by the Company's key customers located in such countries, which in turn could decrease demand for the Company's memory semiconductors used as components in their products. In addition, the Company may be prohibited from selling products to certain of its key customers as a result of the ongoing trade tensions. For example, on August 20, 2020, the U.S. Department of Commerce, Bureau of Industry and Security ("BIS") published a final rule that further tightened restrictions under the Export Administration Regulations on Huawei Technology Co., Ltd. ("Huawei") and its affiliates designated on the Entity List administered by BIS. Under the final rule, any item produced based on the relevant categories of U.S.-origin technology or software in any meaningful way may no longer be provided to Huawei for use by it or for use in any Huawei product without obtaining a license. Sales of any such items without obtaining the proper license would result in a violation of U.S. law. Starting on September 15, 2020, the Company has suspended sale of its products to Huawei and its affiliates designated on the Entity List administered by BIS. Huawei has been one of the Company's key customers in recent years, and there can be no assurance that the Company will be able to obtain the required license from BIS in order to resume sales of its products to Huawei or secure sufficient demand for the Company's products at comparable prices from its other customers, the failure of which may have a material adverse effect on the Company's business, financial condition and results of operations.

Revenue of sales subsidiaries located in China accounted for 46.6% of the Company's revenue in 2019 and 40.4% in the first nine months of 2020, while revenue of sales subsidiaries located in the United States accounted for 30.2% of the Company's revenue in 2019 and 37.8% in the first nine months of 2020. The Company is unable to predict the duration of tensions in economic and trade relations between the two countries, and prolonged trade restrictions could have a material adverse effect on the Company's business, financial condition and results of operations.

The Company may not be able to realize the anticipated benefits of its acquisitions, which could harm its business, financial condition and results of operations.

The Company's success will depend, in part, on its ability to expand its product offerings, and grow its business in response to changing technologies, consumer demands and competitive pressures. In some circumstances, the Company may determine to do so through the acquisition of complementary businesses and technologies rather than through internal development. For example, On October 20, 2020, the Company announced its agreement to acquire the NAND flash memory and storage business of Intel (the "Intel NAND Business Acquisition"), which includes the NAND SSD business and the NAND component and wafer business as well as the Dalian Manufacturing Facility, for approximately US$9 billion. The acquisition is subject to governmental approvals, which the Company will endeavor to obtain by late 2021, as well as other customary closing conditions and customary termination fees, which may be significant, if the transaction is terminated under certain specified circumstances. See "Business - Strategic Alliances, Investments and Acquisitions." The identification of suitable acquisition candidates can be difficult, time-consuming and costly, and the Company may not be able to successfully complete its identified acquisitions, including the pending Intel NAND Business Acquisition. The Company has limited experience acquiring other businesses, and its ability to acquire and integrate other companies and assets, particularly large or complex companies, products or technologies, in a successful manner remains subject to uncertainty.

The risks the Company faces in connection with acquisitions also include:

- diversion of management time and focus from operating the Company's business to addressing acquisition and integration challenges;
- challenges associated with the integration of product development and sales and marketing functions of the acquired business;
- challenges associated with the retention of key employees from the acquired business;
- cultural and operational challenges associated with integrating employees from the acquired business into the Company;

- challenges associated with the integration of the acquired business's accounting, management information, human resources and other administrative systems;
- the need to implement or improve controls, procedures and policies at a business that prior to the acquisition may have lacked effective controls, procedures and policies;
- liability for activities of the acquired business before the acquisition, including intellectual property infringement claims;
- unanticipated impairment of goodwill; and
- litigation or other claims in connection with the acquired company, including claims from terminated employees, customers, former shareholders or other third parties.

The Company's failure to address these risks or other problems encountered in connection with its past or future acquisitions could cause it to fail to realize the anticipated benefits of these acquisitions, cause it to incur unanticipated liabilities, or could otherwise harm its business generally. Future acquisitions could also result in dilutive issuances of its equity securities or the incurrence of debt, contingent liabilities, amortization expenses or incremental operating expenses.

The Company's strategic alliances and investments may not be successful, which may adversely affect its competitive position and impair the Company's ability to achieve its business objectives.

The Company continually seeks out opportunities to further its strategic objectives, including by entering into joint ventures and joint product development and supply agreements, to further solidify its market position as a leading semiconductor company in the world. Cooperation in product design, manufacturing and sales and marketing between partner companies has increased in response to the growing diversity and complexity of memory semiconductors and applications, demand for technological enhancements and increasing costs associated with keeping pace with industry developments. The Company believes that such strategic initiatives will not only assist in maintaining and growing its presence in existing markets but also provide the Company with a cost-effective means of accessing new markets, products and technologies.

As part of the efforts to expand the Company's foundry business, SK hynix system ic entered into a joint venture with Wuxi Industrial Development Group, an investment firm under the Wuxi regional government in China. SK hynix system ic holds a 50.1% interest in the joint venture, which has completed construction of a semiconductor foundry plant in Wuxi, China. From time to time, the Company has also acquired equity stakes in other industry players to further strengthen its business relationships and may do so again in the future. For example, in June 2018, the Company participated as a member of a consortium led by Bain Capital (the "Bain Consortium") in its purchase of a controlling stake in Kioxia from Toshiba Corporation. Kioxia is the second largest supplier of NAND flash memory in terms of revenue, with a worldwide market share of 18.6% in the first nine months of 2020, according to Omdia. As a member of the Bain Consortium, the Company invested ₩2,637 billion for an indirect limited partnership interest in BCPE Pangea Cayman L.P. ("SPC 1"), which in turn holds an equity interest in Kioxia. In addition, the Company invested ₩1,279 billion to acquire a convertible bond issued by a second special purpose company, BCPE Pangea Cayman2 Limited ("SPC 2"), which is convertible into an approximately 15.0% equity interest in SPC 2 upon the occurrence of certain specified events. SPC 2 in turn holds an equity interest in Kioxia. As of September 30, 2020, the book value of the Company's investment in SPC 1 was ₩2,938 billion, and the book value of the Company's investment in the convertible bond issued by SPC 2 was ₩1,502 billion, which are accounted for as debt investments and classified as financial assets measured at fair value through profit or loss.

Strategic initiatives involve a number of risks, including potential disagreements with strategic partners, diversion of management attention and, in the case of joint ventures, cultural and operational challenges associated with operation of the joint venture. The Company's strategic, joint venture or consortium partners may have economic or business interests that are inconsistent with those of the Company, take actions contrary to agreed policies or objectives, undergo a change of control, experience financial and other difficulties or be unable or unwilling to fulfill their obligations. The Company's failure to address such risks or other problems encountered in connection with its past or future investments could cause the Company to fail to realize the anticipated benefits of such investments, cause the Company to incur unanticipated liabilities, or could otherwise harm the Company's business relationships and reputation. In addition, the Company's investments may become subject to unanticipated impairment losses (or losses for financial assets measured at fair value through profit or loss) if the value of the invested assets declines. Any such developments could have a material adverse effect on the Company's business, financial condition and results of operations.

The Company may not be able to successfully execute its diversification strategy.

As part of its overall strategy, the Company has been striving to diversify its business to areas other than memory semiconductors in recent years, particularly through investing in the expansion of its foundry business and production of CMOS image sensors that are used to perform the role of electronic film in digital photographing devices. The success of the Company's diversification strategy will depend, in part, on its ability to realize on the growth opportunities and anticipated synergies among its diversified businesses, which in turn will be subject to numerous factors, including the recruitment of qualified personnel and establishment of new business relationships, as well as expansion of existing relationships with various customers and suppliers, procurement of necessary technology and know-how and access to investment capital at a reasonable cost. The Company's failure to successfully execute its diversification strategy may adversely affect its business, financial condition and results of operations.

The Company may be unable to adequately protect its intellectual property rights or successfully defend against third party infringement claims, which could impair the Company's operations and competitiveness and harm its business and future prospects.

Protection of the Company's intellectual property rights is essential to keep others from copying the innovations that are central to the Company's current and future products. As of September 30, 2020, the Company and two of its subsidiaries (SK hynix memory solutions America Inc. and SK hynix system ic) owned 2,617 patents and 89 trademarks in Korea and 12,047 patents and 165 trademarks outside Korea. As of the same date, the Company and its two subsidiaries had 10,366 patent and trademark applications pending in Korea and abroad. The Company's ability to compete successfully also depends on its ability to operate without infringing the proprietary rights of others. The memory semiconductor industry is characterized by frequent disputes and litigation regarding patent and other intellectual property rights. As is typical in the industry, the Company has from time to time received communications from third parties asserting their patents against its products and alleging the Company's infringement of their intellectual property rights. The Company expects to receive similar communications in the future. For a discussion of the Company's patent infringement claims and litigation matters, see "Business — Litigation and Regulatory Proceedings."

In the event that any third party is adjudicated to have a valid intellectual property claim against the Company, the Company may be required to:

- refrain from selling the affected products in certain markets;
- make royalty payments or pay significant monetary damages, which may exceed the Company's reserves for such matters;

- seek to develop non-infringing technologies, which may be costly or time-consuming or may not be feasible; and
- seek to acquire licenses to the infringed technology, which may not be available on commercially reasonable terms, if at all.

Any of the foregoing, as well as the Company's inability to adequately protect its intellectual property rights, could have a material adverse effect on the Company's business, financial condition and results of operations.

The Company relies on technology provided by third parties, and its business may suffer if it is unable to renew its licensing arrangements with them.

The Company has entered into technology license and cross-license agreements with third parties that give those parties the right to use patents and other technologies developed by the Company, as well as provide the Company with the right to use patents and other technologies developed by them. The Company anticipates that it will continue to enter into various licensing and cross-licensing arrangements in the future, which may increase its payments of licensing fees and royalties. If the Company is unable to enter into or renew technology licensing arrangements on acceptable terms, it may lose the legal right to use certain of the technologies it employs in manufacturing its products, which may prevent the Company from manufacturing and selling key products. In addition, the Company could be disadvantaged if its competitors obtain licenses for important technologies on more favorable terms than the Company. In the future, the Company may also need to obtain additional licenses for new or existing technologies. The Company's failure to secure or renew license agreements on acceptable terms may materially and adversely affect its business, financial condition and results of operations.

Products that do not meet customer specifications, contain or are perceived to contain defects or are otherwise incompatible with their intended uses could impose significant costs on the Company.

The design and production processes for the Company's products, including DRAM, are highly complex. The Company may produce products that do not meet customer specifications, contain or are perceived to contain defects or are otherwise incompatible with their intended uses. Under the Company's general terms and conditions of sale and in accordance with industry practice, the Company provides a one-year warranty that is usually limited to repair or replacement of defective items or return of, or a credit with respect to, amounts paid for such items. From time to time, the Company may provide more extensive warranty coverage to certain customers. The Company may incur substantial costs in remedying defects in its products, which could include material inventory write-downs. Moreover, if actual or perceived problems with nonconforming, defective or incompatible products occur after the Company has shipped its products, the Company may not only have liability for providing replacements or otherwise compensating customers but also suffer damage to its relationship with important customers or to its reputation, which could have a material adverse effect on the Company's business, financial condition and results of operations.

Sanctions against the Company and other memory semiconductor producers for anti-competitive practices may have a direct or indirect material adverse impact on the Company's operations.

From time to time, the Company may become subject to investigations by government authorities as well as legal proceedings related to alleged involvement in anti-competitive practices. In the past, the Company and other DRAM manufacturers have been investigated by the Antitrust Division of the U.S. Department of Justice, and a number of class action lawsuits have been filed against the Company and other DRAM manufacturers in various federal district courts and state courts alleging violation of U.S. antitrust laws, unfair competition laws and other related laws. Generally, such class action cases are filed on behalf of classes of individuals and entities which purchased DRAM directly or indirectly from the various DRAM suppliers. The "indirect purchaser" plaintiffs include purchasers of consumer products, such as computers, in which DRAM is a component, and other purchasers that did not purchase DRAM directly from a DRAM manufacturer.

Although the Company has resolved a number of the class action lawsuits and other legal proceedings related to its alleged involvement in anti-competitive practices, cases that are currently pending include a class action lawsuit filed by direct and indirect DRAM purchasers against the Company, SK hynix America Inc. and other DRAM manufacturers at the U.S. District Court for the Northern District of California in April 2018, asserting claims based on alleged price-fixing of DRAM from June 1, 2016 to February 1, 2018. Similar lawsuits were subsequently filed at another federal court in the U.S., as well as at (i) Canadian courts in British Columbia, Quebec and Ontario and (ii) Israel. In addition, in May 2018, the State Administration for Market Regulation of China initiated an investigation into alleged violations of antitrust laws relating to the Company's sales of DRAM in China. In December 2020, the U.S. District Court for the Northern District of California granted a motion to dismiss with prejudice all claims brought by the indirect DRAM purchasers, and granted a motion to dismiss without prejudice all claims brought by the direct DRAM purchasers.

The Company intends to vigorously defend against such claims. However, the Company is unable to predict the outcome of such investigations and legal proceedings. An adverse final resolution of any of the matters described above or any sanctions imposed against the Company for anti-competitive practices could result in liability to the Company, damage to its reputation, loss of experienced personnel or other consequences, any of which may have a material adverse effect on the Company's business, financial condition and results of operations.

Impositions of anti-dumping duties, safeguard duties, countervailing duties, quotas or tariffs may have an adverse impact on the Company's export sales.

The Company sells substantially all of its products outside Korea, and it currently is not subject to anti-dumping duties, safeguard duties, countervailing duties, quotas or tariffs in any market. However, as a producer with global sales and operations, the Company may become involved from time to time in trade remedy proceedings in one or more of its markets worldwide. The Company proactively plans for and responds to such proceedings to minimize any adverse effects and associated risks. The Company continues to carefully monitor developments with respect to trade remedy policies in all major markets in which the Company sells its products and, where necessary, vigorously defends its rights through litigation before tribunals such as the U.S. Court of International Trade. However, there can be no assurance that anti-dumping duties, safeguard duties, countervailing duties, quotas or tariffs will not be imposed on the Company's sales of products abroad in the future, and the imposition of any such measures against the Company may have a material adverse impact on its business and performance.

The Company may be unable to operate its business successfully if it is unable to retain and recruit qualified personnel.

The Company's success depends to a significant extent on the continued services of its senior management and research and development, engineering and other specialized personnel, and on its ability to continue to attract, retain and motivate such key employees. Generally, the Company's employees are not bound by employment or non-competition agreements and competition within the memory semiconductor industry for highly qualified employees is intense. There can be no assurance that the Company will not experience difficulty in recruiting and retaining qualified employees. The Company's business could suffer if it loses the services of any of its key personnel and cannot adequately replace them in a timely manner.

The Company is subject to strict environmental regulations, and it may become subject to penalties or restrictions that could cause its operations to be interrupted or result in significant compliance expenses.

The Company has manufacturing facilities in Korea and China. The Company's operations involve the use of chemicals and generate chemical waste, waste water and other industrial waste at various stages in the manufacturing process, and the Company is subject to a variety of laws and regulations of local or national governments relating to the use, storage, discharge and disposal of such chemical by-products and waste substances. The Company is also subject to restrictions on using certain raw materials in its manufacturing process in fabs located in certain locations. The Company has installed various types of anti-pollution equipment, consistent with industry standards, for the treatment of chemical waste and equipment for the recycling of treated water and other industrial waste at its various facilities. However, the Company cannot provide assurance that environmental claims will not be brought against it or that local or national governments will not take steps toward adopting more stringent environmental standards. Any failure on the Company's part to comply with any present or future environmental regulations could result in the assessment of damages or clean-up costs or the imposition of fines or other penalties against it, a suspension of production, cessation of operations or relocation of manufacturing facilities to different locations. In addition, new environmental regulations could require the Company to acquire costly equipment or to incur other significant compliance expenses that may materially and negatively affect its business, financial condition and results of operations.

Fluctuations in exchange rates may result in foreign exchange losses.

There has been considerable volatility in exchange rates in recent years, including exchange rates between the Won and the U.S. dollar. To the extent that the Company incurs costs in one currency and makes sales in another, its profit margins may be affected by changes in the exchange rates between the two currencies. In particular, the Company's investments in manufacturing facilities in China has increased the proportion of its expenses that are incurred in RMB, while the Company's sales in China are denominated in U.S. dollars. Accordingly, an unhedged increase in the value of the RMB would increase the Company's construction and manufacturing costs and adversely impact its profitability. Changes in exchange rates can also affect the Won value of sales proceeds and operating and non-operating costs that are denominated in foreign currencies. The Company is unable to increase the prices of its products to adjust fully for the negative effects of exchange rate movements because prices in the memory semiconductor industry are dictated by worldwide supply and demand. In addition, exchange rate fluctuations can affect the Won value of the Company's equity investments and monetary assets and liabilities denominated in foreign currencies. See "Exchange Rate Information."

Appreciation of the Won may materially and adversely affect the Company's results of operations because, among other things, it reduces the Won value of the Company's export sales, which are primarily denominated in U.S. dollars, as well as causing the Company's export products to be less competitive by raising their prices in U.S. dollar terms. On the other hand, the depreciation of the Won would create foreign exchange translation losses and increase the amount, in Won terms, of interest and principal of the Company's foreign currency-denominated debt, as well as increase in Won terms the cost of raw materials and equipment that the Company purchases from overseas sources. Under the Company's current operating and capital structure, appreciation of the Won generally has a net negative impact on the Company's operating income. Although the Company's general policy is to hedge against such currency risks, the Company cannot provide any assurance that it will be able to effectively manage such risks. Volatility in currency exchange rates may lead to losses, which could have a material adverse effect on the Company's financial condition and results of operations.

Related party transactions that the Company engages in are subject to scrutiny by the Korea Fair Trade Commission and the Korean tax authorities.

The Company's business relationships and transactions with its subsidiaries and affiliates are subject to ongoing scrutiny by the Korea Fair Trade Commission as to, among other things, whether such relationships and transactions constitute undue financial support among companies of the same business group. The Company engages in various transactions with its subsidiaries and affiliates on an arm's-length basis. See "Certain Relationships and Related Party Transactions." The Company is also subject to fair trade regulations limiting cross-guarantees of debt and cross-shareholdings among member companies of the SK Group. In addition, the Company's material business transactions with its subsidiaries, affiliates and member companies of the SK Group are subject to approval by its board of directors pursuant to the Korean Commercial Code and the Monopoly Regulation and Fair Trade Act and are subject to public disclosure requirements under the Monopoly Regulation and Fair Trade Act. Any future determinations by the Korea Fair Trade Commission that the Company has engaged in transactions that violate applicable fair trade laws and regulations may result in fines or other punitive measures and may have a material adverse effect on the Company's reputation and its business.

In addition, under Korean tax law, there is an inherent risk that the Company's transactions with its subsidiaries, affiliates or any other person or company that is related to the Company may be challenged by the Korean tax authorities if such transactions are viewed as having been made on terms that were not on an arm's-length basis. If the Korean tax authorities determine that any of the Company's transactions with related parties was not on an arm's-length basis, the Company would not be permitted to deduct the amount equivalent to such undue financial support as expenses, which may have adverse tax consequences for the Company.

Uncertainty relating to benchmark regulation reforms may adversely affect the Company's securities or debt obligations linked to a benchmark.

The London Interbank Offered Rate ("LIBOR") and the Euro Interbank Offered Rate ("EURIBOR") and other indices which are deemed to be "benchmarks" are the subject of recent national, international and other regulatory guidance and proposals for reform. Some of these reforms are already effective while others have yet to be implemented. These reforms may cause such benchmarks to perform differently than in the past, or to disappear entirely, or have other consequences which cannot be predicted. Any such consequence could have a material adverse effect on any securities linked to such benchmarks.

Regulation (EU) 2016/1011 (the "Benchmark Regulation") was published in the Official Journal of the European Union on June 29, 2016 and has been in force since January 1, 2018. The Benchmark Regulation applies to the provision of benchmarks, the contribution of input data to a benchmark and the use of a benchmark, within the European Union. Among other things, (i) it requires benchmark administrators (such as ICE Benchmark Administration Limited and the European Money Market Institute, which currently administer LIBOR and EURIBOR, respectively) to be authorized or registered (or, if non-European Union based, to be subject to an equivalent regime or otherwise recognized or endorsed) and (ii) it prevents certain uses by European Union-supervised entities of benchmarks of administrators that are not authorized or registered (or, if non-European Union based, not deemed equivalent or recognized or endorsed). On July 27, 2017, the U.K. Financial Conduct Authority (the "FCA") announced that it will no longer persuade or compel banks to submit rates for the calculation of the LIBOR after 2021. The FCA announcement indicates that the continuation of LIBOR on the current basis cannot and will not be guaranteed after 2021.

The Benchmark Regulation could have a material impact on any securities linked to a rate or index deemed to be a benchmark, in particular, if the methodology or other terms of the benchmark are changed in order to comply with the requirements of the Benchmark Regulation. Such changes could, among other things, have the effect of reducing, increasing or otherwise affecting the volatility of the published rate or level of the benchmark. More broadly, any of the international, national or other proposals for reform, or the general increased regulatory scrutiny of benchmarks, could increase the costs and risks of administering or otherwise participating in the setting of a benchmark and complying with any such regulations or requirements.

Such factors may have the following effects on certain benchmarks: (i) discourage market participants from continuing to administer or contribute to such benchmark; (ii) trigger changes in the rules or methodologies used in the benchmarks or (iii) lead to the disappearance of the benchmark. Any of the above changes or any other consequential changes as a result of international, national or other proposals for reform or other initiatives or investigations, could have a material adverse effect on the value of and return on the Company's securities or debt obligations linked to a benchmark. Moreover, if a benchmark ceases to be calculated or administered and no replacement base rate is identified or selected, the fallback provisions for the interest rate calculations under the securities may result in interest accruing at a fixed rate based on the rate which applied in the previous period when the benchmark was available, effectively converting the securities or debt obligations into fixed rate securities or debt obligations.

Risks Relating to Korea

If economic conditions in Korea deteriorate, the Company's current business and future growth could be materially and adversely affected.

The Company is incorporated in Korea and a significant portion of its assets are located in Korea. As a result, the Company is subject to political, economic, legal and regulatory risks specific to Korea, and the Company's performance and successful execution of its operational strategies are dependent on the overall Korean economy. The economic indicators in Korea in recent years have shown mixed signs of growth and uncertainty, and future growth of the Korean economy is subject to many factors beyond the Company's control, including developments in the global economy.

In particular, the on-going COVID-19 pandemic has had an adverse impact on the Korean economy. Following the Government's announcement of the first confirmed case of COVID-19 in Korea in January 2020, it has implemented a number of measures in order to contain the spread of the COVID-19 disease, including a nationwide order for social distancing, implementation of strict self-isolation and quarantine measures for those who may be infected, and the temporary closure of all school and other public facilities. In addition, the Government has undertaken a series of actions to mitigate the adverse impact of the COVID-19 pandemic on the Korean economy, including (i) lowering of The Bank of Korea's policy rates, (ii) execution of a bilateral currency swap agreement with the U.S. Federal Reserve, (iii) provision of loans, guarantees and maturity extensions to eligible financial institutions, small- and medium business enterprises and self-employed business owners facing liquidity crises; (iv) offering emergency relief payments for those impacted by the COVID-19 pandemic; and (v) establishment of the Key Industry Stabilization Fund in May 2020 to support businesses in certain key industries, such as the air transport and maritime industries. However, the impact of the on-going COVID-19 pandemic to the Korean economy in 2021 and for the foreseeable future remains highly uncertain.

Other developments that could have an adverse impact on Korea's economy include:

- declines in consumer confidence and a slowdown in consumer spending;
- the occurrence of additional severe health epidemics;

- adverse conditions or uncertainty in the economies of countries and regions that are important export markets for Korea, such as China, the United States, Europe and Japan, or in emerging market economies in Asia or elsewhere, including as a result of the ongoing COVID-19 pandemic, deteriorating relations between the United States and China and increased uncertainties resulting from the United Kingdom's exit from the European Union;
- adverse changes or volatility in foreign currency reserve levels, commodity prices (including oil prices), exchange rates;
- deterioration in economic or diplomatic relations between Korea and its trading partners or allies, including deterioration resulting from territorial or trade disputes or disagreements in foreign policy (such as the removal of Korea from Japan's "white list" of preferred trading nations in August 2019 and the controversy between Korea and China regarding the deployment of a Terminal High Altitude Area Defense System in Korea by the United States in March 2017 and the ensuing economic and other retaliatory measures by China against Korea during the remainder of 2017);
- increased sovereign default risk in select countries and the resulting adverse effects on the global financial markets;
- deterioration in the financial condition or performance of small- and medium-sized enterprises and other companies in Korea due to the Government's policies to increase minimum wages and limit working hours of employees;
- investigations of large Korean business groups and their senior management for possible misconduct;
- a continuing rise in the level of household debt and increasing delinquencies and credit defaults by retail and small- and medium-sized enterprise borrowers in Korea;
- the economic impact of any pending or future free trade agreements or of any changes to existing free trade agreements;
- social and labor unrest;
- substantial decreases in the market prices of Korean real estate;
- a substantial decrease in tax revenues and a substantial increase in the Government's expenditures for fiscal stimulus measures, unemployment compensation and other economic and social programs, in particular in light of the Government's ongoing efforts to provide emergency relief payments to households and emergency loans to corporations in need of funding in light of COVID-19, which, together, would likely lead to a national budget deficit as well as an increase in the Government's debt;
- financial problems or lack of progress in the restructuring of Korean business groups, other large troubled companies, their suppliers or the financial sector;
- loss of investor confidence arising from corporate accounting irregularities and corporate governance issues concerning certain Korean companies;
- increases in social expenditures to support an aging population in Korea or decreases in economic productivity due to the declining population size in Korea;
- geopolitical uncertainty and risk of further attacks by terrorist groups around the world;
- political uncertainty or increasing strife among or within political parties in Korea;
- hostilities or political or social tensions involving oil producing countries in the Middle East (including a potential escalation of hostilities between the United States and Iran) and Northern Africa and any material disruption in the global supply of oil or sudden increase in the price of oil;

- natural or man-made disasters that have a significant adverse economic or other impact on Korea or its major trading partners; and
- an increase in the level of tensions or an outbreak of hostilities between North Korea and Korea or the United States.

Escalations in tensions between Korea and North Korea could have an adverse effect on the Company.

Relations between Korea and North Korea have been tense throughout Korea's modern history. The level of tension between the two Koreas has fluctuated and may increase abruptly as a result of current and future events. In particular, there have been heightened security concerns in recent years stemming from North Korea's nuclear weapon and ballistic missile programs as well as its hostile military actions against Korea. Some of the significant incidents in recent years include the following:

- North Korea renounced its obligations under the Nuclear Non-Proliferation Treaty in January 2003 and conducted six rounds of nuclear tests since October 2006, including claimed detonations of hydrogen bombs, which are more powerful than plutonium bombs, and warheads that can be mounted on ballistic missiles. Over the years, North Korea has also conducted a series of ballistic missile tests, including missiles launched from submarines and intercontinental ballistic missiles that it claims can reach the United States mainland. In response, the Government has repeatedly condemned the provocations and flagrant violations of relevant United Nations Security Council resolutions. In February 2016, the Government also closed the inter-Korea Gaesong Industrial Complex in response to North Korea's fourth nuclear test in January 2016. Internationally, the United Nations Security Council has passed a series of resolutions condemning North Korea's actions and significantly expanding the scope of sanctions applicable to North Korea, most recently in December 2017 in response to North Korea's intercontinental ballistic missile test in November 2017. Over the years, the United States and the European Union have also expanded their sanctions applicable to North Korea.
- In August 2015, two Korean soldiers were injured in a landmine explosion near the Korean demilitarized zone. Claiming that the landmines were set by North Koreans, the Korean army re-initiated its propaganda program toward North Korea utilizing loudspeakers near the demilitarized zone. In retaliation, the North Korean army fired artillery rounds on the loudspeakers, resulting in the highest level of military readiness for both Koreas.
- In March 2010, a Korean naval vessel was destroyed by an underwater explosion, killing many of the crewmen on board. The Government formally accused North Korea of causing the sinking, while North Korea denied responsibility. Moreover, in November 2010, North Korea fired more than one hundred artillery shells that hit Korea's Yeonpyeong Island near the Northern Limit Line, which acts as the de facto maritime boundary between Korea and North Korea on the west coast of the Korean peninsula, causing casualties and significant property damage. The Government condemned North Korea for the attack and vowed stern retaliation should there be further provocation.

North Korea's economy also faces severe challenges, which may further aggravate social and political pressures within North Korea.

Although bilateral summit meetings were held between Korea and North Korea in April, May and September 2018 and between the United States and North Korea in June 2018, February 2019 and June 2019, there can be no assurance that the level of tensions affecting the Korean peninsula will not escalate in the future. Any increase in tensions, which may occur, for example, if North Korea experiences a leadership crisis, high-level contacts between Korea or the United States and North Korea break down or further military hostilities occur, could have a material adverse effect on the Korean economy and on the Company's business, financial condition and results of operations.

There are special risks involved with investing in securities of Korean companies.

As the Company is a Korean company and operates in a business and cultural environment that is different from that of other countries, there are risks associated with investing in its securities that are not typical for investments in securities of companies in other jurisdictions.

Under the Foreign Exchange Transaction Act of Korea and the Presidential Decree and regulations under that Act and Decree (collectively referred to as the "Foreign Exchange Transaction Laws"), if the Government deems that certain emergency circumstances, including sudden fluctuations in interest rates or exchange rates, extreme difficulty in stabilizing the balance of payments or substantial disturbance in the Korean financial and capital markets, are likely to occur, it may impose any necessary restriction such as requiring Korean or foreign investors to obtain prior approval from the Minister of Economy and Finance for the acquisition of Korean securities or for the repatriation of interest, dividends or sales proceeds arising from Korean securities or other types of capital transactions. Moreover, if the Government deems it necessary on account of war, armed conflict, natural disaster or grave and sudden changes in domestic or foreign economic circumstances or similar events or circumstances, the Minister of Economy and Finance may temporarily suspend performance under any or all foreign exchange transactions, in whole or in part, to which the Foreign Exchange Transaction Laws apply (including suspension of payment and receipt of foreign exchange) or impose an obligation to deposit or sell any means of payment to the Bank of Korea, the Foreign Exchange Equalization Fund of Korea, or certain other governmental agencies or financial institutions.

In addition, the Company's audited and unaudited condensed consolidated financial statements included in this Offering Circular are presented in accordance with K-IFRS and its future financial statements will be prepared in accordance with K-IFRS, which differ in certain respects from accounting principles applicable to companies in certain other countries. In making an investment decision, investors must rely upon their own examination of the Company, the terms of the offering and the financial and other information contained in this Offering Circular.

Risks Relating to the Notes

The Notes are unsecured obligations.

Because the Notes are unsecured obligations, their repayment may be compromised if:

- the Company enters into bankruptcy, liquidation, reorganization or other winding-up proceedings;
- there is a default in payment under the Company's future secured indebtedness or other unsecured indebtedness; or
- there is an acceleration of any of the Company's indebtedness.

If any of these events occurs, the Company's assets may not be sufficient to pay amounts due on the Notes.

The Notes are subject to transfer restrictions.

The Notes will not be registered under the Securities Act or any state securities laws and may not be offered or sold within the United States, except to QIBs in reliance on the exemption provided by

Rule 144A, to certain persons in offshore transactions in reliance on Regulation S, or if available, pursuant to another exemption from, or in another transaction not subject to, the registration requirements of the Securities Act and, in each case, in accordance with applicable state securities laws. In addition, subject to the conditions set forth in the Fiscal Agency Agreement (as defined in "Terms and Conditions of the Notes"), a Note may be transferred only if the principal amount of Notes transferred is at least US$200,000. For a further discussion of the transfer restrictions applicable to the Notes, see "Terms and Conditions of the Notes" and "Transfer Restrictions."

The Notes have limited liquidity.

The Notes constitute a new issue of securities for which there is no existing market. Approvals in-principal have been received from the SGX-ST for the listing and quotation of the Notes on the SGX-ST. The offer and sale of the Notes is not conditioned on obtaining a listing of the Notes on the SGX-ST or any other securities exchange. Although the Initial Purchasers have advised the Company that they currently intend to make a market in the Notes, they are not obligated to do so, and any market-making activity with respect to the Notes, if commenced, may be discontinued at any time without notice in their sole discretion.

No assurance can be given as to the liquidity of, or the development and continuation of an active trading market for, the Notes. If an active trading market for the Notes does not develop or is not maintained, the liquidity and market price of the Notes may be adversely affected. If an active trading market for the Notes were to develop, the Notes could trade at prices that may be higher or lower than the price at which the Notes are issued, depending on many factors, including:

- prevailing interest rates;
- the financial condition, results of operations and future prospects of the Company;
- the rate of exchange between the Won and the U.S. dollar;
- political and economic developments in and affecting Korea and other regions;
- the market conditions for similar securities; and
- the financial condition and operating performance of the global memory semiconductor sector.

Credit ratings are periodically assigned to the Company and the Notes.

The Company and its debt securities, including the Notes, are subject to periodic review by independent credit rating agencies. Accordingly, increases in the level of the Company's outstanding indebtedness, a deterioration in its operating performance or other events could cause the rating agencies to downgrade the Company's credit ratings generally and the ratings on the Notes, which could adversely impact the trading prices for, or the liquidity of, the Notes. Any such downgrade could also adversely affect the Company's cost of borrowing, limit its access to the capital markets or result in more restrictive covenants in future debt agreements.

The Notes are each expected to be rated Baa2 by Moody's and BBB- by S&P. The credit ratings assigned to the Notes are limited in scope, and may not reflect the potential impact of all risks that may affect the value of the Notes. Each agency's rating should be evaluated independently of any other agency's rating. A credit rating is not a recommendation to buy, sell or hold the Notes and may be subject to revision, suspension or withdrawal at any time by the assigning rating agency. There can be no assurance that these ratings will remain in effect for a given period or that these ratings will not be revised by the rating agencies in the future.

The 2031 Notes may not be a suitable investment for all investors seeking exposure to "green" assets.

The Company will allocate an amount equivalent to the net proceeds from the issuance of the 2031 Notes to finance or refinance, in whole or in part, Eligible Projects (as defined in "Use of Proceeds") in accordance with the SK hynix Green Financing Framework, which is in alignment with the Green Bond Principles 2018 published by the International Capital Markets Association. See "Use of Proceeds." The examples of Eligible Projects provided in "Use of Proceeds" are for illustrative purposes only and no assurance can be provided that disbursements for projects with these specific characteristics will be made by the Company during the term of the 2031 Notes. The SK hynix Green Financing Framework (as defined in "Use of Proceeds") are not incorporated into, and do not form a part of, this offering circular.

There is currently no market consensus on what precise attributes are required for a particular project or series of notes to be defined as "green," and therefore no assurance can be provided to potential investors that selected Eligible Projects will meet all investor expectations regarding environmental performance. Although the Eligible Projects are expected to be selected in accordance with the categories recognized under the SK hynix Green Financing Framework and are expected to be developed in accordance with relevant legislation and standards, there can be no guarantee that the projects will deliver the environmental benefits as anticipated, or that adverse environmental impacts will not occur during the design, construction, commissioning or operation of any such projects. In addition, where any negative impacts are insufficiently mitigated, the projects may become controversial and may be criticized by activist groups or other stakeholders.

Vigeo Eiris, an external consultant, has issued an opinion dated January 6, 2021 regarding the SK hynix Green Financing Framework's alignment with the Green Bond Principles 2018 issued by the International Capital Markets Association (the "Second Party Opinion"). The Second Party Opinion may not reflect the potential impact of all risks related to the structure, market, additional risk factors discussed above and other factors that may affect the value of the 2031 Notes. The Second Party Opinion is not a recommendation to buy, sell or hold securities and is only current as of the date that the Second Party Opinion was initially issued. In addition, although the Company has agreed to certain reporting and use of proceeds obligations in connection with certain environmental criteria, its failure to comply with such obligations does not constitute a breach or an event of default under the 2031 Notes. Any failure by the Company to use an amount equivalent to the net proceeds from the issuance of the 2031 Notes on Eligible Projects or to meet or continue to meet the investment requirements of certain environmentally-focused investors with respect to the 2031 Notes may affect the value of the 2031 Notes and may have consequences for certain investors with portfolio mandates to invest in "green" assets.

No assurance can be provided that the 2031 Notes will fulfill the environmental and sustainability criteria to qualify as "green" bonds. Each potential purchaser of the 2031 Notes should determine for itself the relevance of the information contained in this offering circular regarding the use of proceeds and its purchase of the 2031 Notes should be based upon such investigation as it deems necessary.

Risks Relating to Forward-Looking Statements

This Offering Circular contains forward-looking statements. The Company cautions you not to rely on the forward-looking statements, which speak only as of the date of this Offering Circular.

In addition to the risks related to the Company's business discussed above, other factors could cause actual results to differ materially from those described in the various forward-looking statements contained in this Offering Circular, including the statements relating to the Company's capital expenditure plans and its use of proceeds from the offering. These factors include, but are not limited to, the following:

- general economic, business and political conditions;
- fluctuations in prices of raw materials;
- adverse trends in regulatory, legislative and judicial developments;
- changes in interest rates and currency exchange rates;
- trends in the global semiconductor industry;
- factors affecting future profitability;
- seasonality;
- the Company's leverage and its ability to meet its debt obligations; and
- conditions in the Korean and the global financial markets.

By their nature, certain disclosures relating to these and other risks are only estimates and should one or more of these uncertainties or risks materialize, actual results may vary materially from those estimated, anticipated or projected, as well as from historical results. Specifically but without limitation, revenues could decrease, costs (including capital costs) could increase, investments could be delayed and anticipated improvements in performance might not be fully realized.

The Company cautions you not to rely on the forward-looking statements, which speak only as of the date of this Offering Circular. Except as required by law, the Company is not under any obligation, and expressly disclaims any obligation, to update or alter any forward-looking statements, whether as a result of new information, future events or otherwise. All subsequent forward-looking statements attributable to the Company or any person acting on the Company's behalf are expressly qualified in their entirety by the cautionary statements contained or referred to in this section.

USE OF PROCEEDS

The net proceeds from the sale of the 2024 Notes are estimated to be US$496,530,000, the net proceeds from the sale of the 2026 Notes are estimated to be US$993,610,000, and the net proceeds from the sale of the 2031 Notes are estimated to be US$984,880,000, in each case, after deduction of underwriting commissions but not estimated offering expenses.

The net proceeds from the 2024 Notes and the 2026 Notes will be used principally for general corporate purposes, including repayment of outstanding borrowings and capital expenditures.

The net proceeds from the 2031 Notes ("Green Bond Proceeds") will be allocated toward the financing or refinancing, in whole or in part, of new or existing projects related to (i) sustainable water and wastewater management, (ii) energy efficiency, (iii) pollution prevention and control and (iv) terrestrial and aquatic biodiversity conservation ("Eligible Projects") in accordance with the SK hynix Green Financing Framework, which is in alignment with the Green Bond Principles 2018 published by the International Capital Markets Association. Under such principles published by the International Capital Markets Association, only the notes allocated exclusively to financing or refinancing "green eligible categories" may be designated as "green bonds."

Examples of Eligible Projects include the following:

- sustainable water and wastewater management: construction, installation, operation or maintenance of projects and assets that materially reduce the amount of water consumed or wasted and allow for greater water volumes to be efficiency treated, including regional waterworks, wastewater treatment facilities and plants, wastewater reduction trickling filters and cooling tower drain water recycling systems;
- energy efficiency: research, development, construction, installation, operation or maintenance of projects and assets that materially reduce the amount of energy consumed and improve energy efficiency, including light-emitting diode lighting for office and machine rooms, low-power SSDs, booster pumps in cooling tower pipes and heat exchange systems in cooling towers;
- pollution prevention and control: construction, installation, operation or maintenance of projects and assets that materially reduce emissions and waste created from the Company's operations, including environment analysis system, automatic water quality measurement equipment and nitrogen oxide reduction infrastructure; and
- terrestrial and aquatic biodiversity conservation: construction, installation, operation or maintenance of projects and assets that materially enhance the well-being of local terrestrial and aquatic biodiversity as well as aid in long term conservation of such biodiversity, including the construction and ongoing maintenance of an ecological park and wetland.

Project Evaluation and Selection Process

Under the Company's project evaluation and selection process, Eligible Projects will be identified and assessed using the criteria indicated above by an internal environmental, social and corporate governance ("ESG") working group, which is composed of the Company's finance management organization, ESG-related departments and environment-related departments. The ESG working group will review and select potential Eligible Projects.

Management of Proceeds

The Green Bond Proceeds will be deposited into the Company's general funding accounts and will be earmarked for allocation to Eligible Projects. The allocation of the Green Bond Proceeds will be recorded and monitored by the Company's Green Financing Register.

Any balance of the Green Bond Proceeds not yet allocated to Eligible Projects will be managed in accordance with the Company's treasury policy and may be invested in cash, cash equivalents or other liquid marketable instruments until allocation to Eligible Projects.

Reporting

The Company will publish a Green Financing Report within one year from the date of issuance of the 2031 Notes and annually thereafter until the Green Bond Proceeds have been fully allocated. Such reports will include allocation information, such as the amounts allocated to respective Eligible Projects, qualitative descriptions of such Eligible Projects and the remaining balance of unallocated proceeds. Impact reporting will be disclosed where practical and feasible and will include relevant impact metrics for the Eligible Projects.

Vigeo Eiris, an external consultant, has issued a Second Party Opinion. Such opinion and the SK hynix Green Financing Framework are publicly available on the following website: https://www.skhynix.com/eng/ir/greenFinancing.jsp.

EXCHANGE RATE INFORMATION

The table below sets forth, for the periods and dates indicated, information concerning the Market Average Exchange Rate, announced by Seoul Money Brokerage Services, Ltd., between Won and U.S. dollars and rounded to the nearest tenth of one Won. No representation is made that the Won or U.S. dollar amounts referred to herein could have been or could be converted into U.S. dollars or Won, as the case may be, at any particular rate or at all.

Period	At End of Period	Average Rate[1]	High	Low
	(Won per US$1.00)			
2016	₩1,208.5	₩1,160.5	₩1,240.9	₩1,093.2
2017	1,071.4	1,130.8	1,208.5	1,071.4
2018	1,118.1	1,100.3	1,142.5	1,057.6
2019	1,157.8	1,165.7	1,218.9	1,111.6
2020	1,088.0	1,180.1	1,280.1	1,082.7
July	1,191.4	1,198.9	1,206.4	1,191.4
August	1,185.1	1,186.9	1,193.7	1,182.3
September	1,173.5	1,178.8	1,190.2	1,160.6
October	1,133.4	1,144.7	1,169.5	1,127.6
November	1,104.4	1,116.8	1,136.5	1,104.4
December	1,088.0	1,095.1	1,108.9	1,082.7
2021 (through January 12)	1,097.8	1,089.1	1,097.8	1,083.1
January (through January 12)	1,097.8	1,089.1	1,097.8	1,083.1

Source: Seoul Money Brokerage Services, Ltd.

(1) The average rate for each period is calculated as the average of the Market Average Exchange Rates on each business day during the relevant period (or portion thereof).

CAPITALIZATION

The following table sets forth the Company's capitalization as of September 30, 2020 (1) as derived from the Interim Financial Statements included in this Offering Circular and (2) as adjusted to give effect to the issuance of the Notes offered hereby, after deducting the underwriting commission but not estimated offering expenses payable by the Company, and on the assumption that the proceeds from the issuance of the Notes will not be used for the immediate repayment of outstanding borrowings. For additional information, see "Summary Financial Data" and the unaudited condensed consolidated interim financial statements of the Company and the notes thereto included elsewhere in this Offering Circular.

	As of September 30, 2020	
	Actual	**As Adjusted**
	(in billions of Won)	
Long-term debt:		
Borrowings	₩ 8,109	₩ 8,109
Notes offered hereby[1]	—	2,904
Total long-term debt	8,109	11,013
Equity:		
Equity attributable to owners of the parent company		
Capital stock	3,658	3,658
Capital surplus	4,144	4,144
Other equity	(2,504)	(2,504)
Accumulated other comprehensive loss	(40)	(40)
Retained earnings	45,221	45,221
Total equity attributable to owners of the parent company	50,479	50,479
Non-controlling interest	20	20
Total equity	50,499	50,499
Total capitalization	58,608	61,512

(1) Translated into Won at ₩1,173.5 to US$1.00, the Market Average Exchange Rate in effect on September 30, 2020.

Except for the Company's incurrence of ₩627 billion of additional long-term borrowings (net of repayments) in October and November 2020, there has been no material change in the Company's total capitalization since September 30, 2020.

SELECTED FINANCIAL INFORMATION

The following tables present selected financial and other information of the Company. The selected financial information as of December 31, 2018 and 2019 and for the years ended December 31, 2017, 2018 and 2019 are derived 2018 Annual Financial Statements and 2019 Annual Financial Statements of the Company included elsewhere in this Offering Circular, which have been prepared in accordance with K-IFRS. The selected financial information presented as of September 30, 2020 and for the nine months ended September 30, 2019 and 2020 are derived from the Interim Financial Statements of the Company included elsewhere in this Offering Circular, which have been prepared in accordance with K-IFRS No. 1034 "*Interim Financial Reporting*."

The Company's results of operations for the nine months ended September 30, 2020 may not be indicative of its result of operations for any future interim period or for the full year 2020.

Consolidated Statements of Comprehensive Income Data

	For the Year Ended December 31,			For the Nine Months Ended September 30,	
	2017	2018	2019	2019	2020
			(In billions of Won)		
Revenue	₩ 30,109	₩ 40,445	₩ 26,991	₩ 20,064	₩ 23,934
Cost of sales	12,702	15,181	18,825	13,551	15,555
Gross Profit	17,408	25,264	8,165	6,513	8,380
Selling and administrative expenses	3,686	4,420	5,453	4,036	4,333
Operating profit	13,721	20,844	2,713	2,477	4,047
Finance income	996	1,692	1,248	1,305	1,139
Finance expenses	1,250	1,142	1,515	1,114	1,130
Share of profit of equity-accounted investees	12	13	23	15	13
Other income	78	113	88	81	62
Other expenses	119	178	114	88	126
Profit before income tax	13,440	21,341	2,443	2,676	4,004
Income tax expense	2,797	5,801	426	541	1,013
Profit for the period	10,642	15,540	2,016	2,135	2,991

Consolidated Statements of Financial Position Data

	As of December 31,				As of September 30,
	2018		2019		2020
			(In billions of Won)		
Assets					
Current assets:					
Cash and cash equivalents	₩ 2,349		₩ 2,306		₩ 2,807
Short-term financial instruments	524		298		452
Short-term investment assets	5,496		1,390		1,497
Trade receivables, net	6,320		4,262		5,476
Inventories, net	4,423		5,296		6,151
Other current assets	782		905		654
Total current assets	19,894		14,458		17,036
Non-current assets:					
Investments in associates and joint ventures	₩ 562		₩ 769		₩ 1,279
Long-term trade receivables, net	—		45		—
Long-term investment assets	4,326		4,382		4,630
Loans and other receivables, net	69		109		70
Property, plant and equipment, net	34,953		39,950		40,712
Intangible assets, net	2,679		2,571		3,502
Right-of-use assets, net	—		1,251		1,289
Deferred tax assets	544		671		681
Other non-current assets	633		585		68
Total non-current assets	43,764		50,332		52,231
Total assets	63,658		64,789		69,267
Liabilities					
Current liabilities:					
Trade payables	₩ 1,096		₩ 1,043		₩ 1,014
Other payables	3,682		2,368		1,927
Other non-trade payables	1,880		1,258		1,392
Borrowings	1,614		2,738		3,594
Current tax liabilities	4,556		89		520
Lease liabilities	—		205		215
Other current liabilities	204		174		190
Total current liabilities	13,032		7,874		8,852
Non-current liabilities:					
Long-term other payables	₩ —		₩ —		₩ 312
Other non-trade payables	15		18		8
Borrowings	3,668		7,786		8,109
Defined benefit liabilities, net	5		54		278
Deferred tax liabilities	7		16		61
Lease liabilities	—		996		1,027
Other financial liabilities	—		16		31
Other non-current liabilities	79		88		90
Total non-current liabilities	3,774		8,972		9,916
Total liabilities	16,806		16,846		18,768
Equity					
Equity attributable to owners of the parent company:					
Capital stock	₩ 3,658		₩ 3,658		₩ 3,658
Capital surplus	4,144		4,144		4,144
Other equity	(2,506)		(2,505)		(2,504)
Accumulated other comprehensive loss	(483)		(299)		(40)
Retained earnings	42,034		42,931		45,221
	46,846		47,928		50,479
Non-controlling interests	7		15		20
Total equity	46,852		47,943		50,499
Total liabilities and equity	63,658		64,789		69,267

Other Financial Data

	For the Year Ended December 31,			For the Nine Months Ended September 30,	
	2017	2018	2019	2019	2020
	(In billions of Won)				
Capital expenditures(1)	₩ 9,128	₩ 16,036	₩ 13,920	₩ 11,389	₩ 7,539
Net cash inflow from operating activities	14,691	22,227	6,483	3,900	9,053
Net cash outflow from investing activities	(11,919)	(21,429)	(10,451)	(8,031)	(8,861)
Net cash inflow (outflow) from financing activities	(352)	(1,395)	3,903	2,953	301
Adjusted EBITDA(2)	18,747	27,272	11,266	8,785	11,227

(1) Capital expenditures represent cash outflows for acquisition of property, plant and equipment.

(2) "Adjusted EBITDA" for a given period is defined as operating profit for such period under K-IFRS, excluding depreciation and others. Adjusted EBITDA is not a measure defined under K-IFRS and should not be construed as an alternative to operating profit, cash flows from operating activities or profit for the period, as determined under K-IFRS; however, Adjusted EBITDA is a widely used financial indicator of a company's ability to incur and service debt. Adjusted EBITDA should not be considered in isolation or construed as an alternative to cash flows, profit for the period or any other measure of performance or as an indicator of the Company's operating performance, liquidity, profitability or cash flows generated by operating, investing or financing activities. Adjusted EBITDA is presented herein because the Company believes Adjusted EBITDA is a useful supplement to cash flows data as a measure of its performance and its ability to generate cash flows from operations to cover debt service and taxes. The Company's Adjusted EBITDA presented herein may not be comparable to similarly titled measures presented by other companies. Investors should not compare the Company's Adjusted EBITDA to the Adjusted EBITDA presented by other companies because not all companies use the same definition of Adjusted EBITDA.

A reconciliation of the Company's operating profit to Adjusted EBITDA is as follows:

	For the Year Ended December 31,			For the Nine Months Ended September 30,	
	2017	2018	2019	2019	2020
	(In billions of Won)				
Operating profit	₩ 13,721	₩ 20,844	₩ 2,713	₩ 2,477	₩ 4,047
Depreciation and others (1)	5,026	6,428	8,553	6,308	7,180
Adjusted EBITDA	18,747	27,272	11,266	8,785	11,227

(1) "Depreciation and others" consist of depreciation of property, plant and equipment, depreciation of investment property and amortization. Depreciation and others for the year ended December 31, 2019 and the nine months ended September 30, 2019 and 2020 also include the depreciation of right-of-use assets.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis should be read in conjunction with, and is qualified in its entirety by reference to, the Company's financial statements included elsewhere in this Offering Circular. The Company's financial information appearing below is derived from the Company's financial statements prepared in accordance with K-IFRS. K-IFRS differs in certain significant respects from generally accepted accounting principles in other countries, including the United States. The discussion contains forward-looking statements and reflects the Company's current view with respect to future events and financial performance. Actual results may differ materially from those anticipated in these forward-looking statements as a result of certain factors such as those set forth under "Risk Factors" and elsewhere in this Offering Circular.

Overview

The Company is one of the world's largest memory semiconductor companies and engages in the design, manufacture and sale of advanced memory semiconductors. The Company's memory products, consisting of both DRAM and NAND flash memory products, can be used in virtually all electronic devices, including PCs, servers, graphic cards, mobile devices such as smartphones and tablets, and other consumer electronics products. The Company has also expanded its product portfolio into non-memory semiconductors, including CMOS image sensors that are used to perform the role of electronic film in digital photographing devices such as smartphones, tablets, PC laptops and surveillance cameras, as well as engaging in the foundry business through SK hynix system ic, a wholly-owned subsidiary.

The Company sells a wide variety of DRAM and NAND flash memory products with various configuration options, architectures and performance characteristics tailored to meet application- and customer-specific needs. The Company believes that it is one of the world's leading companies in developing DRAM with advanced specifications, particularly those relating to higher density, faster data-processing speed and lower power consumption. The Company is continually developing higher-density modules, SSDs and other customized DRAM and NAND flash memory products that are optimized for use in specific applications. The Company believes that offering customized products provides opportunities to mitigate the negative effects of the cyclicality of the memory products market, and its customized products typically command higher prices than commodity DRAM typically used in PCs because of their superior performance and specifically tailored characteristics.

The Company owns and operates fabs in Icheon and Cheongju, Korea and Wuxi, China. The Company also owns and operates assembly and testing facilities for back-end processing of its products in Icheon and Cheongju, Korea and Chongqing, China. As part of the Company's efforts to reduce unit manufacturing costs, improve manufacturing yields and enhance its profitability, the Company periodically phases out the operations of its older fabs as well as upgrading them to new fabs that implement more advanced processing technologies. In addition to regular maintenance and enhancement of existing fabs, the Company completed its initial preparations to commence manufacturing operations of its M16 fab in Icheon, Korea starting in 2021, subject to market conditions. As part of its efforts to ensure its long-term competitiveness, the Company has also announced initiatives to construct an integrated industrial complex in Yongin, Korea for its next generation of fabs and research and development facilities. The Company currently plans to start construction of its first fab in the Yongin complex in 2022.

In order to maintain its technological leadership, as well as to access new markets for its products, the Company engages in strategic initiatives, including entering into joint ventures and joint product development and supply agreements. From time to time, the Company may also acquire equity stakes in other industry players to further strengthen its business relationships as well as acquire complementary businesses that further strengthen the Company's leading position in the industry. On October 20, 2020, the Company announced its agreement to acquire the NAND flash memory and storage business of Intel, which includes the NAND SSD business and the NAND component and wafer business as well as the Dalian Manufacturing Facility, for approximately US$9 billion. The acquisition is subject to governmental approvals, which the Company will endeavor to obtain by late 2021, as well as other customary closing conditions and customary termination fees, which may be significant, if the transaction is terminated under certain specified circumstances. See "Business — Strategic Alliances, Investments and Acquisitions."

Factors Affecting the Company's Results of Operations and Financial Condition

The results of operations and financial condition of the Company, including its operating profit and corresponding changes in its operating profit as a percentage of total revenue (or operating profit margin), have been and will continue to be materially affected by a number of factors and developments, some of which are outside of the Company's control, including:

- cyclical and volatile market conditions of the semiconductor industry;
- fluctuation in exchange rates of major foreign currencies;
- the level of, and returns on, the Company's capital expenditures and production capacity expansion;
- changes in the Company's product mix reflecting rapidly evolving customer preferences and advancements in technology;
- the level of, and returns on, the Company's investment in its research and development activities; and
- the Company's ability to pursue additional operational cost savings.

Cyclical and Volatile Market Conditions of the Semiconductor Industry

The Company's business is affected by market conditions in the highly cyclical memory semiconductor industry. The industry's cyclicality results primarily from fluctuations in demand for the end products that use memory semiconductors, particularly from the information and technology industry and the consumer electronics industry, which are sensitive to general conditions in the global economy, as well as fluctuations in the manufacturing capacity available to produce memory semiconductors. Uncertainties in the global economy have increased in recent years, with global financial and capital markets experiencing substantial volatility. In particular, the ongoing COVID-19 pandemic has materially and adversely affected the global economy and financial markets in 2020. See "Risk Factors – The ongoing global COVID-19 pandemic and any possible recurrence of other types of widespread infectious diseases could materially adversely affect the Company's business, results of operations or financial condition." Such uncertainties have also been caused by, and continue to be exacerbated by, among other things, deterioration in economic and trade relations between major economies (particularly between the United States and China), the slowdown of economic growth in China and other major emerging market economies, adverse economic and political conditions in Europe and Latin America and continuing geopolitical and social instability in various parts of the Middle East, as well as the lack of clarity regarding the timing and method of the United Kingdom's exit from the European Union. An actual or anticipated improvement or deterioration in economic conditions in any of the Company's major markets may affect customer confidence and spending, resulting in a corresponding fluctuation in consumption that may impact the level of demand for the Company's products and prices at which they can be sold.

The long lead times for new facilities to become operational have in some cases resulted in significant increases in the industry's production capacity coinciding with weakening demand, resulting in global oversupply of products and declining prices. Demand growth expectations in the end markets that use memory semiconductors have typically been accompanied by increased capital investment by manufacturers. In addition, semiconductor manufacturers worldwide have migrated to finer line-width process and advanced stacking technologies, which have increased the number of bits produced per wafer. These capital investments and adoption of new technologies may result in increases in the supply of memory semiconductors that are not matched by commensurate growth in demand in the end markets for such products. From time to time, the memory semiconductor industry has experienced significant and sometimes prolonged periods of oversupply and weak prices. As a result of such fluctuations in global demand as well as in the manufacturing capacity available to produce memory semiconductors, the Company's results of operations may be volatile from period to period.

Fluctuation in Exchange Rates of Major Foreign Currencies

The Company's consolidated financial statements are prepared from the local currency denominated financial results, assets and liabilities of the Company and its subsidiaries around the world, which are then translated into Won. To the extent that the Company incurs costs in one currency and makes sales in another, its profit margins may be affected by changes in the exchange rates between the two currencies. In particular, the Company's investments in manufacturing facilities in China has increased the proportion of its expenses that are incurred in RMB, while the Company's sales in China are denominated in U.S. dollars. Accordingly, an unhedged increase in the value of the RMB would increase the Company's construction and manufacturing costs and adversely impact its profitability. Changes in exchange rates can also affect the Won value of sales proceeds and operating and non-operating costs that are denominated in foreign currencies. The Company is unable to increase the prices of its products to adjust fully for the negative effects of exchange rate movements because prices in the memory semiconductor industry are dictated by worldwide supply and demand. In addition, exchange rate fluctuations can affect the Won value of the Company's equity investments and monetary assets and liabilities denominated in foreign currencies. See "Exchange Rate Information" and "Risk Factors – Fluctuations in exchange rates may result in foreign exchange losses."

There has been considerable volatility in exchange rates in recent years, including exchange rates between the Won and the U.S. dollar. Appreciation of the Won may materially and adversely affect the Company's results of operations because, among other things, it reduces the Won value of the Company's export sales, which are primarily denominated in U.S. dollars, as well as causing the Company's export products to be less competitive by raising their prices in U.S. dollar terms. On the other hand, the depreciation of the Won would create foreign exchange translation losses and increase the amount, in Won terms, of interest and principal of the Company's foreign currency-denominated debt, as well as increase in Won terms the cost of raw materials and equipment that the Company purchases from overseas sources. Under the Company's current operating and capital structure, appreciation of the Won generally has a net negative impact on the Company's operating income. Although the impact of exchange rate fluctuations has in the past been partially mitigated by hedging strategies, the Company's results of operations have historically been affected by exchange rate fluctuations. See "— Market Risks — Foreign Exchange Risk" for a sensitivity analysis on the Company's foreign currency exposure from foreign exchange rate change against the Korean Won.

Level of the Company's Capital Expenditures and Production Capacity Expansion

The Company makes substantial capital expenditures annually to support its business goals and objectives, and it plans to continue to invest in enhancing and expanding its production facilities and upgrading its equipment and manufacturing processes. The Company operates in an especially capital-intensive industry that requires continual investments for capacity expansions, equipment upgrades and migration to advanced technologies and manufacturing processes. The Company's cash outflows for acquisition of property, plant and equipment amounted to ₩9,128 billion in 2017, ₩16,036 billion in 2018, ₩13,920 billion in 2019 and ₩7,539 billion in the first nine months of 2020. The Company's capital expenditures in 2020 were lower than in 2019, and the Company currently expects its capital expenditures in 2021 to be comparable to those in 2020. As part of its efforts to ensure its long-term competitiveness, the Company has also announced initiatives to construct an integrated industrial complex in Yongin, Korea for its next generation of fabs and research and development facilities. The Company currently plans to start construction of its first fab in the Yongin complex in 2022. On October 20, 2020, the Company also announced its agreement to acquire the NAND flash memory and storage business of Intel, which includes the NAND SSD business and the NAND component and wafer business as well as the Dalian Manufacturing Facility, for approximately US$9 billion. The acquisition is subject to governmental approvals, which the Company will endeavor to obtain by late 2021, as well as other customary closing conditions and customary termination fees, which may be significant, if the transaction is terminated under certain specified circumstances. Following such approvals, the Company will acquire the NAND SSD business (including NAND SSD-related intellectual property and employees), as well as the Dalian Manufacturing Facility, upon completion of its first payment of approximately US$7 billion. Subsequently, the Company will acquire the remaining assets, including the intellectual property related to the manufacture and design of NAND flash wafers, research and development employees, and the workforce at the Dalian Manufacturing Facility, upon completion of the second closing. The second closing is expected to occur in March 2025 upon the remaining payment of approximately US$2 billion. The Company plans to finance the Intel NAND Business Acquisition through cash and borrowings, as well as consider other financing options. See "Business – Strategic Alliances, Investments and Acquisitions."

The Company plans to continue to invest in enhancing and expanding its production facilities and upgrade its equipment and manufacturing processes in order to increase its production capacity, achieve additional economies of scale and enable production of new products. The Company expects that increases in production capacity will have a significant effect on its financial condition and results of operations by enabling it to lower its per unit manufacturing costs. In addition, the Company expects that its continued efforts to enhance the efficiency and technical capacities of each successive fab it builds will also have a significant effect on its financial condition and results of operations. The Company periodically adjusts its capital expenditure plans on an on-going basis subject to market demand for the Company's products, the production outlook of the global memory semiconductor industry as well as global economic conditions in general. The Company may delay or not implement some of its announced capital expenditure plans based on its assessment of such market conditions. Production capacity expansion would increase depreciation and amortization expenses as well as financing costs related to capital expenditures. The level of capital expenditures made by the Company, as well as the returns the Company is able to achieve on its capital expenditure investments, will affect the Company's financial condition and results of operations.

Changes in the Company's Product Mix

The Company's operating results depend greatly on the Company's ability to anticipate and respond to emerging customer preferences and demands by ensuring continuing and timely development of new, as well as enhancements to existing, products and stimulate customer demand for new and upgraded products. The Company sells a wide variety of DRAM and NAND flash memory products with various configuration options, architectures and performance characteristics tailored to meet application- and customer-specific needs. The Company believes that it is one of the world's leading companies in developing DRAM with advanced specifications, particularly those relating to higher density, faster data-processing speed and lower power consumption. The Company is continually developing higher-density modules, SSDs and other customized DRAM and NAND flash memory products that are optimized for use in specific applications. The Company believes that offering customized products provides opportunities to mitigate the negative effects of the cyclicality of the memory products market, and its customized products typically command higher prices than commodity DRAM typically used in PCs because of their superior performance and specifically tailored characteristics.

As part of the Company's efforts to further strengthen its product portfolio, the Company announced the Intel NAND Business Acquisition on October 20, 2020, through which it aims to enhance the competitiveness of its storage solution (including enterprise SSDs) capabilities in the rapidly growing NAND flash memory market. The Company plans to utilize Intel's industry-leading NAND SSD and quadruple level cell NAND flash memory technology and manufacturing capability to offer a portfolio of further advanced 3D NAND flash memory solutions, particularly high-end enterprise SSDs. See "Business – Strategic Alliances, Investments and Acquisitions."

As part of its overall strategy, the Company has been striving to diversify its business to areas other than DRAM and NAND flash memory semiconductors in recent years. The Company has expanded its product portfolio into non-memory semiconductors, including CMOS image sensors that are used to perform the role of electronic film in digital photographing devices such as smartphones, tablets, PC laptops and surveillance cameras, as well as engaging in the foundry business through SK hynix system ic, a wholly-owned subsidiary. From time to time, the Company adjusts its manufacturing facilities in order to execute changes in the Company's product mix. For example, in the second half of 2019, the Company began gradual conversion of DRAM production lines in its M10 fab in Icheon, Korea in order to increase production of CMOS image sensors in response to an increase in demand for such products. Changes in the Company's product mix will affect the Company's financial condition and results of operations.

Investment Levels in Research and Development Activities

The Company competes in highly competitive global markets characterized by rapidly changing technologies, evolving industry standards and continual improvements in manufacturing processes and product performance features, which result in short product cycles, frequent introduction of new products and price erosion of existing products. The Company believes that continued and timely development of new technologies and products and enhancements to existing products and manufacturing processes are critical to maintaining and improving the Company's competitive position. Accordingly, the Company has made, and will continue to make, significant investments in research and development relating to new technologies and products. The Company incurred expenditures on research and development of ₩2,487 billion in 2017, ₩2,895 billion in 2018, ₩3,189 billion in 2019 and ₩2,546 billion in the first nine months of 2020 (including capitalized development costs of ₩512 billion in 2017, ₩611 billion in 2018, ₩333 billion in 2019 and ₩175 billion in the first nine months of 2020). The amount that the Company spends on its research and development activities, as well as the returns the Company is able to achieve on such investments through successful development of next-generation technologies, will affect the Company's financial condition and results of operations.

The Company's Ability to Pursue Additional Operational Cost Savings

The average selling prices of the Company's DRAM and NAND flash memory products have generally been impacted by global market supply and demand dynamics. The market for the Company's products are highly competitive, and the Company faces intense global competition. The Company's competitors have used aggressive pricing and marketing strategies in order to maintain or gain market share. Accordingly, the success of the Company's business depends, in part, on the Company's continual reduction of manufacturing costs and operating expenses. The Company continually engages in various cost-saving and other initiatives intended to reduce costs and increase productivity, including refinement of its manufacturing processes to increase production yields and reduce production cycle time. The Company's results of operations and profitability will continue to be affected by its ability to improve productivity and enhance the cost efficiency of its operations.

Critical Accounting Policies

The preparation of the Company's financial statements requires the Company to make difficult, complex and subjective judgments in making the appropriate estimates and assumptions that affect the amounts reported in its financial statements. By their nature, these judgments are subject to an inherent degree of uncertainty. These judgments are based on the Company's historical experience, terms of existing contracts, its observation of trends in the relevant industry, information provided by its customers and information available from other outside sources, as appropriate. While the Company believes its estimates and judgments are reasonable under the circumstances in which they were made, there can be no assurance that the Company's judgments will prove to be correct or that actual results reported in future periods will not differ from the Company's expectations reflected in its accounting treatment of certain items. See Note 2(3)(b) of Notes to 2019 Annual Financial Statements for the Company's critical accounting policies that apply assumptions and estimates that have a significant risk of resulting in a material adjustment.

Net Realizable Value of Inventories

The Company competes in the highly competitive global semiconductor industry which is characterized by short product cycles, frequent introduction of new products and price erosion of existing products. Inventories are reduced for the estimated losses arising from excess, obsolescence and decline in their value. This reduction is determined by estimating their market value based on future customer demand, which inherently requires judgments and estimates, including both forecasted product demand and the pricing environment, which may be susceptible to significant changes. 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 Company's actual capacity at its production facilities. However, normal capacity is used for allocation of fixed production overheads if the Company's actual level of production is lower than its 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 is recognized as an expense in the period in which the write-down or loss occurs. The amount of any reversal of any writedown of inventories, arising from an increase in net realizable value, is recognized as a reduction in the amount of inventories recognized as an expense in the period in which the reversal occurs. The Company recognized inventory valuation allowance of ₩182 billion as of December 31, 2017, ₩378 billion as of December 31, 2018, ₩647 billion as of December 31, 2019 and ₩421 billion as of September 30, 2020.

Impairment of Development Costs and Goodwill

The Company's long-lived assets include intangible assets such as development costs and goodwill. Intangible assets are measured initially at cost and, subsequently, are carried at cost less accumulated amortization and 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 Company estimates the useful lives of these assets at the time it acquires the assets, and such estimates are made based on the management's knowledge of the useful lives of similar assets that have been used for the same useful lives, and taking into account anticipated technological or other applicable changes. 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. 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.

The Company's development projects for a new product proceeds from the process of review and planning phases (phases 0 to 4) to product design and mass production phases (phases 5 to 8). Expenditures incurred during phases 0 to 4 are recognized as expenses. The Company recognizes expenditures incurred after phase 4 related to the development of new technology as an intangible asset. Development expenditures are capitalized only if they can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and the Company intends to and has sufficient resources to complete development and to use or sell the asset. Subsequent expenditures are capitalized only when they increase the future economic benefits embodied in the specific asset. Costs associated with the Company's research activities and other development expenditures that did not meet the capitalization criteria were ₩1,975 billion in 2017, ₩2,284 billion in 2018, ₩2,856 billion in 2019 and ₩2,372 billion in the first nine months of 2020. Among costs associated with research activities and other development expenditures, the Company capitalized ₩512 billion in 2017, ₩611 billion in 2018, ₩333 billion in 2019 and ₩175 billion in the first nine months of 2020 as development costs. The Company recognized impairment loss in development costs of ₩4 billion in 2018 but did not recognize impairment loss in development costs in 2017, 2019 and the first nine months of 2020.

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. The Company performs goodwill impairment tests annually, and goodwill impairment tests for the interim periods are conducted when events or changes in circumstances indicate that the carrying value of goodwill may not be recoverable. For the purpose of impairment tests, goodwill is allocated to the cash-generating unit, which 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. As of December 31, 2018 and 2019, no impairment loss of goodwill was recognized since the recoverable amounts were higher than the carrying value of the cash-generating units as of such dates. As of September 30, 2020, no goodwill impairment tests were conducted for the first nine months of 2020 as there were no indicators that the carrying value of goodwill may not be recoverable. The Company may recognize additional goodwill upon completion of its proposed Intel NAND Business Acquisition announced on October 20, 2020. Once recognized, such goodwill will be subject to the impairment tests described above.

Recognition and Measurement of Provisions

Provisions are recognized when (i) the Company has a present legal or constructive obligation as a result of a past event, (ii) it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and (iii) 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 only when it is virtually certain that reimbursement will be received if the Company settles the obligation. The reimbursement is treated as a separate asset.

For provisions for warranty, the Company estimates the expected warranty costs based on historical results and accrues provisions for warranty. For provisions for legal claims, the Company recognizes provisions when the Company 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. For provisions for emission allowances, the Company recognizes estimated future payment for the number of emission certificates required to settle the Company'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. 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.

Measurement of Defined Benefit Obligations

Under the defined benefit plan, the Company 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 Company is exposed to a variety of actuarial assumption risks such as risk associated with expected years of service, interest risk and market (investment) risk. Any changes in these assumptions will impact the carrying amount of the defined benefit liability. Principal actuarial assumptions as of the indicated dates are as follows:

	As of December 31,			As of September 30,
	2017	2018	2019	2020
Discount rate for defined benefit obligations	3.81% to 4.35%	2.64% to 3.78%	1.92% to 3.47%	1.92% to 3.47%
Expected rate of salary increase	2.20% to 5.46%	2.70% to 5.83%	2.70% to 5.94%	2.70% to 5.94%

As of the end of the 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 Company 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 Company determines net interests on net defined benefit liability (asset) by multiplying the 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 Company recognizes gains or losses on a settlement of its defined benefit plan when the settlement occurs.

Recognition of Deferred Tax Assets

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 Company 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 Company is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. The Company 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 assets reflects the tax consequences that would follow from the manner in which the Company 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 expenses incurred with respect to dividend payments, such income tax expense is recognized when liabilities relating to the dividend payments are recognized. Recognition of deferred tax assets and liabilities reflects the Company’s best estimates and assumptions regarding, among other things, the level of future taxable income, interpretation of the tax laws and tax planning. Changes in tax laws, changes in projected levels of taxable income and tax planning could affect the deferred tax assets and liabilities recognized by the Company in the future.

Valuation of Short and Long-term Investment Assets

The Company holds short and long-term investment assets. On initial recognition, a financial asset is classified as measured at (i) amortized cost, (ii) fair value through other comprehensive income (“FVOCI”) - debt investment, (iii) FVOCI - equity investment, or (iv) fair value through profit or loss. 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 a change in the Company’s business model, all affected financial assets are reclassified on the first day of the first reporting period after the change in the business model.

The Company believes that determining the fair value of its investment assets, which apply for financial assets that are not measured at amortized cost, is a critical accounting policy because actual values are expected to fluctuate based on a variety of factors that are beyond the Company’s control. Significant management judgment is involved in the evaluation of fair value of investment assets. From time to time, the Company may make significant investments that require determination of their fair value. For example, as described in “Business – Strategic Alliances, Investments and Acquisitions,” the Company participated as a member of the Bain Consortium in its purchase of a controlling stake in Kioxia from Toshiba Corporation. As of September 30, 2020, the book value of the Company’s investment in SPC 1 was ₩2,938 billion, and the book value of the Company’s investment in the convertible bond issued by SPC 2 was ₩1,502 billion, which are accounted for as debt investments and classified as financial assets measured at fair value through profit or loss.

The fair values of financial instruments in connection with the investments in SPC1 and SPC2 are measured based on the equity value of Kioxia, an unlisted company, which involves significant judgment. The fair value of the equity investment in SPC1 is measured using the probability-weighted expected return method that represents the probability-weighted average of possible future cash flows. The fair values of different scenarios (such as an initial public offering, merger and acquisition or liquidation) are determined based on the equity value of Kioxia, calculated using either the market approach, option-pricing method or present value method. Kioxia's estimated equity value is allocated to shareholder's value of each class of shares depending on the capital structure of the investment. For such allocation, a waterfall approach is used, which allocates value based on the distribution priority described in the SPC1 investment agreement depending on the nature of liquidity transaction or an ultimate liquidation. The fair value of debt investment in the SPC2 convertible bond is measured based on Kioxia's equity value, using a binomial model. See Note 6(3)(b) of Notes to 2019 Annual Financial Statements for the valuation techniques and key inputs used in valuation of the equity investment in SPC1 and investment in the SPC2 convertible bond.

Results of Operations – First Nine Months of 2019 Compared to First Nine Months of 2020

The following table presents selected income statement data and changes therein for the first nine months of 2019 and the first nine months of 2020.

	For the Nine Months Ended September 30,		Changes 9M 2019 versus 9M 2020	
	2019	2020	Amount	%
	(In billions of Won)			
Revenue	₩ 20,064	₩ 23,934	₩ 3,871	19.3%
Cost of sales	13,551	15,555	2,004	14.8
Gross profit	6,513	8,380	1,867	28.7
Selling and administrative expenses	4,036	4,333	297	7.4
Operating profit	2,477	4,047	1,570	63.4
Finance income	1,305	1,139	(166)	(12.7)
Finance expenses	1,114	1,130	16	1.5
Share of profit of equity-accounted investees	15	13	(2)	(12.4)
Other income	81	62	(19)	(23.7)
Other expenses	88	126	38	43.7
Profit before income tax	2,676	4,004	1,328	49.6
Income tax expense	541	1,013	472	87.2
Profit for the period	2,135	2,991	857	40.1

Revenue

The following table presents a breakdown of the Company's revenue by principal product category and changes therein for the first nine months of 2019 and the first nine months of 2020.

	For the Nine Months Ended September 30,		Changes 9M 2019 versus 9M 2020	
	2019	2020	Amount	%
	(In billions of Won)			
DRAM	₩ 15,264	₩ 16,901	₩ 1,637	10.7%
NAND flash	3,724	5,687	1,964	52.7
Other products [(1)]	1,076	1,346	270	25.1
Total revenue	20,064	23,934	3,871	19.3

(1) Includes revenue from Happynarae Co., Ltd., CMOS image sensors and foundry products.

The Company's revenue increased by 19.3%, or ₩3,871 billion, from ₩20,064 billion in the first nine months of 2019 to ₩23,934 billion in the first nine months of 2020 primarily due to increases in revenue from NAND flash sales and DRAM sales and, to a lesser extent, other products. Specifically:

- Revenue from NAND flash sales increased by 52.7%, or ₩1,964 billion, from ₩3,724 billion in the first nine months of 2019 to ₩5,687 billion in the first nine months of 2020 primarily due to an increase in the shipment volume of NAND flash memory products, and to a much lesser extent, an increase in the average selling price of such products. In addition, depreciation of the Won against the U.S. dollar from the first nine months of 2019 to the first nine months of 2020 contributed to an increase in the Company's revenue from NAND flash sales in Won terms. The Company's overall NAND flash bit shipment increased by approximately 44% from the first nine months of 2019 to the first nine months of 2020, primarily driven by a recovery in demand for such products in the first nine months of 2020, particularly due to an increase in popularity of NAND flash memory-based SSDs as well as the increase of remote working arrangements during the COVID-19 pandemic, an increase in demand from manufacturers of mobile devices and game console manufacturers, and an increase in the purchase of NAND flash memory products by Huawei prior to the tightening of the selling restrictions by the BIS on September 15, 2020. See "Risk Factors – The Company sells a substantial portion of its products to a select group of key customers in the United States and China, and any significant decrease in their order levels will negatively affect the Company's business." Reflecting an increase in the proportion of high-end products that command higher prices (such as those used in SSDs), the Company's average selling price of NAND flash memory products on a U.S. dollar basis increased by approximately 3% from the first nine months of 2019 to the first nine months of 2020.

- Revenue from DRAM sales increased by 10.7%, or ₩1,637 billion, from ₩15,264 billion in the first nine months of 2019 to ₩16,901 billion in the first nine months of 2020 primarily due to an increase in the shipment volume of DRAM, which was partially offset by a decrease in the average selling price of such products. In addition, depreciation of the Won against the U.S. dollar from the first nine months of 2019 to the first nine months of 2020 contributed to an increase in the Company's revenue from DRAM sales in Won terms. The Company's overall DRAM bit shipment increased by approximately 27% from the first nine months of 2019 to the first nine months of 2020, primarily due to an increase in demand for

DRAM server and PC memory products following the increase of remote working arrangements during the COVID-19 pandemic, as well as an increase in the purchase of DRAMs by Huawei prior to the tightening of the selling restrictions by the BIS on September 15, 2020. On the other hand, although the average selling price of DRAM on a U.S. dollar basis showed signs of recovery in the first half of 2020 before decreasing in the third quarter of 2020, such average selling price decreased by approximately 16% from the first nine months of 2019 to the first nine months of 2020.

- Revenue from the Company's other products increased by 25.1%, or ₩270 billion, from ₩1,076 billion in the first nine months of 2019 to ₩1,346 billion in the first nine months of 2020, primarily due to the Company's efforts to expand its product portfolio into non-memory semiconductors, particularly CMOS image sensors. In response to excess capacity in the global memory semiconductor industry, the Company converted a DRAM production line in its M10 fab in Icheon, Korea to increase production of CMOS image sensors in the second half of 2019, which in turn led to an increase in the sales volume of such products in the first nine months of 2020.

Cost of Sales and Gross Profit

The Company's cost of sales increased by 14.8%, or ₩2,004 billion, from ₩13,551 billion in the first nine months of 2019 to ₩15,555 billion in the first nine months of 2020 primarily due to increases in (i) depreciation and amortization related to the Company's production facilities and (ii) expenses related to raw materials, supplies and consumables. Depreciation and amortization related to the Company's production facilities increased as a result of the addition of new facilities, and expenses related to raw materials, supplies and consumables increased primarily due to increases in shipment volumes of DRAM and NAND flash memory products.

The Company's gross profit increased by 28.7%, or ₩1,867 billion, from ₩6,513 billion in the first nine months of 2019 to ₩8,380 billion in the first nine months of 2020. The Company's gross profit margin increased from 32.5% in the first nine months of 2019 to 35.0% in the first nine months of 2020.

Selling and Administrative Expenses

The following table presents a breakdown of the Company's selling and administrative expenses (including research and development expenses) and changes therein for the first nine months of 2019 and the first nine months of 2020.

	For the Nine Months Ended September 30,		Changes 9M 2019 versus 9M 2020	
	2019	2020	Amount	%
	(In billions of Won)			
Selling and administrative expenses:				
Salaries	₩ 400	₩ 456	₩ 55	13.8%
Defined benefits plan	35	42	6	18.0
Employee benefits	103	113	10	10.0
Commission	334	237	(97)	(29.1)
Depreciation	150	182	32	21.7
Amortization	547	526	(21)	(3.8)
Freight and custody charges	29	37	8	28.0
Legal cost	26	16	(10)	(36.8)
Rentals	5	6	1	21.3
Taxes and dues	43	42	(1)	(1.7)
Training	33	45	11	34.6
Advertising	52	63	11	20.8
Utilities	9	10	1	15.9
Supplies	60	64	4	6.5
Repairs	23	18	(5)	(20.5)
Travel and transportation	12	4	(9)	(70.8)
Others	94	100	5	5.6
	1,956	1,961	5	0.2
Research and developments:				
Expenditure on research and developments	2,328	2,546	218	9.4
Development costs capitalized	(249)	(175)	74	(29.7)
	2,080	2,372	292	14.0
Total	4,036	4,333	297	7.4

The Company's selling and administrative expenses (including research and development expenses) increased by 7.4%, or ₩297 billion, from ₩4,036 billion in the first nine months of 2019 to ₩ 4,333 billion in the first nine months of 2020 primarily due to increases in research and development and salary expenses, which were partially offset by a decrease in commission expense. Specifically:

- Research and development expenses, after adjusting for capitalized development cost, increased by 14.0%, or ₩292 billion, from ₩2,080 billion in the first nine months of 2019 to ₩2,372 billion in the first nine months of 2020, reflecting an increase in the Company's research and development activities.

- Salary expense increased by 13.8%, or ₩55 billion, from ₩400 billion in the first nine months of 2019 to ₩456 billion in the first nine months of 2020 primarily due to an increase in accrued payments under employee profit-sharing arrangements as well as an increase in the salary level of the Company's administrative personnel.

- Commission expense decreased by 29.1%, or ₩97 billion, from ₩334 billion in the first nine months of 2019 to ₩237 billion in the first nine months of 2020 primarily due to the

Company's decision to recognize commissions related to lump-sum royalty payments as cost of sales (rather than selling and administrative expenses) starting on January 1, 2020.

The Company's selling and administrative expenses as a percentage of total revenue decreased from 20.1% in the first nine months of 2019 to 18.1% in the first nine months of 2020.

Operating Profit

Primarily due to the factors described above, the Company's operating profit increased by 63.4%, or ₩1,570 billion, from ₩2,477 billion in the first nine months of 2019 to ₩4,047 billion in the first nine months of 2020. The Company's operating profit margin increased from 12.3% in the first nine months of 2019 to 16.9% in the first nine months of 2020.

Finance Income and Expenses

The following table presents a breakdown of the Company's finance income and expenses and changes therein for the first nine months of 2019 and the first nine months of 2020.

	For the Nine Months Ended September 30,		Changes 9M 2019 versus 9M 2020	
	2019	2020	Amount	%
	(In billions of Won)			
Interest income	₩ 25	₩ 23	₩ (2)	(7.5)%
Dividend income	0	1	0	199.1
Foreign exchange differences [1]	1,224	1,091	(133)	(10.9)
Gain on valuation of short-term investment assets	4	2	(2)	(43.5)
Gain on disposal of short-term investment assets	51	23	(28)	(54.8)
Gain on disposal of long-term investment assets	0	—	(0)	(100.0)
Gain on valuation of financial liabilities at fair value through profit or loss	2	—	(2)	(100.0)
Total finance income	1,305	1,139	(166)	(12.7)
Interest expenses	₩ 171	₩ 182	₩ 11	6.2%
Foreign exchange differences	943	948	6	0.6
Loss on valuation of long-term investment assets	0	0	0	96.2
Total finance expenses	1,114	1,130	16	1.5

(1) For the nine months ended September 30, 2020, foreign exchange difference gain from long-term investment assets of ₩195 billion is included.

The Company's net finance income decreased by 95.2%, or ₩182 billion, from ₩191 billion in the first nine months of 2019 to ₩9 billion in the first nine months of 2020 primarily due to the following reasons:

- The Company's net gain on foreign exchange differences decreased by 49.4%, or ₩139 billion, from ₩282 billion in the first nine months of 2019 to ₩142 billion in the first nine months of 2020, as the Won depreciated against the U.S. dollar in the first nine months of 2019 and depreciated again in the first nine months of 2020. In terms of the market average exchange rate announced by Seoul Money Brokerage Services, Ltd., the Won depreciated from ₩1,118.1 to US$1.00 as of December 31, 2018 to ₩1,201.3 to US$1.00 as of September 30, 2019 and depreciated from ₩1,157.8 to US$1.00 as of December 31, 2019 to ₩1,173.5 to US$1.00 as of September 30, 2020.

- Interest expenses increased by 6.2%, or ₩11 billion, from ₩171 billion in the first nine months of 2019 to ₩182 billion in the first nine months of 2020 primarily reflecting an increase in the Company's borrowings, which was partially offset by a general decrease in interest rates from the first nine months of 2019 to the first nine months of 2020.

Share of Profit of Equity-accounted Investees

The Company's share of profit of equity-accounted investees decreased by 12.4%, or ₩2 billion, from ₩15 billion in the first nine months of 2019 to ₩13 billion in the first nine months of 2020 primarily due to the Company's recognition of its proportionate net income in Hystars Semiconductor (Wuxi) Co., Ltd. of ₩0.02 billion in the first nine months of 2019 compared to its proportionate net loss of ₩8 billion in the first nine months of 2020, which was offset in part by an increase in the Company's proportionate net income in HITECH Semiconductor (Wuxi) Co., Ltd. from ₩12 billion in the first nine months of 2019 to ₩16 billion in the first nine months of 2020.

Other Income and Expenses

The following table presents a breakdown of the Company's other income and expenses and changes therein for the first nine months of 2019 and the first nine months of 2020.

	For the Nine Months Ended September 30,		Changes 9M 2019 versus 9M 2020	
	2019	**2020**	**Amount**	**%**
	(In billions of Won)			
Gain on disposal of property, plant and equipment	₩ 24	₩ 19	₩ (6)	(23.6)%
Gain on disposal of intangible assets	—	0	0	N.A. (1)
Others	56	43	(14)	(24.0)
Total other income	81	62	(19)	(23.7)
Loss on disposal of property, plant and equipment	₩ 11	₩ 44	₩ 34	316.8%
Loss on disposal of intangible assets	7	4	(3)	(48.2)
Loss on impairments of intangible assets	0	0	(0)	(100.0)
Loss on disposal of trade receivables	6	5	(1)	(9.1)
Donation	43	57	14	31.9
Others	21	16	(5)	(24.3)
Total other expenses	88	126	38	43.7

(1) N.A. means not applicable.

The Company's loss on disposal of property, plant and equipment increased by 316.8%, or ₩34 billion, from ₩11 billion in the first nine months of 2019 to ₩44 billion in the first nine months of 2020. In the first nine months of 2019, the Company recognized loss on disposal of property, plant and equipment of ₩11 billion primarily from sale of idle equipment as well as disposal of obsolete equipment. In the first nine months of 2020, the Company recognized loss on disposal of property, plant and equipment of ₩44 billion primarily from expenses related to the cancellation of orders of certain production equipment.

Income Tax Expense

The Company's income tax expense increased by 87.2%, or ₩472 billion, from ₩541 billion in the first nine months of 2019 to ₩1,013 billion in the first nine months of 2020 primarily reflecting a

49.6% increase in profits before income tax, or ₩1,328 billion, from ₩2,676 billion in the first nine months of 2019 to ₩4,004 billion in the first nine months of 2020. The Company's effective tax rate increased from 20.2% in the first nine months of 2019 to 25.3% in the first nine months of 2020.

Profit for the Period

Primarily due to the factors described above, the Company's profit for the period increased by 40.1%, or ₩857 billion, from ₩2,135 billion in the first nine months of 2019 to ₩2,991 billion in the first nine months of 2020. The Company's net income margin increased from 10.6% in the first nine months of 2019 to 12.5% in the first nine months of 2020.

Results of Operations – 2018 Compared to 2019

The following table presents selected income statement data and changes therein for 2018 and 2019.

	For the Year Ended December 31,		Changes 2018 versus 2019	
	2018	2019	Amount	%
	(In billions of Won)			
Revenue	₩ 40,445	₩ 26,991	₩ (13,454)	(33.3)%
Cost of sales	15,181	18,825	3,644	24.0
Gross profit	25,264	8,165	(17,099)	(67.7)
Selling and administrative expenses	4,420	5,453	1,032	23.4
Operating profit	20,844	2,713	(18,131)	(87.0)
Finance income	1,692	1,248	(444)	(26.3)
Finance expenses	1,142	1,515	373	32.6
Share of profit of equity-accounted investees	13	23	10	74.0
Other income	113	88	(25)	(21.8)
Other expenses	178	114	(65)	(36.3)
Profit before income tax	21,341	2,443	(18,898)	(88.6)
Income tax expense	5,801	426	(5,375)	(92.7)
Profit for the year	15,540	2,016	(13,524)	(87.0)

Revenue

The following table presents a breakdown of the Company's revenue by principal product category and changes therein for 2018 and 2019.

	For the Year Ended December 31,		Changes 2018 versus 2019	
	2018	2019	Amount	%
	(In billions of Won)			
DRAM	₩ 32,371	₩ 20,293	₩ (12,078)	(37.3)%
NAND flash	7,421	5,140	(2,281)	(30.7)
Other products [1]	653	1,558	905	138.6
Total revenue	40,445	26,991	(13,454)	(33.3)

(1) Include revenue from CMOS image sensors, Happynarae Co., Ltd. (which became a consolidated subsidiary of the Company starting in December 2018) and foundry products.

The Company's revenue decreased by 33.3%, or ₩13,454 billion, from ₩40,445 billion in 2018 to ₩26,991 billion in 2019 primarily due to decreases in revenue from DRAM sales and, to a lesser extent, NAND flash sales, the aggregate impact of which was offset in small part by an increase in revenue from the Company's miscellaneous products. Specifically:

- Revenue from DRAM sales decreased by 37.3%, or ₩12,078 billion, from ₩32,371 billion in 2018 to ₩20,293 billion in 2019 primarily due to a significant decrease in the average selling price of DRAM, which was partially offset by (i) an increase in their shipment volume and (ii) depreciation of the Won against the U.S. dollar from 2018 to 2019 that had a positive impact on the Company's revenue from DRAM sales in Won terms. The average selling price of DRAM on a U.S. dollar basis decreased significantly by approximately 51% from 2018 to 2019, reflecting excess capacity in the memory semiconductor industry during weak global economic conditions. In particular, demand for (i) server memory products from data centers that provide cloud computing services and (ii) mobile memory products weakened from 2018 to 2019. The Company's overall DRAM bit shipment increased by approximately 21% from 2018 to 2019.

- Revenue from NAND flash sales decreased by 30.7%, or ₩2,281 billion, from ₩7,421 billion in 2018 to ₩5,140 billion in 2019 primarily due to a significant decrease in the average selling price of NAND flash memory products, which was partially offset by (i) an increase in their shipment volume and (ii) depreciation of the Won against the U.S. dollar from 2018 to 2019 that had a positive impact on the Company's revenue from NAND flash sales in Won terms. The average selling price of NAND flash memory products on a U.S. dollar basis decreased by approximately 56% from 2018 to 2019, reflecting excess capacity in the memory semiconductor industry during weak global economic conditions. In particular, demand for NAND flash memory products used in mobile phones weakened from 2018 to 2019. The Company's overall NAND flash bit shipment increased by approximately 49% from 2018 to 2019.

- Revenue from the Company's other products increased by 138.6%, or ₩905 billion, from ₩653 billion in 2018 to ₩1,558 billion in 2019, primarily due to the consolidation of external revenue of Happynarae Co., Ltd., which engages in the business of supplying miscellaneous items such as office supplies and equipment to member companies of the SK Group and other enterprises in Korea, starting in December 2018 as well as the Company's efforts to expand its product portfolio into non-memory semiconductors, particularly CMOS image sensors. In response to excess capacity in the global memory semiconductor industry, the Company converted a DRAM production line in its M10 fab in Icheon, Korea to increase production of CMOS image sensors in the second half of 2019, which in turn led to an increase in the sales volume of such products.

Cost of Sales and Gross Profit

The Company's cost of sales increased by 24.0%, or ₩3,644 billion, from ₩15,181 billion in 2018 to ₩18,825 billion in 2019 primarily due to increases in (i) depreciation and amortization related to the Company's production facilities and (ii) expenses related to raw materials, supplies and consumables. Depreciation and amortization related to the Company's production facilities increased as a result of the addition of new facilities, and expenses related to raw materials, supplies and consumables increased primarily due to an increase in shipment volume of DRAM and NAND flash memory products.

The Company's gross profit decreased by 67.7%, or ₩17,099 billion, from ₩25,264 billion in 2018 to ₩8,165 billion in 2019. The Company's gross profit margin decreased from 62.5% in 2018 to 30.3% in 2019.

Selling and Administrative Expenses

The following table presents a breakdown of the Company's selling and administrative expenses (including research and development expenses) and changes therein for 2018 and 2019.

	For the Year Ended December 31,		Changes 2018 versus 2019	
	2018	2019	Amount	%
	(In billions of Won)			
Selling and administrative expenses:				
Salaries	₩ 565	₩ 516	₩ (49)	(8.6)%
Defined benefit plan	27	35	7	27.5
Employee benefits	116	141	25	21.8
Commission	369	461	91	24.7
Depreciation	130	206	76	58.5
Amortization	442	687	245	55.4
Freight and custody charge	27	40	13	46.7
Legal cost	34	32	(2)	(6.9)
Rental	13	7	(6)	(47.9)
Taxes and dues	32	55	23	71.5
Training	33	43	11	32.4
Advertising	92	93	1	0.8
Utilities	12	12	1	5.1
Supplies	103	99	(4)	(4.2)
Repair	25	30	5	18.5
Travel and transportation	15	17	1	8.1
Sales promotion	65	68	4	5.6
Sales repair	6	21	15	237.7
Others	29	34	5	18.5
	2,136	2,597	461	21.6
Research and development:				
Expenditure on research and development	2,895	3,189	294	10.1
Development cost capitalized	(611)	(333)	278	(45.5)
	2,284	2,856	572	25.0
Total	4,420	5,453	1,032	23.4

The Company's selling and administrative expenses (including research and development expenses) increased by 23.4%, or ₩1,032 billion, from ₩4,420 billion in 2018 to ₩5,453 billion in 2019 primarily due to increases in research and development, amortization, commission and depreciation expenses, which were partially offset by a decrease in salaries. Specifically:

- Research and development expenses, after adjusting for capitalized development cost, increased by 25.0%, or ₩572 billion, from ₩2,284 billion in 2018 to ₩2,856 billion in 2019, reflecting an increase in the Company's research and development activities.

- Amortization expense increased by 55.4%, or ₩245 billion, from ₩442 billion in 2018 to ₩687 billion in 2019 primarily due to an increase in amortization of capitalized development costs related to DRAM and NAND flash production technologies.

- Commission expense increased by 24.7%, or ₩91 billion, from ₩369 billion in 2018 to ₩461 billion in 2019 primarily due to increases in commissions related to patent licenses and usage of the SK brand.

- Depreciation expense increased by 58.5%, or ₩76 billion, from ₩130 billion in 2018 to ₩206 billion in 2019 primarily due to an increase in investments in new equipment.

- Salaries decreased by 8.6%, or ₩49 billion, from ₩565 billion in 2018 to ₩516 billion in 2019 primarily due to a decrease in bonus payments related to the Company's results of operations.

The Company's selling and administrative expenses as a percentage of total revenue increased from 10.9% in 2018 to 20.2% in 2019.

Operating Profit

Primarily due to the factors described above, the Company's operating profit decreased by 87.0%, or ₩18,131 billion, from ₩20,844 billion in 2018 to ₩2,713 billion in 2019. The Company's operating profit margin decreased from 51.5% in 2018 to 10.1% in 2019.

Finance Income and Expenses

The following table presents a breakdown of the Company's finance income and expenses and changes therein for 2018 and 2019.

	For the Year Ended December 31,		Changes 2018 versus 2019	
	2018	2019	Amount	%
	(In billions of Won)			
Interest income	₩ 62	₩ 30	₩ (32)	(51.9)%
Dividend income	2	0	(2)	(79.9)
Foreign exchange differences	1,386	1,143	(243)	(17.5)
Gain on valuation of short-term investment assets	17	6	(11)	(65.3)
Gain on valuation of long-term investment assets	182	8	(174)	(95.5)
Gain on disposal of short-term investment assets	36	59	22	61.7
Gain on disposal of long-term investment assets	6	1	(4)	(77.9)
Total finance income	1,692	1,248	(444)	(26.3)
Interest expenses	₩ 95	₩ 239	₩ 144	152.0%
Foreign exchange differences	1,046	1,034	(12)	(1.2)
Loss on disposal of long-term investment assets	—	1	1	N.A. (1)
Loss on valuation of long-term investment assets	1	241	240	N.M. (2)
Total finance expenses	1,142	1,515	373	32.6

(1) N.A. means not applicable.
(2) N.M. means not meaningful.

The Company recognized net finance income of ₩550 billion in 2018 compared to net finance expenses of ₩267 billion in 2019, primarily due to the following reasons:

- The Company recognized net gain on valuation of long-term investment assets of ₩181 billion in 2018 compared to net loss on valuation of long-term investment assets of ₩233 billion in 2019. Such fluctuation in valuation of investment assets related primarily to the Company's participation as a member of the Bain Consortium in its purchase of a controlling stake in KIOXIA Holdings Corporation from Toshiba Corporation. See "Business – Strategic Alliances, Investments and Acquisitions" and Note 12 of Notes to 2019 Annual Financial Statements.

- The Company's net gain on foreign exchange differences decreased by 67.9%, or ₩231 billion, from ₩340 billion in 2018 to ₩109 billion in 2019, as the Won depreciated against the U.S. dollar in 2018 and further depreciated in 2019. In terms of the market average exchange rate announced by Seoul Money Brokerage Services, Ltd., the Won depreciated from ₩1,071.4 to US$1.00 as of December 31, 2017 to ₩1,118.1 to US$1.00 as of December 31, 2018 and further depreciated to ₩1,157.8 to US$1.00 as of December 31, 2019.

- Interest expenses increased by 152.0%, or ₩144 billion, from ₩95 billion in 2018 to ₩239 billion in 2019 primarily reflecting an increase in the Company's borrowings.

Share of Profit of Equity-accounted Investees

The Company's share of profit of equity-accounted investees increased by 74.0%, or ₩10 billion, from ₩13 billion in 2018 to ₩23 billion in 2019 primarily due to an increase in the Company's proportionate net income from its interests in SK South East Asia Investment Pte. Ltd. and HITECH Semiconductor (Wuxi) Co., Ltd.

Other Income and Expenses

The following table presents a breakdown of the Company's other income and expenses and changes therein for 2018 and 2019.

	For the Year Ended December 31,		Changes 2018 versus 2019	
	2018	2019	Amount	%
	(In billions of Won)			
Gain on disposal of property, plant and equipment	₩ 39	₩ 26	₩ (13)	(33.6)%
Others	73	62	(11)	(15.5)
Total other income	113	88	(25)	(21.8)
Loss on disposal of property, plant and equipment	₩ 60	₩ 12	₩ (48)	(80.7)%
Loss on disposal of intangible assets	6	8	2	38.3
Loss on disposal of trade receivables	9	9	(0)	(5.2)
Loss on impairment of intangible assets	4	0	(4)	(98.4)
Donation	62	60	(3)	(4.1)
Others	38	26	(11)	(30.1)
Total other expenses	178	114	(65)	(36.3)

The Company's loss on disposal of property, plant and equipment decreased by 80.7%, or ₩48 billion, from ₩60 billion in 2018 to ₩12 billion in 2019. In 2018, the Company recognized loss on disposal of property, plant and equipment of ₩60 billion primarily from the demolition of a building in the Icheon facility as well as the sale of a water treatment facility in Gumi and other idle equipment. In 2019, the Company recognized loss on disposal of property, plant and equipment of ₩12 billion primarily from sale of idle equipment as well as disposal of obsolete equipment.

Income Tax Expense

The Company's income tax expense decreased by 92.7%, or ₩5,375 billion, from ₩5,801 billion in 2018 to ₩426 billion in 2019 primarily reflecting an 88.6% decrease in profits before income tax, or ₩18,898 billion, from ₩21,341 billion in 2018 to ₩2,443 billion in 2019. In addition, the Company recognized a negative tax effect of ₩89 billion in 2018 related to change in unrecognized deferred tax assets, compared to a positive tax effect of ₩93 billion in 2019 related to such change. See Note 32 of Notes to 2019 Annual Financial Statements. The Company's effective tax rate decreased from 27.2% in 2018 to 17.5% in 2019 primarily as a result of a decrease in the effective tax rate by 4.2% points arising from change in unrecognized deferred tax assets and a decrease in the effective tax rate by 3.4% points arising from tax credits.

Profit for the Year

Primarily due to the factors described above, the Company's profit for the year decreased by 87.0%, or ₩13,524 billion, from ₩15,540 billion in 2018 to ₩2,016 billion in 2019. The Company's net income margin decreased from 38.4% in 2018 to 7.5% in 2019.

Results of Operations – 2017 Compared to 2018

The following table presents selected income statement data and changes therein for 2017 and 2018.

	For the Year Ended December 31,		Changes 2017 versus 2018	
	2017	2018	Amount	%
	(In billions of Won)			
Revenue	₩ 30,109	₩ 40,445	₩ 10,336	34.3%
Cost of sales	12,702	15,181	2,479	19.5
Gross profit	17,408	25,264	7,857	45.1
Selling and administrative expenses	3,686	4,420	734	19.9
Operating profit	13,721	20,844	7,122	51.9
Finance income	996	1,692	695	69.8
Finance expenses	1,250	1,142	(107)	(8.6)
Share of profit of equity-accounted investees	12	13	1	5.2
Other income	78	113	35	44.8
Other expenses	119	178	59	50.1
Profit before income tax	13,440	21,341	7,901	58.8
Income tax expense	2,797	5,801	3,004	107.4
Profit for the year	10,642	15,540	4,898	46.0

Revenue

The following table presents a breakdown of the Company's revenue by principal product category and changes therein for 2017 and 2018.

	For the Year Ended December 31,		Changes 2017 versus 2018	
	2017	2018	Amount	%
	(In billions of Won)			
DRAM	₩ 22,887	₩ 32,371	₩ 9,484	41.4%
NAND flash	6,649	7,421	772	11.6
Other products (1)	573	653	80	13.9
Total revenue	30,109	40,445	10,336	34.3

(1) Include revenue from CMOS image sensors and foundry products.

The Company's revenue increased by 34.3%, or ₩10,336 billion, from ₩30,109 billion in 2017 to ₩40,445 billion in 2018 primarily due to increases in revenue from DRAM sales and, to a lesser extent, NAND flash sales. Specifically:

- Revenue from DRAM sales increased by 41.4%, or ₩9,484 billion, from ₩22,887 billion in 2017 to ₩32,371 billion in 2018 primarily due to an increase in the average selling price of DRAM and, to a lesser extent, an increase in their shipment volume. The aggregate impact from such factors were partially offset by an appreciation of the Won against the U.S. dollar from 2017 to 2018 that had a negative impact on the Company's revenue from DRAM sales in Won terms. The average selling price of DRAM on a U.S. dollar basis increased by approximately 22% from 2017 to 2018, primarily due to an increase in demand for (i) mobile memory products that are used in high-performance mobile phones and (ii) server memory products from data centers that provide cloud computing services. The Company's overall DRAM bit shipment increased by approximately 20% from 2017 to 2018.

- Revenue from NAND flash sales increased by 11.6%, or ₩772 billion, from ₩6,649 billion in 2017 to ₩7,421 billion in 2018 primarily due an increase in the shipment volume of NAND flash memory products, which was partially offset by (i) a decrease in their average selling price and (ii) appreciation of the Won against the U.S. dollar from 2017 to 2018 that had a negative impact on the Company's revenue from NAND flash sales in Won terms. The Company's overall NAND flash bit shipment increased by approximately 36% from 2017 to 2018, primarily driven by an increase in popularity of NAND flash memory-based SSDs. However, the average selling price of NAND flash memory products on a U.S. dollar basis decreased by approximately 16% from 2017 to 2018.

Cost of Sales and Gross Profit

The Company's cost of sales increased by 19.5%, or ₩2,479 billion, from ₩12,702 billion in 2017 to ₩15,181 billion in 2018 primarily due to increases in (i) depreciation and amortization related to the Company's production facilities and (ii) expenses related to raw materials, supplies and consumables. Depreciation and amortization related to the Company's production facilities increased as a result of the addition of new facilities, and expenses related to raw materials, supplies and consumables increased primarily due to an increase in shipment volume of DRAM and NAND flash memory products.

The Company's gross profit increased by 45.1%, or ₩7,857 billion, from ₩17,408 billion in 2017 to ₩25,264 billion in 2018. The Company's gross profit margin increased from 57.8% in 2017 to 62.5% in 2018.

Selling and Administrative Expenses

The following table presents a breakdown of the Company's selling and administrative expenses (including research and development expenses) and changes therein for 2017 and 2018.

	For the Year Ended December 31,		Changes 2017 versus 2018	
	2017	2018	2017	2018
	(In billions of Won)			
Selling and administrative expenses:				
Salaries	₩ 468	₩ 565	₩ 97	20.8%
Defined benefit plan	26	27	1	5.3
Employee benefits	87	116	29	32.8
Commission	233	369	137	58.6
Depreciation	96	130	34	35.4
Amortization	349	442	94	26.9
Freight and custody charge	39	27	(12)	(29.6)
Legal cost	33	34	1	2.3
Rental	14	13	(0)	(2.4)
Taxes and dues	17	32	15	85.5
Training	27	33	6	20.4
Advertising	84	92	8	9.9
Utilities	14	12	(3)	(19.9)
Supplies	82	103	21	25.9
Repair	36	25	(11)	(30.5)
Travel and transportation	11	15	4	38.7
Sales promotion	57	65	8	13.4
Sales repair	8	6	(1)	(18.7)
Others	30	29	(1)	(4.3)
	1,711	2,136	426	24.9
Research and development:				
Expenditure on research and development	2,487	2,895	408	16.4
Development cost capitalized	(512)	(611)	(99)	19.4
	1,975	2,284	309	15.6
Total	3,686	4,420	734	19.9

The Company's selling and administrative expenses (including research and development expenses) increased by 19.9%, or ₩734 billion, from ₩3,686 billion in 2017 to ₩4,420 billion in 2018 primarily due to increases in research and development, commission, salaries and amortization expenses. Specifically:

- Research and development expenses, after adjusting for capitalized development cost, increased by 15.6%, or ₩309 billion, from ₩1,975 billion in 2017 to ₩2,284 billion in 2018, reflecting an increase in the Company's research and development activities.

- Commission expense increased by 58.6%, or ₩137 billion, from ₩233 billion in 2017 to ₩369 billion in 2018 primarily due to increases in commissions related to patent licenses and investment advisory services.

- Salaries increased by 20.8%, or ₩97 billion, from ₩468 billion in 2017 to ₩565 billion in 2018 primarily due to increases in selling and administrative personnel as well as bonus payments related to the Company's results of operations.

- Amortization expense increased by 26.9%, or ₩94 billion, from ₩349 billion in 2017 to ₩442 billion in 2018 primarily due to an increase in amortization of capitalized development costs related to DRAM and NAND flash production technologies.

The Company's selling and administrative expenses as a percentage of total revenue decreased from 12.2% in 2017 to 10.9% in 2018.

Operating Profit

Primarily due to the factors described above, the Company's operating profit increased by 51.9%, or ₩7,122 billion, from ₩13,721 billion in 2017 to ₩20,844 billion in 2018. The Company's operating profit margin increased from 45.6% in 2017 to 51.5% in 2018.

Finance Income and Expenses

The following table presents a breakdown of the Company's finance income and expenses and changes therein for 2017 and 2018.

	For the Year Ended December 31,		Changes 2017 versus 2018	
	2017	2018	Amount	%
	(In billions of Won)			
Interest income	₩ 54	₩ 62	₩ 8	15.1%
Dividend income	0	2	2	N.M. (1)
Foreign exchange differences	893	1,386	493	55.2
Gain from derivative instruments	1	—	(1)	(100.0)
Gain on valuation of short-term investment assets	1	17	15	1,096.6
Gain on valuation of long-term investment assets	—	182	182	N.A. (2)
Gain on disposal of short-term investment assets	16	36	21	130.7
Gain on disposal of long-term investment assets	31	6	(26)	(82.3)
Total finance income	996	1,692	695	69.8
Interest expenses	₩ 124	₩ 95	₩ (29)	(23.6)%
Foreign exchange differences	1,125	1,046	(78)	(7.0)
Loss from derivative instruments	1	—	(1)	(100.0)
Loss on disposal of long-term investment assets	0	—	(0)	(100.0)
Loss on valuation of long-term investment assets	—	1	1	N.A. (2)
Total finance expenses	1,250	1,142	(107)	(8.6)

(1) N.M. means not meaningful.
(2) N.A. means not applicable.

The Company recognized net finance expense of ₩253 billion in 2017 compared to net finance income of ₩550 billion in 2018, primarily due to the following reasons:

- The Company recognized net loss on foreign exchange differences of ₩232 billion in 2017 compared to net gain on foreign exchange differences of ₩340 billion in 2018, as the Won appreciated against the U.S. dollar in 2017 but depreciated in 2018. In terms of the market average exchange rate announced by Seoul Money Brokerage Services, Ltd., the Won appreciated from ₩1,208.5 to US$1.00 as of December 31, 2016 to ₩1,071.4 to US$1.00 as of December 31, 2017 but depreciated to ₩1,118.1 to US$1.00 as of December 31, 2018.

- The Company did not recognize any gain or loss on valuation of long-term investment assets in 2017 whereas it recognized net gain on valuation of long-term investment assets of ₩181 billion in 2018 related primarily to the Company's participation as a member of the Bain Consortium in its purchase of a controlling stake in Kioxia from Toshiba Corporation. See "Business – Strategic Alliances, Investments and Acquisitions" and Note 12 of Notes to 2018 Annual Financial Statements.

- Interest expenses decreased by 23.6%, or ₩29 billion, from ₩124 billion in 2017 to ₩95 billion in 2018 primarily reflecting a general decrease in interest rates from 2017 to 2018, which was partially offset by an increase in the Company's borrowings during such periods.

Share of Profit of Equity-accounted Investees

The Company's share of profit of equity-accounted investees increased by 5.2%, or ₩1 billion, from ₩12 billion in 2017 to ₩13 billion in 2018 primarily due to an increase in the Company's proportionate net income from its interest in SK China Company Limited.

Other Income and Expenses

The following table presents a breakdown of the Company's other income and expenses and changes therein for 2017 and 2018.

	For the Year Ended December 31,		Changes 2017 versus 2018	
	2017	2018	Amount	%
	(In billions of Won)			
Gain on disposal of property, plant and equipment	₩ 35	₩ 39	₩ 4	12.1%
Gain on disposal of intangible assets	1	—	(1)	(100.0)
Others	42	73	31	74.9
Total other income	78	113	35	44.8
Loss on disposal of property, plant and equipment	₩ 10	₩ 60	₩ 50	484.0%
Loss on disposal of intangible assets	5	6	1	13.8
Loss on disposal of trade receivables	7	9	2	28.1
Loss on impairment of intangible assets	1	4	3	483.0
Donation	76	62	(14)	(18.6)
Others	20	38	18	90.0
Total other expenses	119	178	59	50.1

The Company's loss on disposal of property, plant and equipment increased by 484.0%, or ₩50 billion, from ₩10 billion in 2017 to ₩60 billion in 2018. In 2017, the Company recognized loss on disposal of property, plant and equipment of ₩10 billion, primarily from the demolition of a substation in the Icheon facility as well as sale of idle equipment. In 2018, the Company recognized loss on disposal of property, plant and equipment of ₩60 billion primarily from the demolition of a building in Icheon facility as well as the sale of a water treatment facility in Gumi and other idle equipment.

Income Tax Expense

The Company's income tax expense increased by 107.4%, or ₩3,004 billion, from ₩2,797 billion in 2017 to ₩5,801 billion in 2018, primarily reflecting a 58.8% increase in profits before income tax, or ₩7,901 billion, from ₩13,440 billion in 2017 to ₩21,341 billion in 2018. In addition, the

Company recognized a positive tax effect of ₩114 billion in 2017 related to change in unrecognized deferred tax assets, compared to a negative tax effect of ₩89 billion in 2018 related to such change. See Note 31 of Notes to 2018 Annual Financial Statements. The Company's effective tax rate increased from 20.8% in 2017 to 27.2% in 2018 primarily as a result of an increase in the effective tax rate by 3.6% points arising from the increase in corporate income tax rate in Korea and an increase in the effective tax rate by 1.3% points arising from change in unrecognized deferred tax assets.

Profit for the Year

Primarily due to the factors described above, the Company's profit for the year increased by 46.0%, or ₩4,898 billion, from ₩10,642 billion in 2017 to ₩15,540 billion in 2018. The Company's net income margin increased from 35.3% in 2017 to 38.4% in 2018.

Liquidity and Capital Resources

Capital Resources and Requirements

The Company has traditionally met its working capital and other capital requirements principally from cash provided by operating activities, while raising the remainder of its requirements primarily through long-term and short-term borrowings. The Company expects that these sources will continue to be its principal sources of cash in the future. From time to time, the Company may also generate cash through sale of its holdings in short-term investment assets as well as its treasure shares.

The Company's principal cash requirements or uses have historically been:

- capital expenditures for property, plant and equipment;
- cash required for its operations, including purchases of raw materials, supplies and consumables, research and development expenses, payroll costs and commissions;
- investments and acquisitions, including those in connection with pursuing strategic relationships;
- interest and principal payments on the Company's short-term and long-term borrowings;
- payments of cash dividends to the Company's shareholders; and
- acquisition of treasury shares.

The Company makes substantial capital expenditures annually to support its business goals and objectives, and it plans to continue to invest in enhancing and expanding its production facilities and upgrading its equipment and manufacturing processes. The Company operates in an especially capital-intensive industry that requires continual investments for capacity expansions, equipment upgrades and migration to advanced technologies and manufacturing processes. The Company's cash outflows for acquisition of property, plant and equipment amounted to ₩9,128 billion in 2017, ₩16,036 billion in 2018, ₩13,920 billion in 2019 and ₩7,539 billion in the first nine months of 2020. The Company's capital expenditures in 2020 were lower than in 2019, and the Company currently expects its capital expenditures in 2021 to be comparable to those in 2020. As part of its efforts to ensure its long-term competitiveness, the Company has also announced initiatives to construct an integrated industrial complex in Yongin, Korea for its next generation of fabs and research and development facilities. The Company currently plans to start construction of its first fab in the Yongin complex in 2022. The Company periodically adjusts its capital expenditure plans on an on-going basis subject to market demand for the Company's products, the production outlook of the global memory semiconductor industry as well as global economic conditions in general. The Company may delay or not implement some of its announced capital expenditure plans based on its assessment of such market conditions.

Payments of contractual obligations and commitments will also require considerable capital resources. In the ordinary course of its business, the Company routinely enters into commercial commitments for various aspects of its operations, including long-term purchase agreements for raw materials as well as provision of guarantees for indebtedness of its related parties and others. For the Company's contingent liabilities, see Note 33 of Notes to Interim Financial Statements. The following sets forth the contractual maturities of financial liabilities as of December 31, 2019.

	Payments Due by Period				
	Less than 1 year	1 to 2 years	2 to 5 years	More than 5 years	Total
	(In billions of Won)				
Borrowings [1]	₩ 2,988	₩ 2,975	₩ 4,536	₩ 795	₩ 11,294
Lease liabilities	208	171	280	717	1,376
Trade payables	1,043	—	—	—	1,043
Other payables	2,368	—	—	—	2,368
Other non-trade payables	1,258	16	3	—	1,276
Other financial liabilities	(16)	(14)	(17)	6	(41)
Financial guarantee liabilities	69	—	—	—	69
Total	7,917	3,148	4,801	1,517	17,384

(1) Including payments of interest under terms and conditions of borrowing contracts and excluding the amount of lease liabilities as of December 31, 2019.

From time to time, the Company may make significant investments and acquisitions, including those in connection with pursuing strategic relationships. For example, as described in "Business – Strategic Alliances, Investments and Acquisitions," the Company participated as a member of the Bain Consortium in its purchase of a controlling stake in Kioxia from Toshiba Corporation in June 2018. As of September 30, 2020, the book value of the Company's investment in SPC 1 was ₩2,938 billion, and the book value of the Company's investment in the convertible bond issued by SPC 2 was ₩1,502 billion, which are accounted for as debt investments and classified as financial assets measured at fair value through profit or loss.

On October 20, 2020, the Company also announced its agreement to acquire the NAND flash memory and storage business of Intel, which includes the NAND SSD business and the NAND component and wafer business as well as the Dalian Manufacturing Facility, for approximately US$9 billion. The acquisition is subject to governmental approvals, which the Company will endeavor to obtain by late 2021, as well as other customary closing conditions and customary termination fees, which may be significant, if the transaction is terminated under certain specified circumstances. Following such approvals, the Company will acquire the NAND SSD business (including NAND SSD-related intellectual property and employees), as well as the Dalian Manufacturing Facility, upon completion of its first payment of approximately US$7 billion. Subsequently, the Company will acquire the remaining assets, including the intellectual property related to the manufacture and design of NAND flash wafers, research and development employees, and the workforce at the Dalian Manufacturing Facility, upon completion of the second closing. The second closing is expected to occur in March 2025 upon the remaining payment of approximately US$2 billion. The Company plans to finance the Intel NAND Business Acquisition through cash and borrowings, as well as consider other financing options.

Cash Flow

The following table sets forth the Company's cash flows for the periods indicated.

	For the Years Ended December 31,			For the Nine Months Ended September 30,	
	2017	2018	2019	2019	2020
	(In billions of Won)				
Net cash inflow from operating activities	₩ 14,691	₩ 22,227	₩ 6,483	₩ 3,900	₩ 9,053
Net cash outflow from investing activities	(11,919)	(21,429)	(10,451)	(8,031)	(8,861)
Net cash inflow (outflow) from financing activities	(352)	(1,395)	3,903	2,953	301
Cash and cash equivalents at beginning of the period	614	2,950	2,349	2,349	2,306
Cash and cash equivalents at end of the period	2,950	2,349	2,306	1,203	2,807
Net increase (decrease) in cash and cash equivalents	2,336	(601)	(43)	(1,146)	501

Cash Flows from Operating Activities

The Company's net cash inflow from operating activities increased from ₩3,900 billion in the first nine months of 2019 to ₩9,053 billion in the first nine months of 2020, primarily reflecting a decrease in cash outflows related to income tax paid from ₩4,831 billion in the first nine months of 2019 to ₩340 billion in the first nine months of 2020 as well as an increase in cash generated from operations from ₩8,858 billion in the first nine months of 2019 to ₩9,573 billion in the first nine months of 2020. The Company's gross cash flow from its sales activities increased as discussed above. However, the Company recorded cash inflow of ₩1,944 billion related to a decrease in trade receivables in the first nine months of 2019 compared to cash outflow of ₩1,079 billion related to an increase in trade receivables in the first nine months of 2020.

The Company's net cash provided by operating activities decreased from ₩22,227 billion in 2018 to ₩6,483 billion in 2019, primarily reflecting a decrease in cash generated from operating activities from ₩25,825 billion in 2018 to ₩11,822 billion in 2019, which was exacerbated by an increase in cash outflows related to income tax paid from ₩3,568 billion in 2018 to ₩5,153 billion in 2019. The Company's gross cash flow from its sales activities decreased as discussed above. In addition, the Company recorded cash inflow of ₩542 billion related to an increase in other non-trade payables in 2018 compared to cash outflow of ₩645 billion related to a decrease in other non-trade payables in 2019. However, the Company recorded cash outflow of ₩547 billion related to an increase in trade receivables in 2018 compared to cash inflow of ₩2,215 billion related to a decrease in trade receivables in 2019. In addition, the Company's cash outflows related to the buildup of inventories decreased from ₩1,782 billion in 2018 to ₩852 billion in 2019.

The Company's net cash provided by operating activities increased from ₩14,691 billion in 2017 to ₩22,227 billion in 2018, primarily reflecting an increase in cash generated from operating activities from ₩15,373 billion in 2017 to ₩25,825 billion in 2018, which was partially offset by an increase in cash outflows related to income tax paid from ₩619 billion in 2017 to ₩3,568 billion in 2018. The Company's gross cash flow from its sales activities increased as discussed above. In addition, the Company's cash outflows related to an increase in trade receivables decreased from ₩2,964 billion in 2017 to ₩547 billion in 2018 as the Company more effectively managed its trade receivable terms. However, the Company's cash outflows related to the buildup of inventories increased from ₩635 billion in 2017 to ₩1,782 billion in 2018.

Cash Flows from Investing Activities

The Company's net cash outflow from investing activities increased from ₩8,031 billion in the first nine months of 2019 to ₩8,861 billion in the first nine months of 2020. This increase was attributable primarily to (i) net proceeds from sale of short-term investment assets from ₩3,818 billion in the first nine months of 2019 compared to net cash used in acquisition of short-term investment assets of ₩82 billion in the first nine months of 2020, (ii) net proceeds from sale of short-term financial instruments of ₩211 billion in the first nine months of 2019 compared to net cash used in acquisition of short-term financial instruments of ₩152 billion in the first nine months of 2020, and (iii) an increase in the Company's acquisitions of investments in associates from ₩118 billion in the first nine months of 2019 to ₩479 billion in the first nine months of 2020, the aggregate impact of which was partially offset by a decrease in cash used for acquisition of property, plant and equipment from ₩11,389 billion in the first nine months of 2019 to ₩7,539 billion in the first nine months of 2020.

The Company's net cash used in investing activities decreased from ₩21,429 billion in 2018 to ₩10,451 billion in 2019. This decrease was attributable primarily to (i) net cash used in acquisition of short-term investment assets of ₩4,519 billion in 2018 compared to net proceeds from sale of short-term investment assets of ₩4,165 billion in 2019, (ii) a decrease in cash used for acquisition of long-term investment assets from ₩4,013 billion in 2018 (related primarily to the Company's participation as a member of the Bain Consortium in its purchase of a controlling stake in Kioxia from Toshiba Corporation) to ₩81 billion in 2019 and (iii) a decrease in cash used for acquisition of property, plant and equipment from ₩16,036 billion in 2018 to ₩13,920 billion in 2019, the aggregate impact of which was partially offset by a decrease in net proceeds from sale of short-term financial instruments from ₩4,175 billion in 2018 to ₩225 billion in 2019.

The Company's net cash used in investing activities increased from ₩11,919 billion in 2017 to ₩21,429 billion in 2018. This increase was attributable primarily to (i) an increase in cash used for acquisition of property, plant and equipment from ₩9,128 billion in 2017 to ₩16,036 billion in 2018, (ii) an increase in cash used for acquisition of long-term investment assets from ₩26 billion in 2017 to ₩4,013 billion in 2018 (related primarily to the Company's participation as a member of the Bain Consortium in its purchase of a controlling stake in Kioxia from Toshiba Corporation) and (iii) net proceeds from sale of short-term investment assets of ₩658 billion in 2017 compared to net cash used in acquisition of short-term investment assets of ₩4,519 billion in 2018, the aggregate impact of which was partially offset by net cash used in acquisition of short-term financial instruments of ₩2,777 billion in 2017 compared to net proceeds from sale of short-term financial instruments of ₩4,175 billion in 2018.

Cash Flows from Financing Activities

The Company's net cash inflow from financing activities decreased from ₩2,953 billion in the first nine months of 2019 to ₩301 billion in the first nine months of 2020. This decrease was attributable primarily to a decrease in net proceeds from borrowings from ₩4,177 billion in the first nine months of 2019 to ₩1,140 billion in the first nine months of 2020. Partially offsetting such impact, cash used for the Company's dividend payments decreased from ₩1,026 billion in the first nine months of 2019 to ₩684 billion in the first nine months of 2020.

The Company recorded net cash used in financing activities of ₩1,395 billion in 2018 compared to net cash provided by financing activities of ₩3,903 billion in 2019. This change was attributable primarily to an increase in net proceeds from borrowings from ₩1,047 billion in 2018 to ₩5,248 billion in 2019 as well as usage of cash of ₩1,736 billion for the acquisition of treasury shares in 2018 compared to no such acquisition in 2019. Partially offsetting such impact, cash used for the Company's dividend payments increased from ₩706 billion in 2018 to ₩1,026 billion in 2019.

The Company's net cash used in financing activities increased from ₩352 billion in 2017 to ₩1,395 billion in 2018. This increase was attributable primarily to the Company's use of ₩1,737 billion in 2018 for the acquisition of treasury shares (compared to no such acquisition in 2017) as well as an increase in cash used for dividend payments from ₩424 billion in 2017 to ₩706 billion in 2018, the aggregate impact of which was partially offset by an increase in net proceeds from borrowings from ₩72 billion in 2017 to ₩1,047 billion in 2018.

Liquidity

The Company had a working capital surplus (defined as current assets net of current liabilities) of ₩9,194 billion as of December 31, 2017, ₩6,862 billion as of December 31, 2018, ₩6,584 billion as of December 31, 2019 and ₩8,185 billion as of September 30, 2020. The Company manages its liquidity risk to maintain adequate net working capital by constantly managing projected cash flows. The Company also aims to mitigate liquidity risk by contracting with financial institutions with respect to bank overdrafts, cash pooling and banking facility agreements for efficient management of funds. The Company believes that cash from its operations, current and future financing arrangements (including short-term and long-term borrowing facilities and issuances of debentures) and cash and cash equivalents are likely to be sufficient to satisfy its operating cash requirements, capital expenditure needs and debt service requirements for the foreseeable future.

The Company strives to maintain a sound capital structure, and it monitors capital on the basis of its debt-to-equity ratio and net borrowing ratio. The following table sets forth the Company's debt-to-equity ratio and net borrowing ratio as of the dates indicated:

	As of December 31,			As of September 30,
	2017	2018	2019	2020
	(In billions of Won, except percentages)			
Total liabilities	₩ 11,598	₩ 16,806	₩ 16,846	₩ 18,768
Total equity	33,821	46,852	47,943	50,499
Cash and cash equivalents, short-term financial instruments and short-term investment assets	8,555	8,369	3,995	4,756
Total borrowings	4,171	5,282	10,524	11,703
Debt-to-equity ratio (1)	34.29%	35.87%	35.14%	37.17%
Net borrowing ratio (2)(3)	—	—	13.62%	13.76%

(1) Ratio of total liabilities divided by total equity.

(2) Ratio of (i) total borrowings minus cash and cash equivalents, short-term financial instruments and short-term investment assets divided by (ii) total equity.

(3) Net borrowing ratios as of December 31, 2017 and 2018 are not presented because the ratios were negative.

The Company believes that it has various options to meet its financing needs, including short-term and long-term borrowing facilities and issuances of debentures. However, the ability of the Company to continue to obtain debt financing at a reasonable cost will depend on several factors, some of which may be outside its control, including general economic conditions, the liquidity of the Korean and international capital markets and commercial banking markets and the Government's policies regarding Won and foreign currency borrowings. These policies can affect the Company's ability to borrow and gain access to domestic and foreign capital markets and commercial banking markets or restrict the use of proceeds of any financing, and can require the Company to incur indebtedness from other sources that entail higher interest rates or shorter maturities.

From time to time, the Company may also generate cash from sale of its treasury shares. As of September 30, 2020, the Company held 44,000,570 treasury shares, representing approximately 6.0% of the total issued common shares of the Company.

Market Risks

Market risk is the risk of loss related to adverse changes in market prices, including (i) foreign exchange risk, (ii) interest rate risk and (iii) price risk associated with the Company's investments in equity and debt securities. The Company's overall risk management program focuses on the unpredictability of financial markets and seeks to minimize potential adverse effects on the Company's financial performance. Risk management is carried out by the Company's corporate finance division in accordance with policies approved by the board of directors. The Company's corporate finance division identifies, evaluates and hedges financial risks in close cooperation with the Company'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, credit risk, use of derivative financial instruments and non-derivative financial instruments and investment of excess liquidity.

Foreign Exchange Risk

The Company operates internationally and is exposed to foreign exchange risk arising from various currency exposures, primarily with respect to the U.S. dollar, Chinese RMB, Euro and Japanese Yen. The foreign exchange risk of the Company primarily arises from future commercial transactions, recognized assets and liabilities in foreign currencies, and net investments in foreign operations. From time to time, the Company also uses derivative instruments to partially hedge its foreign exchange risk. In the past, the Company has selectively entered into fixed-to-fixed cross currency swaps and floating-to-fixed cross currency interest rate swaps to partially hedge foreign exchange risk relating to bonds and borrowings.

As of September 30, 2020, effect on the Company's profit before income tax as a result of strengthening or weakening of the foreign currencies by 10% is as follows:

	If Strengthened by 10%	If Weakened by 10%
	(In billions of Won)	
U.S. dollar	₩ 65	₩(65)
Japanese Yen	(143)	143
Chinese RMB	(0)	0
Euro	(2)	2

Interest Rate Risk

Interest rate risk is defined as the risk that the interest expenses arising from borrowings will fluctuate because of changes in future market interest rates. The Company is exposed to interest rate risk on its existing floating rate borrowings and on additional debt financings that the Company may periodically undertake for various reasons, including capital expenditures and refinancing of the Company's existing borrowings. A rise in interest rates will increase the cost of its existing variable rate borrowings.

As of September 30, 2020, if interest rates on borrowings were 100 basis points higher/lower with all other variables held constant, profit before income tax for the nine-month period would have been ₩56 billion lower/higher, mainly as a result of higher/lower interest expense on floating rate borrowings (except for floating-rate borrowings amounting to ₩587 billion under floating-to-fixed cross currency interest rate swap agreements and ₩117 billion under an interest rate swap agreement) and interest income on floating rate financial assets.

Security Price Risk

The Company's investment portfolio consists of direct and indirect investments in listed and non-listed equity securities as well as debt securities. Such securities are exposed to security price risk. As of September 30, 2020, the market value of the Company's short-term investment assets was ₩1,497 billion. As of such date, the market value of the Company's long-term investment assets was ₩4,630 billion, which included assets related to the Company's participation as a member of the Bain

Consortium in its purchase of a controlling stake in Kioxia from Toshiba Corporation in June 2018. As of September 30, 2020, the book value of the Company's investment in SPC 1 was ₩2,938 billion, and the book value of the Company's investment in the convertible bond issued by SPC 2 was ₩1,502 billion, which are accounted for as debt investments and classified as financial assets measured at fair value through profit or loss.

Inflation

Inflation generally affects the Company by increasing the salaries and wages of its employees as well as the cost of goods and services not for resale that the Company purchases, including components and raw materials used in the Company's manufacturing process. The general rate of inflation in Korea was 1.9% in 2017, 1.5% in 2018, 0.4% in 2019 and 0.6% in the first nine months of 2020, according to The Bank of Korea. The Company does not believe that inflation had a material effect on its results of operations during such periods.

BUSINESS

Overview

The Company is one of the world's largest memory semiconductor companies and engages in the design, manufacture and sale of advanced memory semiconductors. In the DRAM market, the Company is ranked second globally based on revenue with a market share of 29.4% in the first nine months of 2020, according to Omdia. In addition, the Company was the fifth largest supplier of NAND flash memory in terms of revenue, with a worldwide market share of 11.0% in the first nine months of 2020, according to Omdia. The Company's memory products can be used in virtually all electronic devices, including PCs, servers, graphic cards, mobile devices such as smartphones and tablets, and other consumer electronics products. The Company has also expanded its product portfolio into non-memory semiconductors, including CMOS image sensors that are used to perform the role of electronic film in digital photographing devices such as smartphones, tablets, PC laptops and surveillance cameras, as well as engaging in the foundry business through SK hynix system ic, a wholly-owned subsidiary.

The Company sells a wide variety of DRAM and NAND flash memory products with various configuration options, architectures and performance characteristics tailored to meet application- and customer-specific needs. The Company believes that it is one of the world's leading companies in developing DRAM with advanced specifications, particularly those relating to higher density, faster data-processing speed and lower power consumption. The Company is continually developing higher-density modules, SSDs and other customized DRAM and NAND flash memory products that are optimized for use in specific applications. The Company believes that offering customized products provides opportunities to mitigate the negative effects of the cyclicality of the memory products market, and its customized products typically command higher prices than commodity DRAM typically used in PCs because of their superior performance and specifically tailored characteristics.

The Company owns and operates fabs in Icheon and Cheongju, Korea and Wuxi, China. The Company also owns and operates assembly and testing facilities for back-end processing of its products in Icheon and Cheongju, Korea and Chongqing, China. As part of the Company's efforts to reduce unit manufacturing costs, improve manufacturing yields and enhance its profitability, the Company periodically phases out the operations of its older fabs as well as upgrading them to new fabs that implement more advanced processing technologies. In addition to regular maintenance and enhancement of existing fabs, the Company completed its initial preparations to commence manufacturing operations of its M16 fab in Icheon, Korea starting in 2021, subject to market conditions. As part of its efforts to ensure its long-term competitiveness, the Company has also announced initiatives to construct an integrated industrial complex in Yongin, Korea for its next generation of fabs and research and development facilities. The Company currently plans to start construction of its first fab in the Yongin complex in 2022.

In order to maintain its technological leadership, as well as to access new markets for its products, the Company engages in strategic initiatives, including entering into joint ventures and joint product development and supply agreements. From time to time, the Company may also acquire equity stakes in other industry players to further strengthen its business relationships as well as acquire complementary businesses that further strengthen the Company's leading position in the industry. On October 20, 2020, the Company announced its agreement to acquire the NAND flash memory and storage business of Intel, which includes the NAND SSD business and the NAND component and wafer business as well as the Dalian Manufacturing Facility, for approximately US$9 billion. The acquisition is subject to governmental approvals, which the Company will endeavor to obtain by late 2021, as well as other customary closing conditions. See "— Strategic Alliances, Investments and Acquisitions."

The Company's revenue was ₩30,109 billion in 2017, ₩40,445 billion in 2018, ₩26,991 billion in 2019, ₩20,064 billion in the first nine months of 2019 and ₩23,934 billion in the first nine months of 2020. The Company recorded profit for the year of ₩10,642 billion in 2017, ₩15,540 billion in 2018 and ₩2,016 billion in 2019, and profit for the period of ₩2,135 billion in the first nine months of 2019 and ₩2,991 billion in the first nine months of 2020. The Company had total assets of ₩64,789 billion and total equity of ₩47,943 billion as of December 31, 2019 and total assets of ₩69,267 billion and total equity of ₩50,499 billion as of September 30, 2020.

History

In 1983, the Company's predecessor, Hyundai Electronics Industries Co., Ltd. ("Hyundai Electronics Industries"), entered the memory semiconductor industry with the construction of its first fab in Icheon, Korea, pursuant to a manufacturing alliance with Texas Instruments. In December 1996, Hyundai Electronics Industries became a public company through an initial public offering and listing of its common shares on the KRX KOSPI Market. In May 1999, Hyundai Electronics Industries acquired the memory semiconductor business of the LG Group, and such business was subsequently merged into Hyundai Electronics Industries.

In response to a substantial decline in global DRAM prices as a result of worldwide oversupply, Hyundai Electronics Industries underwent a corporate restructuring starting in 2001, including divestment of non-core businesses and a restructuring of its debt through debt cancellations, extensions of maturities and reductions of interest rates as well as a debt-to-equity swap with its creditors. In March 2001, Hyundai Electronics Industries changed its name to Hynix Semiconductor Inc. ("Hynix Semiconductor"), and the Korea Fair Trade Commission approved its disaffiliation from the former Hyundai Group in August 2001. In February 2012, the former creditors of Hynix Semiconductor sold their remaining interest in the Company to SK Telecom Co., Ltd. ("SK Telecom"). Hynix Semiconductor changed its name to SK hynix Inc. in March 2012. As of September 30, 2020, SK Telecom held a 20.1% interest in the Company.

Products and Applications

The Company sells a wide variety of DRAM and NAND flash memory products with various configuration options, architectures and performance characteristics tailored to meet application- and customer-specific needs. The Company has also expanded its product portfolio into non-memory semiconductors, including CMOS image sensors that are used to perform the role of electronic film in digital photographing devices such as smartphones, tablets, PC laptops and surveillance cameras, as well as engaging in the foundry business through SK hynix system ic, a wholly-owned subsidiary.

The following table sets forth the Company's revenue by principal product category and related percentage data for the periods indicated.

	Year Ended December 31,						Nine Months Ended September 30,			
	2017		2018		2019		2019		2020	
	(in billions of Won, except percentages)									
DRAM	₩22,887	76.0%	₩32,371	80.0%	₩20,293	75.2%	₩15,264	76.1%	₩16,901	70.6%
NAND Flash	6,649	22.1	7,421	18.3	5,140	19.0	3,724	18.6	5,687	23.8
Other Products	573	1.9	653	1.6	1,558	5.8	1,076	5.4	1,346	5.6
Total	₩30,109	100.0%	₩40,445	100.0%	₩26,991	100.0%	₩20,064	100.0%	₩23,934	100.0%

DRAM

DRAM is a type of random access memory semiconductor and is the highest density and lowest cost per bit memory component available for high-speed digital data storage and retrieval. Sales of DRAM accounted for 76.0% of the Company's total revenue in 2017, 80.0% in 2018, 75.2% in 2019 and 70.6% in the first nine months of 2020. The Company offers a wide range of commodity DRAM as well as customized DRAM for applications with higher performance requirements that are sold at higher prices. The Company's customized DRAM is used primarily in servers as well as graphics, mobile and other consumer electronics applications.

PC Memory. The Company offers commodity DRAM that is primarily used in the PC industry. The Company's representative PC memory products are offered in densities ranging from 4 gigabyte ("GB") to 32 GB in a Double Data Rate 4 Synchronous DRAM ("DDR4") configuration that offers higher data transfer speeds. In the past, the introduction of new or updated Windows operating systems has resulted in upgrading of PCs, which in turn has increased demand for commodity DRAM. In recent years, the increase in popularity of chromebooks that are designed for the education market, PCs specifically designed for online games and multi-function ultrabook laptops that require higher density memory has contributed to an increase in demand for the Company's PC memory products.

Server Memory. In recent years, increases in demand from data centers that provide cloud computing services contributed to a significant increase in the Company's sales of high-density customized DRAM memory modules that are specifically designed for servers. Such increase has also been driven by the growing popularity of analytics applications based on artificial intelligence and machine learning technologies that require sophisticated big data cloud computing, as well as the build-out of 5G mobile infrastructure utilizing edge computing paradigms that bring computation and data storage closer to the location where they are needed to improve response time and save bandwidth. The Company's representative server memory module products are offered in densities ranging from 8 GB to 128 GB in a DDR4 configuration.

Graphic Memory. In recent years the increasing popularity of high-resolution online games and 4K and 8K video content streaming as well as production of online media content and cinematic 3D motion graphics have contributed to a steady increase in demand for graphic memory products that are primarily used in graphics processing units ("GPU") and other graphics cards. The Company's representative graphic memory products are offered in densities ranging from 8 gigabit ("Gb") to 16 Gb in a Graphics DDR 6 Synchronous DRAM ("GDDR6") configuration. The Company also offers next-generation graphic memory products with densities ranging from 8 Gb to 16 Gb in GDDR6 and High Bandwidth Memory 2 configurations designed to meet greater data-processing speed requirements of graphics applications that incorporate virtual reality, deep leading and artificial intelligence technologies. The Company seeks to strengthen its relationships with leading GPU, PC and game console manufacturers to more effectively meet their needs for high bandwidth graphics memory solutions.

Mobile Memory. The Company's mobile memory products are designed to have low-power and high bandwidth features that are optimized for use in mobile devices such as smartphones and tablets. Although growth in global sales volume of smartphones has decreased in recent years, the Company believes that increases in memory density per device will continue to contribute to growth in demand for mobile memory products. The Company's representative mobile memory products are offered in densities ranging from 2 GB to 4 GB in a Low-Power Double Data Rate 3 configuration as well as in densities ranging from 2 GB to 12 GB in a Low-Power Double Data Rate 4 ("LPDDR4") configuration that provides faster data-processing speed while consuming less power. The Company also offers a LPDDR4X configuration that provides additional power saving features. The demand for high-density mobile memory products is expected to increase in the future, driven by artificial intelligence and augmented reality applications and expansion of other content offered through 5G mobile services, as well as enhancements of functions in high-end smartphones such as the use of multiple cameras. The Company also offers a lineup of package-on-package and multi-chip package solutions to more effectively address the requirements of next-generation mobile devices.

Consumer Memory. The Company offers customized DRAM for use in various consumer electronics devices such as digital televisions, set-top boxes for Internet protocol televisions (“IP-TV”), smart speakers, car navigation systems and other digital appliances that connect to the Internet. The Company designs its consumer memory products to meet the specific requirements of its customers and offers a full line-up of standardized to highly customized products in various specifications, including densities ranging from 2 Gb to 4 Gb in a DDR3 configuration and from 4 Gb to 8 Gb in a DDR4 configuration, as well as low-power LPDDR4 and LPDDR4X configurations and specialty industrial temperature and automotive temperature models. The Company believes that the increasing popularity of high resolution video content and the launch of 5G mobile services will contribute to growth in demand for consumer memory products that are necessary for digital devices.

NAND Flash Memory

NAND flash memory is a non-volatile memory device, which retains memory content even when power is turned off. Sales of NAND flash memory products accounted for 22.1% of the Company’s total revenue in 2017, 18.3% in 2018, 19.0% in 2019 and 23.8% in the first nine months of 2020. In the past, the Company sold NAND flash memory products for use in portable devices with storage needs, such as USB drives, digital still cameras and MP3 players. In more recent years, the increasing popularity of more advanced smartphones and tablets with multimedia functions as well as increases in consumption of high resolution content have contributed to growth in demand for NAND flash products. In addition, NAND flash memory-based SSDs, which provide faster and more reliable data access and consume less power compared to hard disk drives, have started to replace hard disk drives as the main storage device for laptops and servers. Enterprise use of SSDs is expected to increase further as cloud computing services offered by data centers and “Internet of Things” (“IoT”) applications with higher storage requirements and real-time data-processing needs continue to evolve.

The Company offers a wide range of NAND flash memory products in various formats, including Universal Flash Storage (“UFS”) formats in densities ranging from 64 GB to 512 GB, embedded Multi Media Card formats in densities ranging from 8 GB to 128 GB and raw NAND in single-level cell, multi-level cell and triple-level cell formats. In order to more effectively respond to evolving market trends, the Company continues to invest in enhancing its 3D NAND technology, which enables NAND flash memory cells to be stacked vertically in multiple layers, and is working toward transitioning its mass production of NAND flash memory products from utilizing 3D 72 and 96 layers to 3D 128 layers technology. In the SSD market, the Company’s representative SSD products for enterprise customers are offered in densities ranging from 512 GB to 8,092 GB, and the Company’s representative SSD products for manufacturers are offered in densities ranging from 128 GB to 1024 GB.

CMOS Image Sensors

CMOS image sensors are a type of imaging device that performs the role of electronic film in digital photographing devices such as smartphones, tablets, PC laptops and surveillance cameras. Cost and image quality are key to success in the image sensor market. CMOS image sensors offer a distinct form factor, cost, speed and operating power advantage over charge-coupled devices, and enhancements in image quality have led to applications in additional devices such as medical equipment, DSLR cameras, camcorders and automobiles. In recent years, the increasing sophistication of camera functions in smart phones, including use of triple and quadruple cameras in high-end models, has also contributed to growth in demand for CMOS image sensors.

The Company is currently focused on the smart phone market and the PC laptop market, which share similar specifications and requirements. The Company’s representative CMOS image sensor products are offered in resolutions ranging from 8 megapixels to 48 megapixels utilizing advanced back-side illumination technology. The Company is currently engaged in research and development efforts to develop 0.8um pixel technology and further narrow the technological gap with global industry leaders in the CMOS image sensors market, as well as to continue to expand the Company's portfolio of higher-resolution products. The Company is also pursuing additional growth opportunities and striving to diversify applications of its products in new markets such as surveillance cameras and automobiles. In the second half of 2019, the Company began gradual conversion of DRAM production lines in its M10 fab in Icheon, Korea in order to increase production of CMOS image sensors in response to an increase in demand for such products.

Customers, Sales and Marketing

The Company has a global customer base consisting of leading manufacturers and original equipment manufacturers ("OEMs") of consumer electronics products, communications equipment, PCs, servers and workstations. The Company's top two customers in 2019 accounted for, in the aggregate, 29.6% of the Company's total revenue. In the first nine months of 2020, the Company's top three customers accounted for, in the aggregate, 37.0% of the Company's total revenue. In addition to establishing a strong long-term customer base, the Company actively seeks to expand its customer base by targeting emerging markets.

The following table sets forth the Company's revenue by region based on the location of selling entities and related percentage data for the periods indicated.

	Year Ended December 31,						Nine Months Ended September 30,			
	2017		2018		2019		2019		2020	
	(in billions of Won, except percentages)									
China	₩10,075	33.5%	₩15,786	39.0%	₩12,570	46.6%	₩ 9,631	48.0%	₩ 9,659	40.4%
United States	11,064	36.7	14,278	35.3	8,141	30.2	5,802	28.9	9,041	37.8
Asia (1)	3,575	11.9	4,610	11.4	2,301	8.5	1,778	8.9	1,887	7.9
Taiwan	2,627	8.7	2,950	7.3	1,444	5.3	1,071	5.3	1,424	5.9
Korea	1,207	4.0	840	2.1	1,447	5.4	962	4.8	1,057	4.4
Europe	1,562	5.2	1,981	4.9	1,087	4.0	821	4.1	866	3.6
Total	₩30,109	100.0%	₩40,445	100.0%	₩26,991	100.0%	₩20,064	100.0%	₩23,934	100.0%

(1) Other than China, Taiwan and Korea

Sales outside of Korea are primarily conducted through the Company's ten overseas sales subsidiaries located in the United States, Germany, the United Kingdom, Japan, Singapore, India, Taiwan and China. The sales subsidiaries typically sell directly to the end users of the Company's products. The Company also relies on semiconductor product distributors depending on the characteristics of the customer base and geographic location. Such distributors typically carry a wide variety of different products, including the Company's products as well as those of its competitors, in inventory for onward sale to their customers. The Company's sales subsidiaries have significantly reduced their dependence on distributors, relying more on their internal sales and marketing teams to sell directly to the Company's end customers.

In line with the increase in segmentation within the DRAM market and the growth of applications that require tailored memory solutions, the Company has focused its sales and marketing activities on expanding its base of long-term customers who look to the Company as their preferred supplier of customized memory products. The Company believes having a diversified portfolio makes it less susceptible to variations in demand in different market segments, especially in the commodity DRAM market. The Company's customers look for reliability, scale and timely delivery, and the Company believes that its close relationships with strategic customers who are leaders in their respective fields enable the Company to anticipate market trends and evolving customer product needs. The Company typically enters into mutually non-binding long-term supply arrangements of one to three years with its customers, which usually do not establish fixed pricing and volume commitments. The Company's existing long-term arrangements do not restrict the Company from entering into similar arrangements with other customers.

The Company manages its accounts receivable and credit exposure to customers by establishing credit limits for each customer in accordance with the Company's internal credit guidelines. The Company maintains three general categories of customer accounts:

- Strategic accounts for global OEMs: the Company's chief financial officer conducts a comprehensive review of all strategic account customers at least once each year. The chief financial officer has discretion to adjust credit limits for all strategic account customers, including downgrades.
- Core accounts for leading OEMs: core accounts are monitored, and credit limits adjusted, by the respective core account managers at the Company's headquarters who report directly to the chief financial officer at least once each year.
- Local accounts for smaller-scale OEMs and distributors: local accounts are required to pay in cash and customers are typically unable to obtain credit in excess of the value of the collateral provided, such as factoring or letters of credit.

The Company considers each customer's current and potential contribution to its overall sales, industry leadership and product technology as well as other quantitative and qualitative criteria to determine individual credit limits. The Company also takes certain measures, such as factoring arrangements and procurement of insurance for trade receivables, to protect the Company from excessive exposure to credit risks. To date, the Company has not experienced any material problems relating to customer payments.

Product Warranty

Despite the Company's quality control efforts, because the design and manufacturing process for memory semiconductors is highly complex, the Company may ship products that do not fully comply with customer specifications, contain defects or are otherwise incompatible with their intended uses. Under the Company's general terms and conditions of sale and in accordance with industry practice, the Company provides a one-year warranty that is usually limited to repair or replacement of defective items or return of, or a credit with respect to, amounts paid for such items. From time to time, the Company may provide more extensive warranty coverage to certain customers.

Strategic Alliances, Investments, and Acquisitions

The Company continually seeks out opportunities to further its strategic objectives, including by entering into joint ventures and joint product development and supply agreements, to further solidify its market position as a leading semiconductor company in the world. Cooperation in product design, manufacturing and sales and marketing between partner companies has increased in response to the growing diversity and complexity of memory semiconductors and applications, demand for technological enhancements and increasing costs associated with keeping pace with industry developments. The Company believes that its strategic initiatives will not only assist in maintaining and growing its presence in existing markets but also provide the Company with a cost-effective means of accessing new markets, products and technologies.

As part of the efforts to expand the Company's foundry business, SK hynix system ic entered into a joint venture with Wuxi Industrial Development Group, an investment firm under the Wuxi regional government in China. SK hynix system ic holds a 50.1% interest in the joint venture, which has completed construction of a semiconductor foundry plant in Wuxi, China. From time to time, the Company has also acquired equity stakes in other industry players to further strengthen its business relationships and may do so again in the future. For example, in June 2018, the Company participated as a member of the Bain Consortium in its purchase of a controlling stake in Kioxia from Toshiba Corporation. Kioxia is the second largest supplier of NAND flash memory in terms of revenue, with a worldwide market share of 18.6% in the first nine months of 2020, according to Omdia. As a member of the Bain Consortium, the Company invested ₩2,637 billion for an indirect limited partnership interest in SPC 1, which in turn holds an equity interest in Kioxia. In addition, the Company invested ₩1,279 billion to acquire a convertible bond issued by a second special purpose company, SPC 2, which is convertible into an approximately 15.0% equity interest in SPC 2 upon the occurrence of certain specified events. SPC 2 in turn holds an equity interest in Kioxia. As of September 30, 2020, the book value of the Company's investment in SPC 1 was ₩2,938 billion, and the book value of the Company's investment in the convertible bond issued by SPC 2 was ₩1,502 billion, which are accounted for as debt investments and classified as financial assets measured at fair value through profit or loss.

The Company may also pursue acquisition of complementary businesses and technologies rather than through internal development in response to changing competitive pressures. For example, On October 20, 2020, the Company announced its agreement to acquire the NAND flash memory and storage business of Intel, which includes the NAND SSD business and the NAND component and wafer business as well as the Dalian Manufacturing Facility, for approximately US$9 billion. The acquisition is subject to governmental approvals, which the Company will endeavor to obtain by late 2021, as well as other customary closing conditions and customary termination fees, which may be significant, if the transaction is terminated under certain specified circumstances. Following such approvals, the Company will acquire the NAND SSD business (including NAND SSD-related intellectual property and employees), as well as the Dalian Manufacturing Facility, upon completion of its first payment of approximately US$7 billion. Subsequently, the Company will acquire the remaining assets, including the intellectual property related to the manufacture and design of NAND flash wafers, research and development employees, and the workforce at the Dalian Manufacturing Facility, upon completion of the second closing. The second closing is expected to occur in March 2025 upon the remaining payment of approximately US$2 billion. Until such date, Intel will continue to manufacture NAND flash wafers at the Dalian Manufacturing Facility.

With the Intel NAND Business Acquisition, the Company aims to enhance the competitiveness of its storage solution (including enterprise SSDs) capabilities in the rapidly growing NAND flash memory market. The Company plans to utilize Intel's industry-leading NAND SSD and quadruple level cell NAND flash memory technology and manufacturing capability to offer a portfolio of further advanced 3D NAND flash memory solutions, particularly high-end enterprise SSDs.

Competition

The Company operates in an intensely competitive market, which has been characterized by erosion of selling prices, frequent product enhancements from changes in technology and relatively short product life cycles. During the past decade, intensified competition in the memory semiconductor industry has also led to consolidation as well as the formation of strategic alliances, such as a joint venture between Kioxia and Western Digital targeting the NAND flash memory market. The Company's major competitors in the DRAM market include Samsung Electronics and Micron Technology. The Company's major competitors in the NAND flash memory market include Samsung Electronics, Kioxia, Micron Technology, Western Digital and Intel.

The Company competes in its principal product lines based on the following factors:

- pricing;
- manufacturing costs, yields and product availability;
- product performance, quality and reliability;
- successful and timely development of new products and manufacturing processes;
- ability to deliver in large volumes on a timely basis and the ability to meet changes in the customers' demands;
- marketing and distribution capability;
- customer service, including technical support; and
- brand recognition and financial strength.

Entry into memory semiconductor manufacturing requires substantial capital expenditures and significant technological and manufacturing expertise. Although the Company believes that its existing investment, experience and technological expertise provide "time to market" and economies of scale advantages, the Company faces increasing competition from emerging companies that may significantly expand the scale of their operations, as well as from potential repositioning and expansion by storage solution companies and existing customers that develop memory solutions in-house.

Equipment and Suppliers

Like other memory semiconductor manufacturers, the Company depends on a limited number of manufacturers in the Netherlands, the United States and Japan for its key equipment. The principal pieces of equipment the Company uses to manufacture its semiconductors include steppers, scanners, tracks, etchers, furnaces, wet stations, implanters, chemical vapor deposition, metrology inspection and chemical mechanical planarization equipment. The Company also seeks to maintain testers with the ability to test a variety of different memory semiconductors. In addition to specialized testing equipment, the Company maintains a variety of other types of equipment which are also used in the testing process, such as automated handlers and probers (with special handlers for wafer probing), reformers and PC workstations for use in software development.

The Company generally seeks to obtain testing equipment with similar functionality from various vendors. However, the Company's purchases of high-end equipment are limited to several manufacturers. In periods of high market demand, the lead times from order to delivery of such equipment can be as long as six to twelve months. The Company seeks to manage this process through early reservation of appropriate delivery slots and constant communication with its equipment suppliers.

Raw Materials and Supplies

The raw materials used in the Company's semiconductor fabrication process include polished silicon wafers, chemicals, metals such as titanium and aluminum, gases and subsidiary materials. Wafers are the most significant raw material in terms of cost, representing approximately 10% of the Company's cost of sales in recent years. The other principal raw materials used in assembly include substrates, gold wire, wafer backside lamination tape and printed circuit boards. The Company sources most of its raw materials, including wafers, from suppliers in Korea, Japan and the United States. In addition, the Company's manufacturing processes also require a significant amount of electricity and purified water. In order to obtain reliable electric power and water suppliers, the Company maintains back-up power facilities and water storage facilities.

The Company is not dependent on any one supplier for a substantial portion of its raw material requirements for assembly and testing, and the Company believes that it generally has access to alternative sources of supply for its principal raw materials. However, from time to time, the Company and other semiconductor manufacturers have experienced shortages and increases in lead times for delivery of raw materials, which in turn have resulted in interruptions in production and delivery of products in the past. To minimize the potential for significant interruptions of supplies of principal raw materials, the Company has entered into multi-year supply agreements with its key material suppliers and plans to enter into similar agreements with other major suppliers, as well as diversify the geographic location of key suppliers.

The Company's purchasing policy focuses on the capability of a supplier to meet its development and mass production requirements. The Company's principal raw material suppliers are selected on the basis of internal regulations by its engineers, quality control staff and purchase staff. The Company's purchases are generally planned at the end of the year based on the non-binding forecasts provided by its customers. To improve material quality, the Company has also undertaken regular information exchange and joint research and product development with strategic suppliers of raw materials.

Manufacturing

Manufacturing Processes

DRAM is made primarily using "trench" technology. In trench technology, each capacitor is built by etching a hole into the substrate. The front-end production of a semiconductor begins with the mask-making process, in which each layer of the pattern of the circuit is duplicated on a photographic negative, known as a mask, by an electron beam generator. Next, raw silicon wafers are oxidized and modified to form transistors, and semiconductor materials are applied to the wafer in multiple layers through a series of patterning, etching, deposition and implantation processes. Each of these processes is conducted in a highly controlled, clean environment. Dust particles, equipment errors, minute impurities in materials or defects in photo masks cause wafers to be discarded or chips to be non-functional.

The back-end production process involves inspection of individual semiconductors, called "chips" or "dies." Chips that fail this test are either scrapped or repaired by laser trimming. A wafer is then cut into individual dies. Good chips are connected to a conductive lead frame through wire bonding and the bonded semiconductors are then encapsulated using a plastic mold compound or a ceramic casing. These packaged semiconductors are fully tested for functionality and reliability by specialized testing equipment.

The manufacturing process for NAND flash memory is substantially similar to that of DRAM, but due to the lack of a capacitor manufacturing step, requires fewer process steps and less equipment for mass production. Consequently, NAND flash memory production, as compared to that of DRAM, results in reduced investments, lower cost, increased efficiency in utilizing fab space, reduced yield risk and reduced turn-around time.

Due to the competitive nature of the memory semiconductor market, manufacturers are continually seeking the most efficient production methods to maintain a low cost base. The five most important determinants of competitive advantage are:

Yield. Yield means the percentage of "good dies" per wafer. Manufacturing processes and quality control need to be optimized to generate maximum yield.

Line width. Line width is the minimum feature size or distance between two features (lines) on a chip. Transitioning to finer line-widths is important in order to increase the number of dies per wafer and eventually reduce cost per bit. Leading manufacturers are currently manufacturing at line widths of 1y nanometer class and 1z nanometer class technology for DRAM. Different manufacturers define line width differently and there may be slight variations in feature size for any given line-width process technology.

Wafer size. The number of chips produced depends on the technology used and the size of the wafer. Most semiconductor manufacturers, including the Company, are currently manufacturing using wafers with a diameter of 12 inches.

***Density*.** Density is measured by the number of memory cells per chip. For a given wafer size, assuming the same process technology, doubling the density doubles the area used on the wafer and the price received upon selling the chip. The assembly and final testing costs remain the same.

Cycle time. Semiconductor manufacturing is composed of several hundred wafer processing steps. As more advanced technology such as finer line width is adopted, additional manufacturing process steps are required, which results in lengthened cycle time. Controlling the level of cycle time is becoming more critical in order to maintain competitiveness.

Manufacturing Facilities

The Company owns and operates fabs located in Icheon and Cheongju, Korea and Wuxi, China. The Icheon facility is located approximately 80 kilometers from Seoul. The Cheongju facility is located approximately 140 km from Seoul. The Wuxi facility is located approximately 140 kilometers from Shanghai.

The following table sets forth information regarding the Company's fabs as of September 30, 2020:

Fab	Product Category	Commencement of Operations	Primary Technology
Icheon, Korea			
M10	CMOS image sensors and DRAM	Third quarter of 2005	20m pixel and 16m pixel for CMOS image sensors 2z nanometer for DRAM
M14	DRAM and NAND flash	Third quarter of 2015	1y nanometer and 1x nanometer for DRAM 3D 128 and 96 layer for NAND flash
Cheongju, Korea			
M11	NAND flash	Second quarter of 2008	3D 72 layer and 2D
M12	NAND flash	Second quarter of 2012	3D 72 layer and 2D
M15	NAND flash	Fourth quarter of 2018	3D 128 and 72 layer
Wuxi, China			
C2	DRAM	Third quarter of 2006	1y nanometer and 1x nanometer
C2F	DRAM	First quarter of 2019	1y nanometer and 1x nanometer

The Company's fabs operate 365 days a year, 24 hours a day on a three-shift, eight hours per shift basis. Maintenance at each facility is performed concurrently with production. The Company's fabs are staffed with engineers, technicians and other employees whose duty is to monitor design and production processes to ensure high quality. These employees include line inspectors who work with members of the production staff to conduct examination, testing and fine-tuning of products during the production process. Quality control personnel are involved from initial design to production. In 2018, 2019 and the first nine months of 2020, the Company operated at 100% of its production capacity.

However, the Company may periodically adjust its production capacity based on market demand for the Company's products, the production outlook of the global memory semiconductor industry as well as global economic conditions in general.

The Company also owns and operates assembly and testing facilities for back-end processing of its products in Icheon and Cheongju, Korea and Chongqing, China. The Company also utilizes a factory operated by HITECH Semiconductor (Wuxi) Co., Ltd. ("HITECH Semiconductor") in Wuxi, China, a joint venture company established by the Company and Wuxi Taiji Industry Co., Ltd. ("Wuxi Taiji Industry"). The Company holds a 45.0% interest in the joint venture.

As part of the Company's efforts to reduce unit manufacturing costs, improve manufacturing yields and enhance its profitability, the Company periodically phases out the operations of its older fabs as well as upgrading them to new fabs that implement more advanced processing technologies. In addition to regular maintenance and enhancement of existing fabs, the Company completed its initial preparations to commence manufacturing operations of its M16 fab in Icheon, Korea starting in 2021, subject to market conditions. In the second quarter of 2020, the Company completed the construction of a semiconductor foundry plant in Wuxi, China through a joint venture with Wuxi Industrial Development Group, an investment firm under the Wuxi regional government in China. SK hynix system ic holds a 50.1% interest in the joint venture. Mass production at the newly constructed semiconductor foundry plant is expected to begin in early 2021. As part of its efforts to ensure its long-term competitiveness, the Company has also announced initiatives to construct an integrated industrial complex in Yongin, Korea for its next generation of fabs and research and development facilities. The Company currently plans to start construction of its first fab in the Yongin complex in 2022.

The Company's cash outflows for acquisition of property, plant and equipment amounted to ₩9,128 billion in 2017, ₩16,036 billion in 2018, ₩13,920 billion in 2019 and ₩7,539 billion in the first nine months of 2020. The Company's capital expenditures in 2020 were lower than in 2019, and the Company currently expects its capital expenditures in 2021 to be comparable to those in 2020. The Company periodically adjusts its capital expenditure plans on an on-going basis subject to market demand for the Company's products, the production outlook of the global memory semiconductor industry as well as global economic conditions in general. The Company may delay or not implement some of its announced capital expenditure plans based on its assessment of such market conditions.

Research and Development

The Company competes in an industry characterized by rapid technological changes. The Company believes that it must continue to develop technologically advanced products and manufacturing processes in order to remain competitive in the memory semiconductor industry. The Company's main research and development facilities are located in Icheon, Korea and the Company engages in various research and development activities, including in the areas of advanced process development, circuit and layout design, enhancement of manufacturing processes, process integration, photo mask design and development, physical and electrical analysis and simulation and modeling. The Company incurred expenditures on research and development of ₩2,487 billion in 2017, ₩2,895 billion in 2018, ₩3,189 billion in 2019 and ₩2,546 billion in the first nine months of 2020. Of such amounts, the Company capitalized development costs of ₩512 billion in 2017, ₩611 billion in 2018, ₩333 billion in 2019 and ₩175 billion in the first nine months of 2020 as intangible assets.

The Company has entered into a number of licensing and cross-licensing agreements with other manufacturers pursuant to which it obtains access to advanced technologies for incorporation into its own manufacturing processes. See "—Patents and Licensed Technologies."

Patents and Licensed Technologies

Both the Company's ability to develop its own technologies as well as its access, through licenses or other arrangements, to technologies of other leading international companies are important to the Company's ability to design and manufacture competitive products. The Company's success depends in part on its ability to obtain patents, licenses and other intellectual property rights relating to its products. As of September 30, 2020, the Company and its significant subsidiaries (SK hynix memory solutions America Inc. and SK hynix system ic) owned 2,617 patents and 89 trademarks in Korea and 12,047 patents and 165 trademarks outside Korea. As of the same date, the Company and its significant subsidiaries had 10,366 patent and trademark applications pending in Korea and abroad. The Company's patents are related primarily to semiconductors and semiconductor manufacturing processes.

The Company also licenses a number of patented technologies and processes from third parties under cross-licensing, technical assistance and other agreements. These agreements generally grant the Company a non-exclusive license to manufacture products in return for payment of royalties or a cross-license to manufacture and sell certain products both in Korea and overseas during a fixed but usually renewable term. The Company considers its technical assistance and licensing agreements to be important to its business and believes that it will be able to negotiate additional licenses as needed and renew existing agreements on commercially reasonable terms that will not adversely affect the Company's ability to use the related technology.

Environmental Matters

The Company's manufacturing operations use and generate a variety of chemicals and gases, and the Company is subject to certain regulations relating to the use, storage, discharge and disposal of such chemicals and gases and other emissions and waste. The Company is vigorous in its efforts to engage in environmentally responsible management of, and to protect the environment from damage resulting from, its operations. The Company believes that its levels of pollution control are higher than those mandated by Korean and Chinese government standards. The Company employs licensed environmental specialists for various environmental areas, including air quality, water quality, toxic materials and radiation. The Company also operates a comprehensive environmental management system to eliminate or minimize the possible negative effects of its manufacturing processes on the environment and employees. The Company educates and trains its employees in environmental issues and the proper handling of hazardous substances and requires adherence to corporate guidelines on environmental protection measures.

The Company undergoes periodic inspection by both internal and external inspectors in accordance with ISO 14001 standards to monitor the operation and maintenance of its environmental management system. In order to continue certification, the Company is required to meet annual requirements in environmental policy, compliance, planning, management, structure and responsibility, training, communication, document control, operational control, emergency preparedness and response, record keeping and management review. The Company also undergoes periodic inspection by both internal and external inspectors in accordance with ISO45001 and KOSHA 18001 standards to monitor the operation and maintenance of its occupational health and safety management systems.

In addition, the Company has taken measures to ensure that it is proactively addressing issues related to climate change. The Company has established a framework called the 2022 Environmental and Clean Operation Vision (the "2022 ECO Vision"), which sets forth a comprehensive strategy for mitigating the adverse environmental impact from its operations. Pursuant to the 2022 ECO Vision, the Company closely monitors and analyzes its greenhouse gas emissions on a monthly basis and continually seeks to initiate company-wide projects to reduce such emissions in connection with its manufacturing process, including upgrading of production facilities and installment of equipment that enhances energy efficiency. In addition, the 2022 ECO Vision seeks to enhance the Company's efforts in recycling waste, increasing the use of renewable energy, creating a disposable-free work environment and saving water resources. As part of the Company's efforts to promote eco-friendly initiatives in the semiconductor industry, the Company also operates an alliance with its suppliers called the ECO Alliance. Members of the ECO Alliance hold quarterly meetings to discuss the latest environmental issues and developments, establish common environmental goals to be pursued jointly and share environmentally friendly technology and know-how, in order to more effectively accomplish the objectives of the alliance.

Insurance

The Company maintains property insurance policies with reputable insurance companies covering its equipment, manufacturing facilities, research and development facilities and inventory. These insurance policies cover losses due to fire, earthquake, flood and other natural disasters. The Company also maintains liability and casualty insurance policies that cover various incidents, including work-related injuries to employees, product liability, environmental pollution liability and director and officer liability. The Company considers its insurance coverage to be consistent with market practice in the Korean semiconductor industry.

Employees

As of September 30, 2020, the Company, on a stand-alone basis, had 28,894 full-time employees. As of December 31, 2019, the Company, on a stand-alone basis, had 28,244 full-time employees, and, on a consolidated basis, had 36,205 full-time employees. The Company's success depends to a significant extent upon its ability to attract, retain and motivate qualified employees. Such employees, particularly engineers, production managers and technicians in the memory semiconductor industry, are in high demand, and the Company devotes significant resources to identifying, hiring, training, successfully integrating and retaining these employees. The Company seeks to leverage the SK Group's brand-recognition to attract top-tier talent from both Korea and abroad and strives to maintain an entrepreneurial, productive and innovation-focused culture.

The Company grants annual increases in basic wages and pays periodic bonuses. The Company also provides benefits such as medical insurance, employment insurance and workers' compensation to its employees as well as providing fringe benefits including housing loans, periodic health checkups and the provision of childcare and recreational facilities. As of September 30, 2020, the Company had three labor unions, all of which have collective bargaining agreements with the Company. As of such date, the two largest of such labor unions had 13,137 of the Company's employees as their members. In recent years, the Company has not experienced a strike or other material work stoppage and considers labor relations with its work force to be good.

The Company's full-time employees in Korea, including executive officers as well as non-executive employees, are subject to a pension insurance system pursuant to the National Pension Act of Korea, under which the Company makes monthly contributions to the pension accounts of the employees, and upon retirement, such employees are paid from their pension accounts. The Company contributes an amount equal to 4.5% of an employee's standard monthly wages, and each employee contributes 4.5% of his or her standard monthly wages, into his or her personal pension account. The Company also operates defined benefit and defined contribution retirement pension plans for its employees. For further information regarding the Company's obligations under its retirement pension plans, see Notes 20 and 21 of Notes to 2019 Annual Financial Statements and Note 20 of Notes to Interim Financial Statements, appearing elsewhere in this Offering Circular.

Litigation and Regulatory Proceedings

The Company is subject to a number of claims and is a party to a number of legal and regulatory proceedings, including those that are incidental to the normal course of its business.

Patent Infringement Claims and Litigations

Netlist, Inc. ("Netlist") filed lawsuits against the Company and two of its subsidiaries alleging infringement of multiple patents (i) at the U.S. International Trade Commission in September 2016 and October 2017, (ii) at the U.S. District Court for the Central District of California in August 2016 and June 2017, (iii) at the U.S. District Court for the Western District of Texas in March 2020 and June 2020, (iv) in the German District Court of Munich in July 2017 and (v) at the Beijing Intellectual Property Court in July 2017.

With respect to the first lawsuit filed at the U.S. International Trade Commission in September 2016, the commission concluded in January 2018 that the Company and its subsidiaries did not infringe the patents of Netlist, which determination became final and conclusive upon the rejection of Netlist's appeal at the U.S. Federal Court of Appeals in December 2019. In April 2020, the U.S. International Trade Commission also made a ruling in favor of the Company and its subsidiaries on the second lawsuit filed in October 2017, which determination became final and conclusive upon Netlist's withdrawal of its appeal in June 2020. The lawsuits filed at the U.S. District Court for the Central District of California and the U.S. District Court for the Western District of Texas are both pending. The Company intends to vigorously defend against such lawsuits.

Regarding the lawsuit filed against the Company at the German District Court of Munich, the court determined in January 2019 that the Company did not infringe the patents of Netlist, which determination became final and conclusive upon Netlist's withdrawal of its appeal in June 2019. In addition, regarding the lawsuit filed against the Company at the Beijing Intellectual Property Court, the Patent Reexamination Board determined that the patent was invalid and dismissed the lawsuit in June 2018, which determination became final as Netlist elected not to appeal such decision.

In the past, the Company has responded to various other claims related to intellectual property rights and has recognized a liability when it believes that a claim represents a present obligation as a result of past events and it is probable that an outflow of resources will arise and a loss can be reliably estimated.

Class Action Lawsuit in the U.S. and Canada

In April 2018, a class-action lawsuit was filed by direct and indirect DRAM purchasers against the Company, SK hynix America Inc. and other DRAM manufacturers at the U.S. District Court for the Northern District of California, asserting claims based on alleged price-fixing of DRAM from June 1, 2016 to February 1, 2018. Similar lawsuits were subsequently filed at another federal court in the U.S., as well as at (i) Canadian courts in British Columbia, Quebec and Ontario and (ii) Israel. In December 2020, the U.S. District Court for the Northern District of California granted a motion to dismiss with prejudice all claims brought by the indirect DRAM purchasers, and granted a motion to dismiss without prejudice all claims brought by the direct DRAM purchasers. The Company intends to vigorously defend against such lawsuits.

Anti-trust Investigation in China

In May 2018, the State Administration for Market Regulation of China initiated an investigation into alleged violation of antitrust laws relating to the Company's sales of DRAM in China. The investigation is ongoing, and the Company is currently unable to predict the outcome of the investigation.

MANAGEMENT

Board of Directors

The board of directors has ultimate responsibility for the management of the Company's business affairs. The Company is required to have six or more directors but the number of directors may not exceed ten directors, and outside directors must constitute a majority of the total number of directors in accordance with the Company's articles of incorporation. All directors are required to be elected by an affirmative vote of a majority of shares present at the general meeting of shareholders, provided that such affirmative votes may not be less than one-fourth of the total issued and outstanding shares. In the election of an Audit Committee member who is also an outside director, shareholders who own voting shares in excess of 3% of the total voting shares may not exercise their voting rights with respect to such excess shares under the Korean Commercial Code and the Company's articles of incorporation. The term of office of a director will expire upon the close of the third ordinary general meeting of shareholders to be convened after his or her inauguration.

Outside directors are non-standing directors elected from among those persons who do not have a special relationship with the Company that would interfere with the exercise of their independent judgment. The Outside Director Nomination Committee recommends the candidates for outside directors to the general meeting of shareholders. The Company's articles of incorporation require that candidates for outside directors have professional knowledge or experience in management, economy, law or relevant technologies and satisfy the eligibility requirements under the Korean Commercial Code and other relevant laws and regulations.

The representative director is a director elected by a majority of the board of directors and is empowered to make decisions regarding the Company's day-to-day business as its chief executive officer. Seok-Hee Lee, the Company's chief executive officer and president, serves as the Company's representative director.

Directors and Executive Officers

The tables below set forth information regarding the Company's directors and executive officers as of the date of this Offering Circular. The business address of each of the Company's directors and executive officers is at the Company's registered office at 2091, Gyeongchung-daero, Bubal-eub, Icheon-si, Gyeonggi-do, Korea. Except for Jung-Ho Park, chairman of the board (who concurrently serves as the chief executive officer of SK Telecom Co., Ltd.), Tae-Won Chey, chairman (who serves as the chairman of the SK Group) and the outside directors, all of the Company's directors and executive officers are employed by the Company on a full-time basis.

Directors

Name	Position	First Elected	End of Current Term
Jung-Ho Park	Chairman of the Board	March 2017	March 2023
Seok-Hee Lee	Chief Executive Officer and President	March 2017	March 2023
Jong-Hoon Oh	Executive Vice President	March 2019	March 2022
Chang-Hwan Shin	Outside Director	March 2017	March 2023
Ho-Keun Song	Outside Director	March 2018	March 2021
Hyun-Jae Cho	Outside Director	March 2018	March 2021
Tae-Hwa Yoon	Outside Director	March 2018	March 2021
Yung-Ku Ha	Outside Director	March 2019	March 2022
Ae-Ra Han	Outside Director	March 2020	March 2023

Executive Officers (Other than Directors)

Name	Position	First Elected/ Appointed	Office/Department
Tae-Won Chey	Chairman	February 2012	Chairman
Sung-Wook Park	Vice Chairman	March 2009	Vice Chairman
Dong-Sub Kim	President	August 2018	Communication and External Affairs
Gyo-Won Jin	President	December 2016	Chief Product and Production

Committees of the Board of Directors

The Company currently has five committees that serve under its board of directors:

- Audit Committee;
- Outside Director Nomination Committee;
- Sustainability Management Committee;
- Compensation Committee; and
- Investment Strategy Committee.

The Company's board of directors may establish other committees if it deems them necessary. The Company's board of directors appoints each member of these committees, except for members of the Audit Committee.

Audit Committee

Under Korean law and the Company's articles of incorporation, the Company is required to have an Audit Committee consisting of three or more directors at least two-thirds of whom must be outside directors. Members of the Audit Committee are elected by the Company's shareholders at the general meeting of shareholders.

The Company's Audit Committee is responsible for reviewing the Company's business affairs and accounts and monitoring the various matters carried out by the board of directors. The Audit Committee also has the right to request the board of directors to convene an extraordinary general meeting of shareholders by presenting a written statement to the board that sets forth the agenda of the meeting and grounds for convening the meeting. The Company is required to appoint independent auditors selected by its Audit Committee and to report such appointment to the Company's shareholders at the general meeting of shareholders or to notify the shareholders as of the latest record date of such appointment in writing or by electronic mail or by disclosure on the Company's website. Currently, the Company's Audit Committee consists of four directors: Yung-Ku Ha, Chang-Hwan Shin, Tae-Hwa Yoon and Ae-Ra Han. The chairman of the committee is Yung-Ku Ha.

The committee holds meetings at least once each quarter, and more frequently as needed.

Outside Director Nomination Committee

The Company's Outside Director Nomination Committee is responsible for reviewing and recommending candidates for outside directors for election at the general meeting of shareholders. Currently, the Company's Outside Director Nomination Committee consists of three members: Yung-Ku Ha, Seok-Hee Lee and Hyun-Jae Cho.

The committee holds regular meetings prior to the annual general meeting of shareholders, and more frequently as needed.

Sustainability Management Committee

The Company's Sustainability Management Committee is responsible for overseeing the Company's compliance management system as well as reviewing and resolving matters regarding contributions exceeding ₩1 billion and sustainability management strategies and results. Currently, the Substantiality Management Committee consists of four members: Ho-Keun Song, Ae-Ra Han, Hyun-Jae Cho and Jong-Hoon Oh. The chairman of the committee is Ho-Keun Song.

The committee holds meetings at least once each quarter, and more frequently as needed.

Compensation Committee

The Company's Compensation Committee is responsible for reviewing and resolving matters related to compensation of the Company's management. Currently, the Compensation Committee consists of three members: Ho-Keun Song, Hyun-Jae Cho and Tae-Hwa Yoon.

The committee holds meetings prior to the annual general meeting of shareholders and more frequently as needed.

Investment Strategy Committee

The Company's Investment Strategy Committee is responsible for reviewing important strategic partnerships and investments such as equity investments and key licenses. Currently, the Investment Strategy Committee consists of three members: Yung-Ku Ha, Seok-Hee Lee and Chang-Hwan Shin.

The committee holds meetings at least semi-annually, and more frequently as needed.

Compensation of Directors

The aggregate compensation, consisting of salaries, defined benefit plan expenses and share-based payment expenses, to the Company's directors, including directors who also held executive officer positions at the Company, was approximately ₩5 billion in 2019 and ₩5 billion in the first nine months of 2020.

As of September 30, 2020, there were no outstanding transactions other than in the ordinary course of business undertaken by the Company in which its directors or executive officers were interested parties. As of September 30, 2020, there were no loans granted by the Company or its subsidiaries to any of its directors and executive officers.

Stock Option Plan

The Company believes that the use of stock options is an important element of its strategy to maintain a highly motivated management team and to align the interests of senior management with those of the Company's shareholders. Under Korean law, subject to certain exceptions, the Company may by special resolution of the shareholders grant stock options to its officers and employees who have contributed or are expected to contribute to the management and technical innovation of the Company, up to an aggregate of 15% of the total number of its then-issued and outstanding shares. Stock options to officers and employees other than directors may also be granted pursuant to a resolution of the Company's board of directors in an amount not exceeding the upper limit provided in the applicable laws, which is within 10% of the total number of Company's then-issued and outstanding shares. In such case, the Company is required to obtain the approval for the granting of stock options by the first general meeting of the shareholders that is convened after such granting of stock options. As of September 30, 2020, the Company had outstanding stock options in respect of an aggregate of 558,648 common shares.

SHARE OWNERSHIP

The following table sets forth information relating to the Company's shareholder composition as of September 30, 2020:

Shareholder	Number of Common Shares	Ownership Percentage
SK Telecom	146,100,000	20.1%
National Pension Service	80,018,070	11.0
Others	457,883,725	62.9
Treasury shares	44,000,570	6.0
Total issued and outstanding common shares	728,002,365	100.0%

Except as described above, no other person or entity known by the Company to be acting in concert, directly or indirectly, jointly or severally, owned 5% or more of the Company's issued and outstanding common shares or exercised control or could exercise control over the Company as of the date of this Offering Circular.

SK GROUP

The SK Group is Korea's third largest business group in terms of combined assets as of December 31, 2019, according to the Korea Fair Trade Commission, and is comprised of approximately 125 companies. As of December 31, 2019, the total assets of the member companies of the SK Group amounted to approximately ₩226 trillion, according to the Korea Fair Trade Commission. The SK Group has played a key part in the development of the Korean economy, encouraged by the Government's focus on export-oriented industrialization.

Founded in the early 1950s as a textile manufacturer, the SK Group has evolved into a major business group, with interests in the energy, chemical, semiconductor, information technology, telecommunications, construction, logistics and service industries. SK Holdings became the holding company of the group on July 1, 2007. Member companies of the SK Group are organized into three sub-groups: the energy and chemicals group, the information and communications technology ("ICT") and semiconductor group and the logistics and services group. The following chart shows select member companies of the SK Group as of September 30, 2020:

Energy and Chemicals	ICT and Semiconductor	Logistics and Services
SK Innovation	SK hynix	SK Networks
SK Energy	SK Telecom	SK Magic
SK Global Chemical	SK Planet	SK Engineering & Construction
SK Lubricants	11 Street	
SK Incheon Petrochem	SK Broadband	
SK ie technology	SK Telesys	
SK Trading International	SK Telink	
SK Discovery	ADT CAPS	
SK Chemical	SK Materials	
SK Gas	SK Siltron	
SKC		
SK E&S		
SK Biopharmaceuticals		
SK Biotek		

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The Company engages from time to time in various transactions with related parties. The Company believes that it has conducted its transactions with related parties as it would in comparable arm's-length transactions with a non-related party, on a basis substantially as favorable to the Company as would be obtainable in such transactions.

Under the Korean Commercial Code, any transaction between the Company and any of its directors, major shareholders or certain related parties of such directors or major shareholders must be approved by the Company's board of directors (by the affirmative vote of two-thirds or more of the directors).

In addition, in the event that the Company enters into a transaction with its specially-related parties such as its affiliates, the Company is required to (i) obtain approval from its board of directors and (ii) disclose such transaction pursuant to the Monopoly Regulation and Fair Trade Act. The transactions that require approval from the Company's board of directors and disclosure pursuant to the Monopoly Regulation and Fair Trade Act are those where the transaction value (the aggregate amount incurred over a fiscal quarter in case of the fourth item below) (i) exceeds 5% of the greater of the Company's total equity or paid-in capital or (ii) exceeds ₩5 billion, in the following four categories:

- providing funds for or dealing with provisional payment or loan payment;
- providing or dealing with securities such as stocks or corporate bonds;
- providing or dealing with assets such as real estate or intangible assets; and
- providing services or products for or dealing with certain affiliates which satisfy the requirements under the Enforcement Decree of the Monopoly Regulation and Fair Trade Act, as a counterpart or on behalf of such affiliate.

A summary of the Company's material transactions with related parties is set forth below.

Transactions with SK Engineering & Construction Co., Ltd.

The Company's transactions with SK Engineering & Construction Co., Ltd. ("SK E&C") consist primarily of SK E&C's construction of facilities and the Company's acquisition of such assets. SK E&C is a subsidiary of SK Holdings Co., Ltd. and a leading construction company in Korea. The Company's acquisition of assets from SK E&C amounted to ₩1,465 billion in 2017, ₩2,484 billion in 2018, ₩1,851 billion in 2019 and ₩927 billion in the first nine months of 2020.

Transactions with ESSENCORE Limited

The Company's transactions with ESSENCORE Limited ("ESSENCORE") consist primarily of sales of the Company's NAND flash memory products. ESSENCORE is a subsidiary of SK Holdings Co., Ltd. Operating revenues and others received from ESSENCORE amounted to ₩749 billion in 2017, ₩917 billion in 2018, ₩708 billion in 2019 and ₩510 billion in the first nine months of 2020.

Transactions with HITECH Semiconductor

The Company's transactions with HITECH Semiconductor consist primarily of provision by HITECH Semiconductor of back-end processing services for the Company's products. HITECH Semiconductor is a provider of integrated circuit packaging and testing services for semiconductors and was established in November 2009 as a joint venture between the Company and Wuxi Taiji Industry. As of September 30, 2020, the Company held a 45.0% interest in HITECH Semiconductor. Operating expenses and others paid to HITECH Semiconductor amounted to ₩583 billion in 2017, ₩622 billion in 2018, ₩657 billion in 2019 and ₩480 billion in the first nine months of 2020.

For further information relating to the Company's transactions with related parties, see Notes 33 and 34 of Notes to 2019 Annual Financial Statements and Note 32 of the notes to Interim Financial Statements, appearing elsewhere in this Offering Circular.

TERMS AND CONDITIONS OF THE NOTES

The following is a description of the Terms and Conditions of the Notes, which (subject to modification and except for the paragraphs in italics) will be endorsed on the Notes in definitive form (if issued).

Each of the 2024 Notes, the 2026 Notes and the 2031 Notes will be issued by SK hynix Inc. (the "Company") (or any successor to the Company) subject to and with the benefit of a separate Fiscal Agency Agreement dated January 19, 2021 (such agreements as amended and/or supplemented and/or restated from time to time, respectively the "2024 Fiscal Agency Agreement", the "2026 Fiscal Agency Agreement" and the "2031 Fiscal Agency Agreement" and collectively, the "Fiscal Agency Agreements") each made among the Company, The Bank of New York Mellon as the fiscal agent (the "Fiscal Agent") and principal paying agent (the "Principal Paying Agent") and The Bank of New York Mellon as registrar (the "Registrar") and transfer agent (the "Transfer Agent") and any other agent or agents appointed from time to time with respect to each series of Notes.

The statements in these Terms and Conditions include summaries of, and are subject to, the detailed provisions of and definitions in the Fiscal Agency Agreements. Copies of the Fiscal Agency Agreements are available for inspection during normal business hours (being between 9:00 a.m. to 3:00 p.m.) by the holders of the Notes following prior written request and satisfactory proof of holding at the specified office of the Principal Paying Agent or any other paying agent that the Company may appoint, as may be required from time to time (references herein to "Paying Agents" shall refer to the Principal Paying Agent and any paying agents so appointed). The holders are entitled to the benefit of, are bound by, and are deemed to have notice of, all the provisions of the Fiscal Agency Agreements applicable to them. In these Terms and Conditions, references to the Agents (as defined below) shall include any successor appointed under the Fiscal Agency Agreement, and references to the Company shall include any successor company or business entity succeeding to obligations under the Notes.

In acting under the Fiscal Agency Agreements, the Principal Paying Agent, the Registrar, the Transfer Agent and any other agent or agents appointed by the Company (the "Agents" and each an "Agent") thereunder are acting solely as agents for the Company and do not assume any obligation or relationship of agency or trust for or with the Noteholders.

1 FORM, DENOMINATION AND TITLE

1.1 Form and Denomination

The Notes are issued in registered form, without detachable coupons, in the minimum denomination of US$200,000 and integral multiples of US$1,000 in excess thereof. A registered certificate (a "Certificated Note") will be issued to each Holder (as defined below) in respect of its registered holding of the Notes (unless Notes will be issued in global form). Each Certificated Note will be numbered serially with an identifying number which will be recorded on the relevant Certificated Note and in the register of Holders (the "Register") which the Company will procure to be kept by the Registrar. Upon issuance, the Notes will initially be represented by global notes (the "Global Notes") and the depositary for such Global Notes (the "Depositary") shall be a clearing agency registered under the United States Securities Exchange Act of 1934, as amended (the "Exchange Act"). The Notes shall be tradeable only in principal amounts of at least US$200,000 and integral multiples of US$1,000 in excess thereof. For so long as the Notes are listed on the Singapore Exchange Securities Trading Limited (the "SGX-ST") and the rules of the SGX-ST so require, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of S$200,000 (or its equivalent in foreign currencies). Each such Global Note may bear a legend relating to limitations on the transferability of such Global Note in such form as may be required by the Depository Trust Company ("DTC") unless the Company appoints a successor Depositary. Except in the limited circumstances described in Condition 1.3 below, owners of beneficial interests in the Global Notes will not be entitled to receive physical delivery of certificates representing their Notes. The laws of certain jurisdictions require that certain purchasers of the Notes take physical delivery of such Notes in certificated form. Accordingly, the ability of beneficial owners to own, transfer or pledge beneficial interests in the Global Notes may be limited by such laws.

1.2 Title

Title to the Notes passes only by registration in the Register. The holder of any Note will (except as otherwise required by law) be treated as its absolute owner for all purposes (regardless of any notice of ownership, trust or any interest or any writing on, or the theft or loss of, the Certificated Notes issued in respect of it) and no person will be liable for so treating the holder. In these Conditions, "Holder" and (in relation to a Note) "holder" and "Noteholder" means the person in whose name a Note is registered in the Register (or, in the case of a joint holding, the first named thereof).

1.3 Certificated Notes

If (i) at any time DTC notifies the Company in writing that it is unwilling or unable to continue as depositary or ceases to be a "clearing agency" under the Exchange Act, and a successor Depositary is not appointed by the Company within 90 days after the Company is notified by DTC or becomes aware of such condition, or (ii) the U.S. dollar-denominated Notes have become immediately due and payable pursuant to Condition 10 below, the Company will issue the Notes in definitive registered form ("Certificated Notes") in exchange for the Global Notes representing such Notes.

For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, in the event that the Global Note is exchanged for Certificated Notes, the Company will appoint and maintain a paying agent in Singapore (the "Singapore Paying Agent"), where the Certificated Notes may be presented or surrendered for payment or redemption. In addition, in the event that the Global Note is exchanged for Certificated Notes, an announcement of such exchange will be made by or on behalf of the Company through the SGX-ST and such announcement will include all material information with respect to the delivery of the Certificated Notes, including details of the Singapore Paying Agent.

2 STATUS

The Notes constitute direct, unconditional, unsubordinated and, subject to the provisions of Condition 3, unsecured obligations of the Company and shall at all times rank *pari passu* and without any preference or priority among themselves and, subject to the provisions of Condition 3, with all other present and future direct, unconditional, unsubordinated and unsecured obligations of the Company, except as may be required by mandatory provisions of law.

3 CERTAIN COVENANTS

3.1 Negative Pledge

So long as any of the Notes remains outstanding, the Company will not create or permit to be outstanding any mortgage, charge, lien, pledge or other security interest (each a "Security Interest") upon the whole or any part of its property, assets or revenues, present or future, to secure for the benefit of the holders of any International Investment Securities (as defined below):

(a) any payment of any sum owing in respect of any such International Investment Securities; or

(b) any payment under any guarantee or other like obligation of any such International Investment Securities; or

(c) any payment under any indemnity or other like obligation relating to any such International Investment Securities,

without in any such case at the same time, according to the Notes, either (i) the same Security Interest as is granted to or is outstanding in respect of such International Investment Securities or (ii) with respect to any guarantee, indemnity or other like obligation, such other arrangement (whether or not comprising a Security Interest) as shall be approved by an Extraordinary Resolution (as defined below).

3.2 Consolidation, Merger and Sale of Assets

The Company will not consolidate with, or merge or amalgamate into, or sell, transfer, lease or convey all or substantially all of its property or assets to any person, except as provided herein. The Company, without the consent of the holders of any of the Notes, may consolidate with, or merge into, or sell, transfer, lease or convey all or substantially all of its property as an entirety to any corporation or business entity organized under the laws of the Republic of Korea; *provided that* (a) any successor corporation or business entity expressly assumes the Company's obligations under the Notes and the Fiscal Agency Agreement, (b) immediately after giving effect to the transaction, no Event of Default and no event which, after notice or lapse of time or both, would become an Event of Default, shall have occurred and be continuing, (c) if, as a result of any such transaction, the properties or assets of the Company or any successor corporation or business entity would become subject to any Security Interest which would not be permitted by the Notes, the Company or such successor corporation or business entity, as the case may be, shall take such steps as shall be necessary to secure the Notes equally and ratably with (or prior to) all indebtedness secured thereby, and (d) the Company has delivered to the Fiscal Agent a certificate executed by a duly authorized officer of the Company and an opinion of counsel as to matters of law stating that such consolidation, merger, sale, transfer, lease or conveyance and, if any supplemental agreement(s) is/are required in connection with such transaction, such supplemental agreement(s) comply with the Fiscal Agency Agreement and the Notes and that all conditions precedent herein provided for relating to such transaction have been complied with. The Fiscal Agent shall be entitled to accept and conclusively rely upon such certificate and opinion (without further investigation or enquiry) as sufficient and conclusive evidence of such compliance and the Fiscal Agent shall be protected and shall have no liability to any holder or any person for so accepting and relying on such certificate or opinion.

3.3 Interpretation

For the purposes of these Conditions:

"International Investment Securities" means bonds, debentures, notes or investment securities of the Company which:

(a) either are by their terms payable, or confer a right to receive payment, in any currency other than Korean Won or are denominated in Korean Won and more than 50% of the aggregate principal amount thereof is initially distributed outside Korea by or with the authorization of the Company; and

(b) are, for the time being, quoted, listed, or ordinarily dealt in or traded on any stock exchange or over-the-counter or other securities market outside Korea.

4 INTEREST

4.1 Interest Payment Dates

The 2024 Notes will be issued in an initial aggregate principal amount of US$500,000,000 and will mature at a price equal to 100% of the principal amount on January 19, 2024 (the "2024 Notes Maturity Date"). The 2024 Notes will bear interest at a rate of 1.000% per annum from and including January 19, 2021 or from the most recent interest payment date to which interest has been paid or provided for.

The 2026 Notes will be issued in an initial aggregate principal amount of US$1,000,000,000 and will mature at a price equal to 100% of the principal amount on January 19, 2026 (the "2026 Notes Maturity Date"). The 2026 Notes will bear interest at a rate of 1.500% per annum from and including January 19, 2021 or from the most recent interest payment date to which interest has been paid or provided for.

The 2031 Notes will be issued in an initial aggregate principal amount of US$1,000,000,000 and will mature at a price equal to 100% of the principal amount on January 19, 2031 (the "2031 Notes Maturity Date"). The 2031 Notes will bear interest at a rate of 2.375% per annum from and including January 19, 2021 or from the most recent interest payment date to which interest has been paid or provided for.

Interest on the Notes will be payable semi-annually in arrears on January 19 and July 19 of each year (each an "Interest Payment Date") with the first interest payment to be made on July 19, 2021.

4.2 Interest Accrual

Each Note will cease to bear interest from and including its due date for redemption unless, upon due presentation, payment of the principal in respect of the Note is improperly withheld or refused or unless default is otherwise made in respect of payment. In such event, interest will continue to accrue until whichever is the earlier of:

(a) the date on which all amounts due in respect of such Note have been paid; and

(b) five days after the date on which the full amount of the moneys payable in respect of such Notes has been received by the Fiscal Agent and notice to that effect has been given to the Noteholders in accordance with Condition 12.

4.3 Calculation of Broken Interest

When interest is required to be calculated in respect of a period of less than a full year, it shall be calculated on the basis of a 360-day year consisting of 12 months of 30 days each and, in the case of an incomplete month, the number of days elapsed on the basis of a month of 30 days.

Interest in respect of any Note shall be calculated per US$1,000 in principal amount of the Notes (the "Calculation Amount"). The amount of interest payable per Calculation Amount for any period shall be equal to the product of the rate of interest specified above, the Calculation Amount and the day-count fraction for the relevant period, rounding the resulting figure to the nearest cent (half a cent being rounded upwards).

5 PAYMENTS

5.1 Payment

Payments in respect of each Note will be made by transfer to the registered account of the Holder and will be paid to the Holder shown on the Register at the close of business on the date (the "record date") that is the fifteenth day before the due date for such payments.

For the purposes of this Condition 5.1, a Holder's "registered account" means the U.S. dollar account maintained by or on behalf of it with a bank in the United States that processes payments in U.S. dollar, details of which appear on the Register at the close of business on the relevant record date, and a Holder's registered address means its address appearing on the Register at that time.

Where payment is to be made by transfer to a registered account, payment instructions (for value on the due date or, if that is not a Payment Business Day, for value the first following day which is a Payment Business Day) will be initiated on the due date for payment, or if that is not a Payment Business Day, on the next succeeding Payment Business Day, without any interest or payment in respect of such delay.

5.2 Agents

The names of the initial Agents and their specified offices are set out in the Fiscal Agency Agreement. The Company reserves the right under and in accordance with the terms of the Fiscal Agency Agreement at any time to remove any Agent, and to appoint other or further agents or a replacement Registrar, *provided that* it will at all times maintain (i) a Fiscal Agent, (ii) a Principal Paying Agent, (iii) a Registrar, (iv) a Transfer Agent and (v) a Singapore Paying Agent (for so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, in the event that the Global Note is exchanged for Certificated Notes). Notice of any such removal or appointment and of any change in the specified office of any Agent will be given promptly by the Company to the Noteholders in accordance with Condition 12.

5.3 Payment subject to fiscal laws

All payments in respect of the Notes are subject in all cases to any applicable fiscal or other laws and regulations, but without prejudice to the provisions of Condition 8. No commissions or expenses shall be charged to the Noteholders in respect of such payments.

5.4 Payment date convention

If any Interest Payment Date or any of the 2024 Notes Maturity Date, the 2026 Notes Maturity Date or the 2031 Notes Maturity Date would fall on a day that is not a Payment Business Day, that Interest Payment Date, the 2024 Maturity Date, the 2026 Notes Maturity Date or the 2031 Notes Maturity Date will be postponed to the following day that is a Payment Business Day, and no interest shall be payable in respect of any such delay.

5.5 Payment Business Day

In these Conditions, "Payment Business Day" means a day (other than a Saturday or Sunday) on which commercial banks and financial institutions are generally open for business in New York City, London, Seoul, the city where the specified office of the Fiscal Agent is located and (for so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST require the Company to maintain a Singapore Paying Agent) Singapore and, in the case of the surrender of a Certificated Note, in the place of the Transfer Agent or Registrar where the Certificated Note is surrendered.

6 TRANSFERS OF NOTES

6.1 Transfers

Subject as provided in Condition 6.2, a Note may be transferred by depositing the Certificated Note issued in respect of that Note, with the form of transfer on the back duly completed and signed, at the specified office of the Transfer Agent (or, in the case of a Note represented by a Global Note, delivery of a duly executed form of transfer as set forth in the Fiscal Agency Agreement), together with such evidence as the Registrar or the Transfer Agent may require to prove title to the Notes that are the subject of the transfer and the authority of the individuals who have executed the form of transfer. Legal title to the Notes will pass upon registration of such transfer in the Register.

All transfers of Notes and entries in the Register will be made subject to the terms concerning transfers of the Notes provided in the Fiscal Agency Agreement.

6.2 Closed Periods

If Certificated Notes are to be issued in exchange for the Global Note, no Noteholder may require the transfer of a Certificated Note to be registered (i) during the period of 15 days preceding the due date for any payment of principal of, or interest (if any) on, the Notes or (ii) after such Note has been selected or deposited for redemption pursuant to Condition 7.2 or 7.3.

6.3 Regulations

All transfers of Certificated Notes will be made subject to the detailed provisions concerning transfer of Notes set forth in Clause 4(b)(iv) of the Fiscal Agency Agreement. The provisions may be changed by the Company with the prior written approval of the Registrar.

7 REDEMPTION AND PURCHASE

7.1 Redemption at Maturity

Unless the 2024 Notes have been previously redeemed or repurchased and cancelled as provided below, the Company will redeem the 2024 Notes at 100% of their principal amount in U.S. dollars on the 2024 Notes Maturity Date, and the 2024 Notes may be redeemed prior to that date only as provided in Conditions 7.2 and 7.3 below, but without prejudice to Condition 10.

Unless the 2026 Notes have been previously redeemed or repurchased and cancelled as provided below, the Company will redeem the 2026 Notes at 100% of their principal amount in U.S. dollars on the 2026 Notes Maturity Date, and the 2026 Notes may be redeemed prior to that date only as provided in Conditions 7.2 and 7.3 below, but without prejudice to Condition 10.

Unless the 2031 Notes have been previously redeemed or repurchased and cancelled as provided below, the Company will redeem the 2031 Notes at 100% of their principal amount in U.S. dollars on the 2031 Notes Maturity Date, and the 2031 Notes may be redeemed prior to that date only as provided in Conditions 7.2 and 7.3 below, but without prejudice to Condition 10.

7.2 Redemption for Taxation Reasons

At any time, the Company may, having given not less than 30 or more than 60 days' notice to the holders of the Notes (which notice shall be irrevocable and delivered in accordance with Condition

12), redeem the Notes in whole, but not in part, at 100% of their principal amount plus accrued and unpaid interest, if any, to the date fixed for redemption, *provided that* prior to the delivery of any notice of redemption pursuant to this Condition 7.2, the Company shall deliver to the Fiscal Agent (1) a certificate signed by an authorized officer stating that the obligation to pay Additional Amounts (as defined in Condition 8.1) is as a result of any change in, or amendment to, the laws or regulations of a Relevant Jurisdiction (as defined in Condition 8.2), or any change in the general application or official interpretation of such laws or regulations, which change or amendment becomes effective after the date of the original issuance of the Notes and cannot be avoided by the Company taking reasonable measures available to it and (2) an opinion addressed to the Fiscal Agent by an independent law firm of recognized standing admitted to practice in the Relevant Jurisdiction to the effect that the Company has or will become obliged to pay such Additional Amounts as a result of a change or amendment referred to above, and the Fiscal Agent shall be entitled to accept and conclusively rely upon such certificate and opinion (without further investigation or enquiry) as sufficient and conclusive evidence of the conditions precedent referred to in this Condition 7.2, in which event it shall be conclusive and binding on the holders of the Notes and the Fiscal Agent shall be protected and shall have no liability to any holder or any person for so accepting and relying on such certificate or opinion.

7.3 Change of Control Put Right

If a Change of Control Triggering Event occurs, Noteholders will have the right (the "Change of Control Put Right") to require the Company to redeem all or any part (equal to US$200,000 or an integral multiple of US$1,000 in excess thereof) of their Notes pursuant to the offer described below (the "Change of Control Offer"). In the Change of Control Offer, the Company will be required to offer payment in cash equal to 100% of the aggregate principal amount of the Notes redeemed plus accrued and unpaid interest, if any, on the Notes redeemed, to the date of redemption (the "Change of Control Payment"). Within 30 days following any Change of Control Triggering Event, the Company will provide notice to the Noteholders, with a copy to the Agents, describing the events that constitute the Change of Control Triggering Event and offering to redeem the Notes on the date specified in the notice, which date will be no earlier than 30 days and no later than 60 days from the date of such notice (the "Change of Control Payment Date"), pursuant to the provisions of this Condition 7.3. To exercise the Change of Control Put Right, the Holder of the relevant Note must deposit at the specified office of the Fiscal Agent a duly completed and signed Change of Control Put Notice (as defined in the Fiscal Agency Agreement), in the form for the time being current, obtainable from the specified office of the Fiscal Agent during usual business hours (being between 9:00 am to 3:00 pm), together with, in the case of Certificated Notes, the Certificate evidencing the Note to be redeemed, by no later than 10 days prior to the Change of Control Payment Date. To the extent that the provisions of any securities laws (including, without limitation, the Financial Investment Services and Capital Markets Act of Korea) or regulations conflict with this Condition 7.3, the Company will be required to comply with the applicable securities laws and regulations and will not be deemed to have breached its obligations under this Condition 7.3 by complying with such laws and regulations.

On the Change of Control Payment Date, the Company will be required, to the extent lawful, to:

(a) accept for redemption and payment all Notes or portions of Notes properly tendered pursuant to a duly completed Change of Control Put Notice; and

(b) deposit with the Fiscal Agent an amount equal to the Change of Control Payment in respect of all Notes or portions of Notes properly tendered.

For so long as any Note remains outstanding, the Company shall use commercially reasonable efforts to cause at least two Rating Agencies to maintain ratings of the Notes.

For the purposes of this Condition 7.3:

"Change of Control" means the occurrence of any of the following: (1) the direct or indirect sale, transfer, conveyance or other disposition, in one or a series of related transactions, of all or substantially all of the properties or assets of the Company and its subsidiaries taken as a whole to any person other than the Company or one of its subsidiaries (other than for the purposes of, or pursuant to and followed by, a consolidation, amalgamation, merger or reorganization permitted by Condition 3.2) or (2) if at any time SK Telecom Co., Ltd. and its affiliates cease to hold at least 20% of the Company's outstanding shares.

"Change of Control Triggering Event" means the occurrence of both a Change of Control and a Rating Event.

"Moody's" means Moody's Investors Service, Inc.

"Rating Agencies" means (1) each of Moody's and S&P and (2) if any of Moody's or S&P ceases to rate the Notes or fails to make a rating of the Notes publicly available for reasons outside of the Company's control, a "nationally recognized statistical rating organization" recognized by the United States Securities and Exchange Commission, selected by the Company (as certified by a resolution of the Company's board of directors) as a replacement agency for Moody's or S&P (a "Replacement Agency"), or both of them, as the case may be.

"Rating Event" means the Notes are rated (1) below an investment grade credit rating (Ba1, or equivalent, or worse) by Moody's (or a Replacement Agency therefor) or (2) below an investment grade credit rating (BB+, or equivalent, or worse) by S&P (or a Replacement Agency therefor) on any date from the date of the public announcement by the Company of an arrangement that could result in a Change of Control until the end of the 60-day period following public announcement by the Company of the occurrence of the Change of Control (which 60-day period shall be extended so long as the rating of the Notes is under publicly announced consideration for possible downgrade by any of the Rating Agencies).

"S&P" means S&P Global Ratings, a division of S&P Global, Inc.

None of the Agents shall have any duty or obligation to verify or be required to monitor or to take any steps to ascertain whether a Change of Control Triggering Event or any event which could lead to the occurrence of a Change of Control Triggering Event has occurred or whether this Condition 7.3 conflicts with any securities laws or regulations, and shall not be liable to any person for not doing so.

The definition of "*Change of Control*" includes a phrase relating to the sale, transfer, conveyance or other disposition of "all or substantially all" of the property or assets of the Company and its subsidiaries taken as a whole. Although there is a developing body of case law interpreting the phrase "substantially all", there is no precise established definition of the phrase under applicable law. Accordingly, the ability of a Holder to require the Company to repurchase Notes as a result of a sale, transfer, conveyance or other disposition of less than all of the property or assets of the Company and its subsidiaries taken as a whole to another person or group may be uncertain.

7.4 Purchases

The Company or any of its subsidiaries may at any time and from time to time repurchase Notes in the open market or otherwise at any price. Such Notes may be held by the Company, resold or surrendered to the Registrar for cancellation. If purchases are made by tender, tenders must be available to all Noteholders alike.

7.5 Cancellations

All Notes that are redeemed, repurchased or converted and surrendered to the Registrar for cancellation shall forthwith be cancelled. Notes cancelled may not be reissued or resold.

7.6 Redemption Procedures

In the event that the Company is required to deliver a notice to the holders of the Notes under this Condition 7, the Company shall provide, or procure the provision by the Fiscal Agent of, the notice to each holder of the Notes in accordance with Condition 12 and the provisions of the Fiscal Agency Agreement, which notice shall state, to the extent applicable:

(a) the date fixed for redemption;

(b) the applicable redemption price of a Note on the redemption date; and

(c) the names and addresses of all Paying Agents and the Registrar.

7.7 Notices Final

Upon the expiry of any notice as is referred to in Condition 7.2 or 7.3 above, the Company shall be bound to redeem the Notes to which the notice refers in accordance with the terms of such Condition.

8 TAXATION

8.1 Additional Amounts

All payments of principal and interest in respect of the Notes, including any Additional Amounts (as defined below), by or on behalf of the Company shall be made free and clear of and without withholding or deduction for, or on account of, any present or future taxes, duties, assessments or governmental charges of whatever nature ("Taxes") imposed, levied, collected, withheld or assessed by or on behalf of the Relevant Jurisdiction, as defined in Condition 8.2 below, except as required by applicable law. In that event, the Company will, subject to the exceptions and limitations set forth below, pay to a holder of any Note such additional amounts (the "Additional Amounts") as may be necessary in order that every net payment by the Company or a Paying Agent of the principal of and interest on the Note and any other amounts payable on the Note after withholding or deduction for or on account of any present or future tax, duty, assessment or governmental charge imposed or levied by a Relevant Jurisdiction, as defined in Condition 8.2 below, will not be less than the amount provided for in the Note to be then due and payable under the Notes.

However, the obligation to pay Additional Amounts shall not apply:

(a) to the holder or beneficial owner of the Notes who would not be liable for or subject to such deduction or withholding by making a declaration of non-residence or other similar claim for exemption to the relevant tax authority if, after having been requested in writing by the Company to make such a declaration or claim, such holder or beneficial owner of the Notes fails to do so within 30 days; or

(b) to the holder or beneficial owner of the Notes who is subject to Taxes in respect of the Notes by reason of the existence of any present or former connection between the holder (or between a fiduciary, settlor, beneficiary, member or shareholder of the holder, if the holder is an estate, a trust, a partnership, a limited liability company or a corporation) and a Relevant Jurisdiction, other than merely holding a Note or receiving a payment in respect of a Note, including, without limitation, the holder (or such fiduciary, settlor, beneficiary, member or shareholder) being or having been a citizen or resident of a Relevant Jurisdiction or being or having been engaged in a trade or business or present in a Relevant Jurisdiction or having, or having had, a permanent establishment in a Relevant Jurisdiction; or

(c) to the holder or beneficial owner of the Notes who presents the relevant Notes, where presentation is required, for payment on a date more than 30 days after the Relevant Date; or

(d) to any estate, inheritance, gift, sales, transfer, capital gains, excise or personal property tax or any similar tax, duty, assessment or governmental charge; or

(e) to any tax, duty, assessment or other governmental charge that is payable otherwise than by withholding or deduction from payments on or in respect of any Note; or

(f) to any tax, duty, assessment or other governmental charge that would not have been imposed but for the failure to comply with certification, information or other reporting requirements concerning the nationality, residence or identity of the holder or beneficial owner of that Note, if compliance is required by statute or by regulation of a Relevant Jurisdiction as a precondition to relief or exemption from the tax, duty, assessment or other governmental charge, and proper notice has been sent to the holder; or

(g) to any tax, duty, assessment or other governmental charge required to be withheld by any Paying Agent from any payment of the principal of, or interest on, any Note, to the extent such tax, duty, assessment or other governmental charge results from the presentation (where presentation is required) of any Note for payment and the payment can be made without such withholding or deduction by the presentation of the Note for payment by at least one other Paying Agent; or

(h) to any combination of the items listed above.

Nor will Additional Amounts be paid with respect to any payment on a Note to a holder who is a fiduciary, a partnership, a limited liability company or other than the sole beneficial owner of that payment to the extent that payment would be required by the laws of a Relevant Jurisdiction to be included in the income, for tax purposes, of a beneficiary or settlor with respect to the fiduciary, a member of that partnership, an interest holder in a limited liability company or a beneficial owner who would not have been entitled to the Additional Amounts had that beneficiary, settlor, member, interest holder or beneficial owner been the holder.

References in these Conditions to payments in respect of the Notes shall be deemed to refer to any Additional Amounts that may be payable in respect thereof under this Condition 8.1.

The Agent shall in no event be responsible for paying any tax, duty, charges, withholding or other payment referred to in this Condition 8 or for determining whether such amounts are payable or the amount thereof, and shall not be responsible or liable for any failure by the Company or the Noteholders or any other person to pay such tax, duty, charges, withholding or other payment or be responsible to provide any notice or information in relation to the Notes in connection with payment of such tax, duty, charges, withholding or other payment.

Notwithstanding any other provision of these Conditions, any amounts to be paid on the Notes by or on behalf of the Company will be paid net of any deduction or withholding imposed or required pursuant to an agreement described in Section 1471(b) of the U.S. Internal Revenue Code of 1986, as amended (the "Code"), or otherwise imposed pursuant to Sections 1471 through 1474 of the Code (or any regulations thereunder or official interpretations thereof) or an intergovernmental agreement between the United States and another jurisdiction facilitating the implementation thereof (or any fiscal or regulatory legislation, rules or practices implementing such an intergovernmental agreement) (any such withholding or deduction, a "FATCA Withholding"). Neither the Company nor any other person will be required to pay any additional amounts in respect of FATCA Withholding.

8.2 Interpretation

For the purposes of these Conditions:

(a) "Relevant Date" in relation to any Notes means (i) the due date for payment in respect thereof or (ii) if the full amount of the moneys payable on such due date has not been received by the Fiscal Agent or the Principal Paying Agent on or prior to such due date, the date on which notice is duly given to the holders of the Notes that such moneys have been so received; and

(b) "Relevant Jurisdiction" means the Republic of Korea or any political subdivision or any authority thereof or therein having power to tax or any other jurisdiction or any political subdivision or any authority thereof or therein having power to tax to which the Company becomes subject in respect of payments made by it of principal and interest on the Notes.

9 PRESCRIPTION

Claims against the Company in respect of the payment of principal and interest on the Notes shall be prescribed unless made within 10 years (in the case of principal) and five years (in the case of interest) from the Relevant Date (as defined in Condition 8).

10 EVENTS OF DEFAULT

10.1 Events of Default

The holder of any Note may give written notice addressed to the Company and delivered to the Company with a copy to the Fiscal Agent that the Note is, and it shall accordingly forthwith become, immediately due and repayable at its principal amount, together with interest accrued to the date of repayment, if any of the following events (an "Event of Default") shall have occurred and be continuing:

(a) the Company fails to pay the principal or interest, if any, on, any of the Notes, and in the case of principal, the failure continues for a period of seven days and in the case of interest, the failure continues for a period of 30 days; or

(b) the Company fails to perform or observe any of its other obligations under these Conditions or in the Fiscal Agency Agreement and the failure continues for a period of 60 days following the service by any Noteholder on the Company of a notice requiring the same to be remedied; or

(c) if (i) any Indebtedness for Borrowed Money (as defined below) of the Company becomes due and repayable prematurely by reason of an event of default (however described); (ii) the Company fails to make any payment in respect of any Indebtedness for Borrowed Money on the due date for payment; (iii) any security given by the Company for any Indebtedness for Borrowed Money becomes enforceable or proceedings are commenced to enforce any security; or (iv) default is made by the Company in making any payment due under any guarantee and/or indemnity given by it in relation to any Indebtedness for Borrowed Money of any other person; *provided, that* no event described in this Condition 10.1(c) shall constitute an Event of Default unless the relevant amount of Indebtedness for Borrowed Money or other relative liability due and unpaid, either alone or when aggregated (without duplication) with other amounts of Indebtedness for Borrowed Money and/or other liabilities due and unpaid relative to all (if any) other events specified in (i) through (iv) above which have occurred and are continuing, amounts to at least US$30,000,000 (or its equivalent in any other currency); or

(d) if any order is made by any competent court or resolution is passed for the winding up or dissolution of the Company; or

(e) the Company ceases or threatens to cease to carry on the whole or a substantial part of its business save for the purposes of, or pursuant to and followed by, a consolidation, amalgamation, merger or reorganization permitted by Condition 3.2; or

(f) if (i) proceedings are initiated against the Company under any applicable liquidation, insolvency, composition, reorganization or other similar laws or an application is made (or documents filed with a court) for the appointment of an administrative or other receiver, manager, administrator or other similar official, or an administrative or other receiver, manager, administrator or other similar official is appointed, in relation to the Company or, as the case may be, in relation to the whole or any part of its undertaking or assets or an encumbrancer takes possession of the whole or any part of its undertaking or assets, or a distress, execution, attachment, sequestration or other process is levied, enforced upon, sued out or put in force against the whole or any part of its undertaking or assets and (ii) in any such case (other than the appointment of an administrator), unless initiated by the relevant company, is not discharged within 60 days; or

(g) if the Company (or any of its respective directors or shareholders) initiates or consents to juridical proceedings relating to itself under any applicable liquidation, insolvency, composition, reorganization or other similar laws (including the obtaining of a moratorium) or makes a conveyance or assignment for the benefit of, or enters into any composition or other arrangement with, its creditors generally (or any class of its creditors) or any meeting is convened to consider a proposal for an arrangement or composition with its creditors generally (or any class of its creditors); or

(h) any event occurs which under the laws of the Republic of Korea has an analogous effect to any of the events referred to in (a) through (g) above.

10.2 Interpretation

For the purposes of these Conditions:

"Indebtedness for Borrowed Money" means any indebtedness (whether being principal, premium, interest or other amounts) for or in respect of any notes, bonds, debentures, debenture stock, loan stock or other securities or any borrowed money or any liability under or in respect of any acceptance or acceptance credit.

11 REPLACEMENT OF CERTIFICATES

If any Certificated Note is lost, stolen, mutilated, defaced or destroyed it may be replaced at the specified office of the Registrar or such Transfer Agent upon payment by the claimant of the expenses incurred in connection with such replacement and on such terms as to evidence, security, indemnity, prefunding and otherwise as the Company, Registrar or Transfer Agent may require. Mutilated or defaced Certificated Notes must be surrendered before replacements will be issued.

12 NOTICES

All notices to holders of the Notes shall be validly given if mailed to them at their respective addresses in the record of holders of the Notes maintained by the Registrar and deemed to have been given on the fifth weekday (being a day other than a Saturday or a Sunday) after the date of mailing and by the participants, or published in a leading newspaper having general circulation in Asia (which is expected to be the *Asian Wall Street Journal*). Notwithstanding the foregoing, so long as the Notes are represented by the Global Note and the Global Note is held on behalf of DTC, notice to Noteholders may be given by delivery of the relevant notice to DTC, for communication by them to entitled accountholders in substitution for notification as required by the foregoing sentence. The Company shall also ensure that notices are duly given or published in a manner which complies with the rules and regulations of any stock exchange on which the Notes are for the time being listed. Any such notice shall be deemed to have been given on the seventh day after being so mailed or on the date of such publication.

13 MEETINGS OF NOTEHOLDERS, MODIFICATION AND WAIVER

13.1 Meetings of Noteholders

The Fiscal Agency Agreement contains provisions for convening meetings of the Noteholders to consider any matter affecting their interests, including the modification by Extraordinary Resolution (as defined below) of any of these Conditions or any of the provisions of the Fiscal Agency Agreement. Such a meeting may be convened by Noteholders holding not less than 10% of the principal amount of the Notes then outstanding. The quorum at any meeting for passing an Extraordinary Resolution will be one or more persons present holding or representing more than 50% of the principal amount of the Notes then outstanding, or, at any adjourned meeting, one or more persons present holding or representing more than 25% of the principal amount of the Notes then outstanding; *provided, however*, that no such meeting shall consider the modification, amendment or waiver to the Fiscal Agency Agreement or any Note to (i) change the stated maturity of the Notes or the scheduled dates for payment of principal of or interest on any Note; (ii) reduce the principal of or interest on any such Note; (iii) change the currency of payment of the principal of or interest on such Note; or (iv) reduce the above-stated percentage of the aggregate principal amount of the Notes outstanding or reduce the quorum requirements or the percentage of votes required for the taking of any action, in which case the necessary quorum for passing an Extraordinary Resolution will be one or more persons present holding or representing not less than two-thirds, or at any adjourned meeting not less than one-third, of the principal amount of the Notes for the time being outstanding. An Extraordinary Resolution passed at any meeting of the Noteholders will be binding on all Noteholders, whether or not they are present at the meeting.

"Extraordinary Resolution" means a resolution duly passed by either (i) a majority in aggregate principal amount of the Notes then outstanding pursuant to a written resolution of the Noteholders or (ii) 75% in aggregate principal amount of the Notes represented and voting at a duly convened meeting of the Noteholders.

13.2 Modification

The Company shall only permit any modification, without the consent of the Noteholders, to these Conditions or any of the provisions of the Fiscal Agency Agreement either (i) for the purpose of curing any ambiguity or of curing, correcting or supplementing any manifest or proven error or any other defective provision contained herein or therein or (ii) in any other manner which is not materially prejudicial to the interests of the Noteholders. Any determination as to prejudice applying to the interests of the Noteholders pursuant to this Condition shall be made by the Company and none of the Agents shall have any responsibility or liability whatsoever with respect to such determination. Any modification shall be binding on the Noteholders and shall be notified by the Company to the Noteholders as soon as practicable thereafter in accordance with Condition 12.

14 FURTHER ISSUANCES

The Company may from time to time, without notice to or the consent of the holders of the Notes, create and issue further debt securities ranking *pari passu* with the Notes in all respects (or in all respects except for the payment of interest accruing prior to the issue date of the additional Notes or except for the first payment of interest following the issue date of the additional Notes). The Company may consolidate such further debt securities with the outstanding Notes to form a single series to the extent permitted under applicable law. References in these Conditions to the Notes include (unless the context requires otherwise) any other securities issued pursuant to this Condition 14 and forming a single series with the Notes, provided, however that the Company shall not issue any further debt securities with the same CUSIP, ISIN or other identifying number as the Notes of a series outstanding hereunder unless such further debt securities will be treated as fungible with the Notes of such series for U.S. federal income tax purposes.

15 GOVERNING LAW AND SUBMISSION TO JURISDICTION

15.1 Governing Law

The Fiscal Agency Agreement and the Notes are governed by, and shall be construed in accordance with, the laws of the State of New York.

15.2 Jurisdiction

The Company agrees that any legal suit, action or proceeding arising out of or based upon the Fiscal Agency Agreement or the Notes may be instituted in any state or federal court in the Borough of Manhattan, the State and City of New York.

The Company, to the fullest extent it is permissible to do so under applicable law, (a) waives any objection which it may have now or hereafter to the laying of the venue of any such suit, action or proceeding in any such court and (b) irrevocably submits to the non-exclusive jurisdiction of any such court in any suit, action or proceeding.

15.3 Appointment of Process Agent

The Company has agreed to irrevocably appoint SK hynix America Inc., located at 3101 North 1^{st} Street, San Jose, CA 95134, as its authorized agent in the State of New York to receive service of process in any proceedings in the State of New York based on any of the Notes or the Fiscal Agency Agreement. The Company agrees that in the event of such agent ceasing so to act it will appoint such other person as its agent for that purpose.

16 Currency Indemnity

The Company's obligations under the Notes to make all payments in U.S. dollars will not be satisfied by any payment, recovery or any other realization of proceeds in any currency other than the U.S. dollar. If pursuant to any such judgment, conversion shall be made on a date (the "Substitute Date") other than the date of entry of judgment (the "Judgment Date") and there shall occur a change between the market exchange rate for the U.S. dollar as in effect on the Substitute Date and the market exchange rate as in effect on the Judgment Date, the Company agrees to pay such Additional Amounts (if any) in U.S. dollars as may be necessary to ensure that the amount paid is equal to the amount in such other currency or currency unit which, when converted at the market exchange rate as in effect on the Judgment Date, is the amount due under any Notes. To the extent permitted by applicable law, any amount due from the Company under this Condition 16 shall be due as a separate debt and is not to be affected by or merged into any judgment being obtained for any other sums due in respect of any Notes. In no event, however, shall the Company be required to pay more in U.S. dollars due under the Notes at the market exchange rate as in effect on the Judgment Date than the amount of U.S. dollars stated to be due under the Notes so that in any event the Company's obligations under the Notes will be effectively maintained as obligations in U.S. dollars and the Company shall be entitled to withhold (or be reimbursed for, as the case may be) any excess of the amount actually realized upon any such conversion on the Substitute Date over the amount due on the Judgment Date.

TAXATION

Korean Taxation

The information provided below does not purport to be a complete summary of Korean tax law and practice currently applicable. Prospective investors who are in any doubt as to their tax position should consult with their own professional advisors.

The taxation of non-resident individuals and non-Korean corporations ("Non-Residents") depends on whether they have a "permanent establishment" (as defined under Korean law and applicable tax treaty) in Korea to which the relevant Korean source income is attributable or with which such income is effectively connected. Non-Residents without a permanent establishment in Korea are taxed in the manner described below. Non-Residents with permanent establishments in Korea are taxed in accordance with different rules.

Tax on Interest

Interest on the Notes paid to Non-Residents, being foreign currency denominated bonds issued outside of Korea, is exempt from income tax and corporation tax (whether payable by withholding or otherwise) pursuant to the Special Tax Treatment Control Law (the "STTCL").

If the tax exemption under the STTCL referred to above were to cease to be in effect, the rate of income tax or corporation tax applicable to interest on the Notes, for a Non-Resident without a permanent establishment in Korea, would be 14% of income. In addition, a tax surcharge called a local income tax would be imposed at the rate of 10% of the income or corporation tax (raising the total tax rate to 15.4%).

The tax rates may be reduced by an applicable tax treaty, convention or agreement between Korea and the resident country of the recipient of the income. The relevant tax treaties are discussed below.

In addition, in order to obtain the benefit of a reduced rate available under applicable tax treaties, a Non-Resident holder must submit an application for entitlement to reduced tax rate to the party liable for the withholding before the receipt of the relevant interest payment (if there is no change in the contents of such application, it is not required to submit such application again within 3 years thereafter), together with a certificate of the Non-Resident holder's tax residence issued by a competent authority of the Non-Resident holder's resident country under certain circumstances. If the Non-Resident holder was unable to receive the benefit of a reduced rate due to his or her failure to timely submit the aforementioned application, the Non-Resident holder may still receive a tax return if the submission is made within five years thereafter. If interest is paid to an overseas investment vehicle, the overseas investment vehicle (subject to certain exceptions) must collect from each of its beneficial owners an application for entitlement to reduced tax rate and submit a report of overseas investment vehicle and a schedule of beneficial owners to the payer of the interest. Effective from January 1, 2020, an overseas investment vehicle that was not established for the purpose of unjustifiably reducing income tax liabilities in Korea and bears tax liabilities in the country of its residence is deemed to be a beneficial owner of Korean source income for income tax purposes. The benefits under a tax treaty between Korea and the country of such overseas investment vehicle's residence will apply with respect to the relevant income paid to such overseas investment vehicle, subject to certain application requirements as prescribed by the Korean tax laws.

Tax on Capital Gains

Korean tax laws currently exclude from Korean taxation gains made by a Non-Resident without a permanent establishment in Korea from the sale of the Notes to other Non-Residents (other than to their permanent establishments in Korea). In addition, capital gains earned by Non-Residents with or without permanent establishments in Korea from the transfer taking place outside Korea of the Notes are currently exempt from taxation by virtue of STTCL, provided that the issuance of the Notes is deemed to be an overseas issuance under the STTCL.

If the exclusion or exemption from Korean taxation referred to above were to cease to be in effect, in the absence of an applicable treaty reducing or eliminating tax on capital gains, the applicable rate of tax would be the lower of 11% (including local income tax) of the gross realization proceeds or (subject to the production of satisfactory evidence of the acquisition cost and certain direct transaction costs of the relevant Note) 22% (including local income tax) of the realized gain (i.e., the excess of the gross realization proceeds over the acquisition cost and certain direct transaction costs) made. If such evidence shows that no gain (or a loss) was made on the sale, no Korean tax is payable. There is no provision under relevant Korean law to allow offsetting of gains and losses or otherwise aggregating transactions for the purpose of computing the net gain attributable to sales of Notes issued by Korean companies. The purchaser or any other designated withholding agent of Notes is obliged under Korean law to withhold the applicable amount of Korean tax and make payment thereof to the relevant Korean tax authority. Unless the seller can claim the benefit of an exemption from tax under an applicable tax treaty or on the failure of the seller to produce satisfactory evidence of his acquisition cost and certain direct transaction costs in relation to the instruments being sold, the purchaser or such withholding agent must withhold an amount equal to 11% of the gross realization proceeds. Any amounts withheld by the purchaser or such withholding agent must be paid to the competent Korean tax office. The purchaser or withholding agent must pay any withholding tax no later than the tenth day of the month following the month in which the payment for the purchase of the relevant instruments occurred. Failure to transmit the withheld tax to the Korean tax authorities in time subjects the purchaser or such withholding agent to penalties under Korean tax laws.

Furthermore, for a Non-Resident to obtain the benefit of a tax exemption on certain Korean source income (e.g., interest payments and capital gains) under an applicable tax treaty, Korean tax law requires such Non-Resident (or its agents) to submit to the payer of such Korean source income an application for tax exemption under a tax treaty along with a certificate of tax residency of such Non-Resident issued by a competent authority of the Non-Resident's country of tax residence, subject to certain exceptions. The payer of such Korean source income, in turn, is required to submit such application to the relevant district tax office by the ninth day of the month following the date of the first payment of such income. Subject to certain exceptions, where the relevant income is paid to an overseas investment vehicle, the overseas investment vehicle must collect from each of its beneficial owners an application for tax exemption, together with a certificate of tax residence of the beneficial owner and submit a report of overseas investment vehicle and a schedule of beneficial owners, together with its beneficial owner's application for tax exemption. Effective from January 1, 2020, an overseas investment vehicle that was not established for the purpose of unjustifiably reducing income tax liabilities in Korea and bears tax liabilities in the country of its residence is deemed to be a beneficial owner of Korean source income for income tax purposes. The benefits under a tax treaty between Korea and the country of such overseas investment vehicle's residence will apply with respect to the relevant income paid to such overseas investment vehicle, subject to certain application requirements as prescribed by the Korean tax laws.

Inheritance and Gift Tax

Korean inheritance tax is imposed upon (a) all assets (wherever located) of the deceased if at the time of his death he was domiciled in Korea or had resided in Korea continuously for at least 183 days immediately prior to his death and (b) all property located in Korea that passes on death (irrespective of the domicile of the deceased). Gift tax is imposed in similar circumstances to the above. The taxes are imposed if the value of the relevant property is above a certain limit and the rate varies from 10% to 50% based on the value of the relevant property. At present, Korea has not entered into any tax treaties regarding its inheritance or gift taxes.

Under Korean inheritance and gift tax laws, bonds issued by Korean corporations are deemed located in Korea irrespective of where they are physically located or by whom they are owned, and, consequently, the Korean inheritance and gift taxes will be imposed on transfers of the Notes by inheritance or gift. Prospective purchasers should consult their personal tax advisors regarding the consequences of the imposition of the Korean inheritance or gift tax.

Stamp Duty and Securities Transaction Tax

No stamp, issue or registration duties will be payable in Korea by the holders of the Notes in connection with the issue of the Notes except for a nominal amount of stamp duty on certain documents executed in Korea which will be paid by the Company. No securities transaction tax will be imposed upon the transfer of the Notes.

Tax Treaties

At the date of this Offering Circular, Korea has tax treaties with, inter alia, Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Luxembourg, The Netherlands, New Zealand, Norway, Singapore, Sweden, Switzerland, the United Kingdom and the United States of America, under which the rate of withholding tax on interest is reduced, generally to between 10 and 16.5% (including local income tax), and the tax on capital gains is often eliminated.

Each holder of the Notes should inquire whether such holder is entitled to the benefit of a tax treaty with respect to any transaction involving the Notes. It is the responsibility of the party claiming the benefits of a tax treaty in respect of interest payments and capital gains to file with the payer or the Company a certificate as to his tax residence. In the absence of sufficient proof, the payer or the Company must withhold taxes in accordance with the above discussion.

Withholding and Gross Up

As mentioned above, interest on the Notes paid to Non-Residents without a permanent establishment in Korea is exempt from any withholding or deduction on account of income tax or corporation tax pursuant to STTCL if the Notes are deemed to be issued outside Korea under the STTCL. However, in the event that the payer or the Company is required by law to make any withholding or deduction for or on account of any Korean taxes (as more fully described in “Terms and Conditions of the Notes — Taxation”) the Company has agreed to pay (subject to the customary exceptions as set out in “Terms and Conditions of the Notes — Taxation”) such Additional Amounts as may be necessary in order that the net amounts received by the holder of any Note after such withholding or deduction shall equal the respective amounts which would have been received by such holder in the absence of such withholding or deduction.

United States Federal Income Taxation

The following is a summary of certain U.S. federal income tax considerations that may be relevant to a U.S. Holder (as defined below) of a Note. This summary is based on provisions of the Internal Revenue Code of 1986, as amended, applicable Treasury regulations, laws, rulings and decisions currently in effect, all of which are subject to change, possibly with retroactive effect. This summary deals only with beneficial owners of Notes that will hold Notes as capital assets and that acquired the Notes upon original issuance at their original offering price. It does not address particular tax considerations that may be applicable to investors that are subject to special tax rules, such as banks and other financial institutions, tax-exempt entities, insurance companies, individual retirement accounts and other tax-deferred accounts, regulated investment companies, dealers in securities or currencies, traders in securities electing to mark to market, persons that will hold Notes as a position in a "straddle," hedging, or conversion transaction, or as part of a "synthetic security" or other integrated financial transaction, entities or arrangements taxed as partnerships for U.S. federal income tax purposes or the partners therein, nonresident alien individuals present in the United States for more than 182 days during the taxable year, persons that have ceased to be U.S. citizens or lawful permanent residents of the United States or persons that have a "functional currency" other than the U.S. dollar.

This summary addresses only U.S. federal income tax consequences and does not address consequences arising under state, local, non-U.S. tax laws, the alternative minimum tax, the Medicare tax on net investment income or from the possible applicability of U.S. federal gift or estate tax laws. Investors should consult their own tax advisors in determining the tax consequences to them of holding Notes under such tax laws, as well as the application to their particular situation of the U.S. federal income tax considerations discussed below.

As used herein, a "U.S. Holder" is a beneficial owner of a Note that is, for U.S. federal income tax purposes, an individual citizen or resident of the United States or a U.S. domestic corporation or that otherwise will be subject to U.S. federal income taxation on a net income basis in respect of the Note. A "non-U.S. Holder" is a beneficial owner of a Note that, for U.S. federal income tax purposes, is an individual, corporation, foreign estate, or foreign trust that is not a U.S. Holder.

U.S. Holders that use an accrual method of accounting for tax purposes ("accrual method holders") generally are required to include certain amounts in income no later than the time such amounts are reflected on certain financial statements (the "book/tax conformity rule"). The application of the book/tax conformity rule thus may require the accrual of income earlier than would be the case under the general tax rules described below, although it is not entirely clear to what types of income the book/tax conformity rule applies, or, in some cases, how the rule is to be applied if it is applicable. However, proposed regulations generally would exclude, among other items, original issue discount ("OID") (whether or not de minimis) from the applicability of the book/tax conformity rule. Although the proposed regulations generally will not be effective until taxable years beginning after the date on which they are issued in final form, taxpayers generally are permitted to elect to rely on their provisions currently. Accrual method holders should consult with their tax advisors regarding the potential applicability of the book/tax conformity rule to their particular situation.

Investors should consult their tax advisors concerning the particular U.S. federal income tax consequences of the purchase, ownership and disposition of the Notes, as well as the consequences under the laws of any other taxing jurisdiction.

Payments of Interest and Additional Amounts

The gross amount of stated interest and any Additional Amounts (i.e., without reduction for Korean withholding taxes, if any, determined utilizing the appropriate Korean withholding tax rate applicable to the U.S. Holder), excluding any pre-issuance accrued interest, will be taxable to a U.S. Holder as ordinary interest income at the time it accrues or is actually or constructively received, in accordance with the U.S. Holder's method of accounting for U.S. federal income tax purposes. It is expected, and this discussion assumes, that the Notes will be issued without OID for U.S. federal income tax purposes. In general, however, if the Notes are issued with OID at or above a de minimis threshold, a U.S. Holder will be required to include OID in gross income, as ordinary income, under a "constant-yield method" before the receipt of cash attributable to such income, regardless of the U.S. Holder's regular method of accounting for U.S. federal income tax purposes. Prospective investors should consult their tax advisors concerning the applicability of the foreign tax credit and source of income rules attributable to the Notes.

As discussed in "— Korean Taxation — Tax on Interest," interest paid on the Notes to a U.S. Holder is expected to be exempt from Korean taxes. If, however, that tax exemption were to cease to apply, then, subject to generally applicable restrictions and conditions under U.S. tax law, Korean withholding taxes paid at the appropriate rate applicable to the U.S. Holder will be treated as foreign income taxes eligible (i) for credit against the U.S. Holder's U.S. federal income tax liability, or (ii) if the U.S. Holder so elects, for deduction in computing the U.S. Holder's taxable income (provided that the U.S. Holder elects to deduct, rather than credit, all foreign income taxes paid or accrued for the relevant taxable year). Interest and Additional Amounts will constitute income from sources without the United States for foreign tax credit purposes. Such income generally will constitute "passive category income" or, in the case of certain U.S. Holders, "general category income." The calculation of foreign tax credits and, in the case of a U.S. Holder that elects to deduct foreign taxes, the availability of such deduction, involves the application of rules that depend on a U.S. Holder's particular circumstances. Investors should consult their tax advisors regarding the availability of foreign tax credits or deductions in their particular situation.

Sale, Exchange and Retirement of Notes

Upon the sale, exchange or retirement of a Note, a U.S. Holder generally will recognize gain or loss equal to the difference between the amount realized on the sale, exchange or retirement (less any accrued interest, which will be taxable as such) and the U.S. Holder's tax basis in such Note. A U.S. Holder's tax basis in a Note will generally equal the cost of the Note to the U.S. Holder. Gain or loss recognized upon a sale, exchange or retirement of a Note generally will be long-term capital gain or loss if the U.S. Holder has held the Note for more than one year at the time of disposition. Long-term capital gains recognized by an individual holder generally are subject to tax at a lower rate than short-term capital gains or ordinary income. The deduction of capital losses is subject to limitations.

As discussed in "— Korean Taxation — Tax on Capital Gains," no Korean tax is currently expected to be imposed in respect of a sale or other disposition of Notes by a U.S. Holder (excluding sale or disposition to a Korean resident). If Korean tax were to be imposed on such a disposition of Notes, however, a U.S. Holder may not be able to credit the tax against the U.S. Holder's U.S. federal income tax liability, unless the credit can be applied (subject to applicable conditions and limitations) against tax due on other income treated as derived from foreign sources, because capital gains recognized by a U.S. Holder generally will be U.S.-source gains. An applicable tax treaty (such as the tax treaty between the United States and Korea) may alter this result if a given U.S. Holder meets certain requirements. In addition, if a U.S. Holder is eligible for the benefits of the tax treaty between the United States and Korea, any Korean taxes withheld in excess of the rate applicable under the treaty may not be eligible for credit against a U.S. Holder's federal income tax liability. Investors should consult their tax advisors as to their eligibility for benefits under the tax treaty between the United States and Korea and the foreign tax credit implications of a disposition of the Notes.

Specified Foreign Financial Assets

Certain U.S. Holders that own "specified foreign financial assets" with an aggregate value in excess of $50,000 on the last day of the taxable year or $75,000 at any time during the taxable year are generally required to file an information statement along with their tax returns, currently on Form 8938, with respect to such assets. "Specified foreign financial assets" include any financial accounts held at a non-U.S. financial institution, as well as securities issued by a non-U.S. issuer (which may include Notes issued in certificated form) that are not held in accounts maintained by financial institutions. Higher reporting thresholds apply to certain individuals living abroad and to certain married individuals. Regulations extend this reporting requirement to certain entities that are treated as formed or availed of to hold direct or indirect interests in specified foreign financial assets based on certain objective criteria. U.S. Holders who fail to report the required information could be subject to substantial penalties. In addition, the statute of limitations for assessment of tax would be suspended, in whole or part. Prospective investors should consult their own tax advisors concerning the application of these rules to their investment in the Notes, including the application of the rules to their particular circumstances.

Information Reporting and Backup Withholding

Information returns will be filed with the IRS in connection with payments on the Notes made to, and the proceeds of sales or other dispositions of Notes effected by, certain U.S. Holders. In addition, a U.S. Holder may be subject to backup withholding in respect of such amounts unless the U.S. Holder (i) is a corporation or comes within certain other exempt categories and demonstrates this fact, or (ii) provides a correct taxpayer identification number, certifies as to no loss of exemption from backup withholding and otherwise complies with applicable requirements of the backup withholding rules. Holders who are not U.S. persons may be required to comply with applicable certification procedures to establish that they are not U.S. persons in order to avoid the application of such information reporting requirements and backup withholding. The amount of any backup withholding from a payment to a holder will be allowed as a credit against the holder's U.S. federal income tax liability and may entitle the holder to a refund, provided that the required information is timely furnished to the IRS. Investors should consult their tax advisors about these rules and any other reporting obligations that may apply to their ownership or disposition of Notes.

Proposed Financial Transaction Tax ("FTT")

On February 14, 2013, the European Commission published a proposal (the "Commission's Proposal") for a Directive for a common FTT in Belgium, Germany, Estonia, Greece, Spain, France, Italy, Austria, Portugal, Slovenia and Slovakia (the "Participating Member States"), which, if enacted, could apply under certain circumstances, to transactions involving the Notes. The issuance and subscription of Notes should be exempt. Estonia has officially announced its withdrawal from the negotiations.

The mechanism by which the tax would be applied and collected is not yet known, but if the proposed directive or any similar tax is adopted, transactions in the Notes would be subject to higher costs, and the liquidity of the market for the Notes may be diminished.

Following the lack of consensus in the negotiations on the Commission's Proposal, the Participating Member States (excluding Estonia which withdrew) have agreed to continue negotiations on a new proposal based on the French model of the tax which would only concern listed shares of EU companies whose market capitalization exceeds €1 billion as of December 1 of the year preceding the taxation year. According to this new proposal, the applicable tax rate would be at least 0.2%. Primary market transactions should be exempt. However, this new proposal could be subject to changes before any implementation, the timing of which remains unclear.

Additional EU Member States may decide to participate and/or certain of the Participating Member States may decide to withdraw (in addition to Estonia which already withdrew).

Prospective holders of the Notes are advised to seek their own professional advice in relation to the consequences of the FTT that could be associated with subscribing for, purchasing, holding and disposing of the Notes.

PLAN OF DISTRIBUTION

Subject to the terms and conditions stated in the purchase agreement dated January 13, 2021, (the "Purchase Agreement"), each initial purchaser named below (each, an "Initial Purchaser" and collectively, the "Initial Purchasers") has severally agreed to purchase from the Company, and the Company has agreed to sell to such Initial Purchaser, the principal amount of the 2024 Notes, 2026 Notes and the 2031 Notes set forth opposite the name of such Initial Purchaser.

Initial Purchasers	Principal Amount of the 2024 Notes	Principal Amount of the 2026 Notes	Principal Amount of the 2031 Notes
BNP Paribas	US$ 71,429,000	US$ 142,857,000	US$ 142,857,000
Citigroup Global Markets Inc.	71,429,000	142,857,000	142,857,000
Crédit Agricole Corporate and Investment Bank	71,429,000	142,857,000	142,857,000
Credit Suisse (Hong Kong) Limited	71,429,000	142,857,000	142,857,000
The Hongkong and Shanghai Banking Corporation Limited	71,428,000	142,858,000	142,858,000
J.P. Morgan Securities plc	71,428,000	142,857,000	142,857,000
Merrill Lynch International	71,428,000	142,857,000	142,857,000
Total	US$500,000,000	US$1,000,000,000	US$1,000,000,000

The Purchase Agreement provides that the obligations of each of the Initial Purchasers to purchase the Notes are subject to approval of certain legal matters by counsel and to certain other conditions. Each of the Initial Purchasers must purchase all the Notes set forth opposite its name if they purchase any of the Notes. The Purchase Agreement also provides that if an Initial Purchaser defaults, the purchase commitments of non-defaulting Initial Purchasers may be increased or the offering may be terminated.

Commissions and Discounts

The purchase price for each of the Notes will be the applicable offering price set forth on the cover page of this Offering Circular net of a combined management and underwriting commission. After the initial offering, the offering price or any other selling term may be changed.

New Issue of Notes

The Notes are a new issue of securities with no established trading market. The Initial Purchasers have advised that they presently intend to make a market in the Notes after completion of the offering. However, they are under no obligation to do so and may discontinue any market-making activities at any time without any notice. The Company cannot assure the liquidity of the trading market for the Notes. If an active trading market for the Notes does not develop, the market price and liquidity of the Notes may be adversely affected. If the Notes are traded, they may trade at a discount from their initial offering price, depending on prevailing interest rates, the market for similar securities, the Company's operating performance and financial condition, general economic conditions and other factors.

Settlement

Delivery of the Notes is expected on or about January 19, 2021.

No Sales of Similar Securities

The Company has agreed that it will not issue, offer, sell or contract to sell, or otherwise dispose of or enter into any transaction which is designed to, or might reasonably be expected to, result in the offer of, or announce the offering of, any non-Won denominated debt securities issued or guaranteed by the Company (other than the Notes), without the prior written consent of the Initial Purchasers for a period of 30 days following the date of this Offering Circular.

Short Positions

In connection with the offering, the Initial Purchasers may purchase and sell the Notes in the open market. These transactions may include short sales and purchases on the open market to cover positions created by short sales. Short sales involve the sale by the Initial Purchasers of a greater principal amount of Notes than they are required to purchase in the offering. The Initial Purchasers must close out any short position by purchasing Notes in the open market. A short position is more likely to be created if the Initial Purchasers are concerned that there may be downward pressure on the price of the Notes in the open market after pricing that could adversely affect investors who purchase in the offering.

Similar to other purchase transactions, the Initial Purchasers' purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of the Notes or preventing or retarding a decline in the market price of the Notes. As a result, the price of the Notes may be higher than the price that might otherwise exist in the open market.

None of the Company and the Initial Purchasers make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of the Notes. In addition, none of the Company and the Initial Purchasers make any representation that the Initial Purchasers will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

It is expected that delivery of the Notes will be made against payment therefor on or about the Closing Date, which will be the third business day following the date of pricing of the Notes. Pursuant to Rule 15c6-1 under the Exchange Act, trades in the secondary market generally are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. Accordingly, purchasers who wish to trade Notes on the date of pricing or the next succeeding business day will be required, by virtue of the fact that the Notes initially will settle three business days following the pricing date (T+3), to specify an alternate settlement cycle at the time of any such trade to prevent a failed settlement. Purchasers of Notes who wish to trade Notes on the date of pricing or the next succeeding business day should consult their own advisor.

Selling Restrictions

United States

The Notes have not been and will not be registered under the Securities Act, and may not be offered or sold within the United States, except in certain transactions exempt from the registration requirements of the Securities Act. Terms used in this paragraph have the meanings given to them by Regulation S.

The Notes are being offered and sold outside of the United States in reliance on Regulation S. The Purchase Agreement provides that Initial Purchasers may directly or through their respective U.S. broker-dealer affiliates arrange for the offer and resale of Notes within the United States only to qualified institutional buyers in reliance on Rule 144A.

In addition, until 40 days after the commencement of the offering of the Notes, an offer or sale of Notes within the United States by a dealer that is not participating in the Offering may violate the registration requirements of the Securities Act if such offer or sale is made otherwise than in accordance with Rule 144A.

European Economic Area and the United Kingdom

In relation to each Member State of the European Economic Area and the United Kingdom (each, a "Relevant State"), each Initial Purchaser has represented and agreed that it has not made, and will not make, an offer of Notes which are the subject of the offering contemplated by this Offering Circular in relation thereto to the public in that Relevant State, except it may make an offer of such Notes to the public in that Relevant State:

(a) at any time to any legal entity which is a qualified investor as defined in the Prospectus Regulation;

(b) at any time to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Regulation), subject to obtaining the prior consent of the relevant Initial Purchaser or Initial Purchasers nominated by the Company for any such offer; or

(c) at any time in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of Notes referred to in (a) to (c) above shall require the Company or any Initial Purchaser to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation.

For the purposes of this provision, the expression an "offer of notes to the public" in relation to any Notes in any Relevant State means the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes, and the expression "Prospectus Regulation" means Regulation (EU) 2017/1129.

United Kingdom

Each Initial Purchaser has represented and agreed that:

(a) it has only communicated or caused to be communicated, and will only communicate or cause to be communicated, an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the Financial Services and Markets Act 2000 (the "FSMA")) received by it in connection with the issue or sale of the Notes in circumstances in which Section 21(1) of the FSMA does not apply to the Company; and

(b) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the Notes in, from or otherwise involving the United Kingdom.

Switzerland

This Offering Circular is not intended to constitute an offer or solicitation to purchase or invest in the Notes. The Notes may not be publicly offered, directly or indirectly, in Switzerland within the meaning of the Swiss Financial Services Act ("FinSA"), and no application has or will be made to admit the Notes to trading on any trading venue (exchange or multilateral trading facility) in Switzerland. Neither this Offering Circular nor any other offering or marketing material relating to the Notes constitutes a prospectus pursuant to the FinSA, and neither this Offering Circular nor any other offering or marketing material relating to the Notes may be publicly distributed or otherwise made publicly available in Switzerland.

Hong Kong

Each Initial Purchaser has represented and agreed that:

(i) it has not offered or sold, and will not offer or sell, in Hong Kong, by means of any document, any Notes other than (a) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong (the "SFO") and any rules made under the SFO; or (b) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong (the "C(WUMP)O") or which do not constitute an offer to the public within the meaning of the C(WUMP)O; and

(ii) it has not issued or had in its possession for the purposes of issue, and will not issue or have in its possession for the purposes of issue, whether in Hong Kong or elsewhere, any advertisement, invitation or document relating to the Notes, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong), other than with respect to Notes which are, or are intended to be, disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the SFO and any rules made under the SFO.

Japan

The Notes have not been, and will not be, registered under the Financial Instruments and Exchange Act of Japan (Act No. 25 of 1948, as amended, the "Financial Instruments and Exchange Act"). Accordingly, each Initial Purchaser has represented and agreed that it has not, directly or indirectly, offered or sold and will not, directly or indirectly, offer or sell any Notes in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan) or to others for re-offering or re-sale, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Act and other relevant laws and regulations of Japan.

Singapore

This Offering Circular has not been and will not be registered as a prospectus with the Monetary Authority of Singapore under the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"). Accordingly, this Offering Circular and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the Notes may not be circulated or distributed, nor may the Notes be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to any person in Singapore other than (i) to an institutional investor under Section 274 of the SFA, (ii) to a relevant person pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA and (where applicable) Regulation 3 of the Securities and Futures (Classes of Investors) Regulations 2018 of Singapore, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the Notes are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

(a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor, securities or securities-based derivatives contracts (each term as defined in the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the Notes pursuant to an offer made under Section 275 of the SFA except:

(i) to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

(ii) where no consideration is or will be given for the transfer;

(iii) where the transfer is by operation of law;

(iv) as specified in Section 276(7) of the SFA; or

(v) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018 of Singapore.

Notification under Section 309B(1)(c) of the SFA: The Company has determined, and hereby notifies all relevant persons (as defined in Section 309A(1) of the SFA), that the Notes are prescribed capital markets products (as defined in the Securities and Futures (Capital Markets Products) Regulations 2018 of Singapore) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

Italy

The offering of the Notes has not been registered with the *Commissione Nazionale per le Società e la Borsa* ("CONSOB") pursuant to Italian securities legislation and, accordingly, no Notes may be offered, sold or delivered, nor may copies of this Offering Circular or of any other document relating to any Notes be distributed in Italy, except in accordance with any Italian securities, tax and other applicable laws and regulations.

Each Initial Purchaser has represented and agreed that it has not offered, sold or delivered, and will not offer, sell or deliver, any Notes or distribute any copy of this Offering Circular or any other document relating to the Notes in Italy except:

(a) to qualified investors (*investitori qualificati*), as defined pursuant to Article 100 of Legislative Decree no. 58 of 24 February 1998 (the "Financial Services Act") and Article 34-ter, paragraph 1, letter (b) of CONSOB regulation No. 11971 of 14 May 1999 (the "Issuers Regulation"), all as amended from time to time; or

(b) in other circumstances which are exempted from the rules on public offerings pursuant to Article 100 of the Financial Services Act and Issuers Regulation.

In any event, any offer, sale or delivery of the Notes or distribution of copies of this Offering Circular or any other document relating to the Notes in Italy under paragraphs (a) or (b) above must be:

(i) made by an investment firm, bank or financial intermediary permitted to conduct such activities in Italy in accordance with the Financial Services Act, Legislative Decree No. 385 of 1 September 1993 (the "Banking Act") and CONSOB Regulation No. 20307 of 15 February 2018, all as amended from time to time;

(ii) in compliance with Article 129 of the Banking Act, as amended from time to time, and the implementing guidelines of the Bank of Italy, as amended from time to time; and

(iii) in compliance with any other applicable laws and regulations, including any limitation or requirement which may be imposed from time to time by CONSOB or the Bank of Italy or other competent authority.

Korea

Each Initial Purchaser severally but not jointly has represented, warranted and agreed that the Notes have not been and will not be registered with the Financial Services Commission of Korea (the "FSC") under the Financial Investment Services and Capital Markets Act of Korea (the "FSCMA"), as amended, and accordingly the Notes may not be offered, sold or delivered, directly or indirectly, in Korea or to, or for the account or benefit of, any Korean resident (as such term is defined in the Foreign Exchange Transaction Act of Korea and its Presidential Decree) at the time of issuance of the Notes, except (i) if Article 2-2-2, Paragraph 2, Item 3 of the Regulation on Issuance and Public Disclosure, Etc. of Securities of Korea is applicable, the Notes may be offered, sold or delivered to a Korean Qualified Institutional Buyer (a "Korean QIB") as specified in Article 2-2, Paragraph 2, Item 4 of the above-mentioned regulation and who is registered with the Korea Financial Investment Association as a Korean QIB, provided that at least 80% of the aggregate issue amount of the Notes shall be allocated to non-residents of Korea (as such term is defined in the Foreign Exchange Transaction Act of Korea and its Presidential Decree) (which applies only to the Notes acquired from the Issuer or any Initial Purchaser at the time of issuance of the Notes), and the other requirements as set forth in Article 2-2-2, Paragraph 2, Item 3 referred to above are satisfied, or (ii) as otherwise permitted by applicable Korean laws and regulations. Each Initial Purchaser severally but not jointly has undertaken to ensure that any securities dealer to which it sells Notes confirms that it is purchasing such Notes as principal and agrees with such Initial Purchaser that it will comply with the restrictions described above.

TRANSFER RESTRICTIONS

Because of the following restrictions, purchasers are advised to consult with legal counsel prior to making any offer, resale, pledge or other transfers of the Notes.

Transfer Restrictions under Korean Law

Each purchaser of the Notes, by accepting delivery of this Offering Circular, will be deemed to have represented, warranted and agreed as follows:

(a) The Notes have not been and will not be registered with the FSC under the FSCMA, as amended. Accordingly, the Notes may not be offered, sold or delivered, directly or indirectly, in Korea or to, or for the account or benefit of, any Korean resident (as such term is defined in the Foreign Exchange Transaction Act of Korea and its Presidential Decree) or to others for re-offering or resale, directly or indirectly, in Korea or to any Korean resident, except as otherwise permitted under applicable Korean laws and regulations. In addition, for a period of one year from the date of issuance of the Notes, the Notes may not be transferred to any Korean resident other than a Korean Qualified Institutional Buyer (a "Korean QIB") as specified in Article 2-2, Paragraph 2, Item 4 of the Regulation on Issuance and Public Disclosure, Etc. of Securities of Korea and who is registered with the Korean Financial Investment Association as a Korean QIB, provided that the Notes are issued as straight bonds other than equity-linked bonds, such as convertible bonds, bonds with warrants and exchangeable bonds, and all of the following requirements under Article 2-2-2, Paragraph 2, Item 3 of the above regulation are satisfied: (1) the Notes shall be issued in a currency other than Won and the principal and interest thereof shall be paid in a currency other than Won, (2) at least 80% of the aggregate issue amount of the Notes shall be allocated to non-residents of Korea (as such term is defined in the Foreign Exchange Transaction Act of Korea and its Presidential Decree) (which applies only to the Notes acquired from the Issuer or any Initial Purchaser at the time of issuance of the Notes), (3) the Notes shall be those listed on a major overseas securities market specified by the governor of the Financial Supervisory Service of Korea, those registered with or reported to a foreign financial investment supervisory agency of the country in which the above securities market is established, or those for which any other procedure that may be deemed a public offering is completed, (4) measures shall be taken to state the condition that the Notes shall not be transferred to any Korean resident other than Korean QIBs at the time of issuance or within one year from the date of issuance of the Notes on the face of such Notes (limited to the case where any physical instrument is issued), the purchase agreement and offering documents and (5) the Issuer and the manager(s) (limited to the case where any manager is appointed) shall take measures under foregoing items (1) through (4) and the Issuer and the managers shall severally or jointly preserve evidential documents in relation thereto, or (ii) as otherwise permitted by applicable Korean laws and regulations.

(b) The Notes will bear legends to the following effect:

THE NOTES HAVE NOT BEEN AND WILL NOT BE REGISTERED UNDER THE FINANCIAL INVESTMENT SERVICES AND CAPITAL MARKETS ACT OF KOREA. ACCORDINGLY, THE NOTES MAY NOT BE OFFERED, SOLD OR DELIVERED, DIRECTLY OR INDIRECTLY, IN KOREA OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, ANY RESIDENT OF KOREA (AS SUCH TERM IS DEFINED UNDER THE FOREIGN EXCHANGE TRANSACTIONS ACT OF KOREA AND ITS PRESIDENTIAL DECREE) OR TO OTHERS FOR RE-OFFERING OR RESALE, DIRECTLY OR INDIRECTLY, IN KOREA OR TO ANY RESIDENTS OF KOREA, EXCEPT AS OTHERWISE PERMITTED UNDER APPLICABLE KOREAN LAWS AND REGULATIONS. IN ADDITION, DURING

THE FIRST YEAR AFTER THE ISSUANCE OF THE NOTES, THE NOTES MAY NOT BE TRANSFERRED TO ANY RESIDENT OF KOREA OTHER THAN A KOREAN QUALIFIED INSTITUTIONAL BUYER (A "KOREAN QIB," AS DEFINED IN THE REGULATION ON ISSUANCE AND PUBLIC DISCLOSURE, ETC. OF SECURITIES OF KOREA) WHO IS REGISTERED WITH THE KOREA FINANCIAL INVESTMENT ASSOCIATION AS A KOREAN QIB, PROVIDED THAT THE AMOUNT OF THE NOTES ACQUIRED BY SUCH KOREAN QIBS IN THE PRIMARY MARKET IS LIMITED TO NO MORE THAN 20% OF THE AGGREGATE ISSUE AMOUNT OF THE NOTES.

Other Transfer Restrictions Applicable to the Notes

The Notes have not been and will not be registered under the Securities Act or any state securities laws and, subject to certain exceptions, may not be offered or sold directly or indirectly within the United States. The Notes may be offered for sale only (i) in the United States, to QIBs within the meaning of, and in reliance on, Rule 144A or another available exemption from, or in a transaction not subject to, the registration requirements of the Securities Act; or (ii) outside the United States in reliance on, and in accordance with, Regulation S, in each case, in compliance with applicable laws, regulations and directives.

Each purchaser of the Notes will be deemed to have represented and agreed as follows (terms used in this paragraph that are defined in Rule 144A or Regulation S under the Securities Act are used herein as defined therein):

1. The purchaser (A)(i) is a qualified institutional buyer, (ii) is aware that the sale to it is being made in reliance on Rule 144A and (iii) is acquiring the Notes for its own account or for the account of a qualified institutional buyer or (B) is purchasing the Notes in an offshore transaction pursuant to Regulation S.

2. The purchaser understands that the Notes are being offered in a transaction not involving any public offering in the United States within the meaning of the Securities Act, that the Notes have not been and will not be registered under the Securities Act and that, in the event of Notes sold in reliance on Rule 144A, if in the future it decides to offer, resell, pledge or otherwise transfer any of the Notes, such Notes may be offered, resold, pledged or otherwise transferred only (A)(i) to the Company, (ii) to a person whom the seller reasonably believes is a qualified institutional buyer in a transaction meeting the requirements of Rule 144A, (iii) in an offshore transaction meeting the requirements of Rule 903 or Rule 904 under the Securities Act, (iv) pursuant to an exemption from registration under the Securities Act provided by Rule 144 under the Securities Act (if available), or (v) pursuant to another exemption from the Securities Act, provided that, as a condition to the registration of the transfer thereof, the Company or the Fiscal Agent may require the delivery of any documents, including an opinion of counsel that it, in its sole discretion, may deem necessary or appropriate to evidence compliance with such exemption, or (B) pursuant to an effective registration statement under the Securities Act, and, in each of such cases, in accordance with any applicable securities laws of any state of the United States. The purchaser will, and each subsequent holder is required to, notify any subsequent purchaser of the Notes from it of the resale restrictions referred to in (A) above.

3. The purchaser understands that the Notes sold in reliance on Rule 144A will, unless the Company determines otherwise in compliance with applicable law, bear a legend substantially to the following effect:

   THIS SECURITY HAS NOT BEEN REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"). THE HOLDER HEREOF, BY PURCHASING THIS SECURITY, AGREES FOR THE BENEFIT OF SK HYNIX INC. (THE

"COMPANY") THAT THIS SECURITY MAY BE OFFERED, RESOLD, PLEDGED OR OTHERWISE TRANSFERRED ONLY (A)(i) TO THE COMPANY, (ii) TO A PERSON WHOM THE SELLER REASONABLY BELIEVES IS A QUALIFIED INSTITUTIONAL BUYER, AS DEFINED IN RULE 144A UNDER THE SECURITIES ACT, IN A TRANSACTION MEETING THE REQUIREMENTS OF RULE 144A UNDER THE SECURITIES ACT, (iii) IN AN OFFSHORE TRANSACTION MEETING THE REQUIREMENTS OF RULE 903 OR 904 OF REGULATION S UNDER THE SECURITIES ACT, (iv) PURSUANT TO AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT PROVIDED BY RULE 144 UNDER THE SECURITIES ACT (IF AVAILABLE) OR (v) PURSUANT TO ANOTHER EXEMPTION FROM THE SECURITIES ACT, PROVIDED THAT, AS A CONDITION TO THE REGISTRATION OF THE TRANSFER THEREOF, THE COMPANY OR THE FISCAL AGENT MAY REQUIRE THE DELIVERY OF ANY DOCUMENTS, INCLUDING AN OPINION OF COUNSEL THAT IT, IN ITS SOLE DISCRETION, MAY DEEM NECESSARY OR APPROPRIATE TO EVIDENCE COMPLIANCE WITH SUCH EXEMPTION, OR (B) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT, AND, IN EACH OF SUCH CASES IN ACCORDANCE WITH ANY APPLICABLE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES. THE HOLDER WILL, AND EACH SUBSEQUENT HOLDER IS REQUIRED TO, NOTIFY ANY SUBSEQUENT PURCHASER OF THE SECURITY FROM IT OF THE RESALE RESTRICTIONS REFERRED TO IN (A) ABOVE.

4. The purchaser understands that the Notes sold in reliance on Regulation S will, unless otherwise agreed by the Company, bear a legend substantially to the following effect:

   THIS SECURITY (OR ITS PREDECESSOR) WAS ORIGINALLY ISSUED IN A TRANSACTION EXEMPT FROM REGISTRATION UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND MAY NOT BE TRANSFERRED IN THE UNITED STATES EXCEPT PURSUANT TO AN AVAILABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND ALL APPLICABLE STATE SECURITIES LAWS. TERMS USED ABOVE HAVE THE MEANINGS GIVEN TO THEM IN REGULATION S UNDER THE SECURITIES ACT.

5. The Company, the Registrar, the Initial Purchasers and their affiliates, and others will rely upon the truth and accuracy of the foregoing acknowledgments, representations and agreements. If it is acquiring any Notes for the account of one or more QIBs, it represents that it has sole investment discretion with respect to each such account and that it has full power to make the foregoing acknowledgments, representations and agreements on behalf of each such account.

6. It understands that the Notes offered in reliance on Rule 144A will be represented by the Restricted Global Note. Before any interest in the Restricted Global Note may be offered, sold, pledged or otherwise transferred to a person who takes delivery in the form of an interest in the Unrestricted Global Note, it will be required to provide a Transfer Agent with a written certification (in the form provided in the Fiscal Agency Agreement) as to compliance with applicable securities laws.

Prospective purchasers are hereby notified that sellers of the Notes may be relying on the exemption from the provisions of Section 5 of the Securities Act provided by Rule 144A.

LEGAL MATTERS

Cleary Gottlieb Steen & Hamilton LLP, U.S. counsel to the Company, and Linklaters LLP, U.S. counsel to the Initial Purchasers, will pass upon certain legal matters as to United States law relating to the Notes. Shin & Kim LLC, the Company's Korean counsel, will pass upon certain matters as to Korean law for the Company. Cleary Gottlieb Steen & Hamilton LLP and Linklaters LLP may rely as to all matters of Korean law on Shin & Kim LLC. Shin & Kim LLC may rely on Cleary Gottlieb Steen & Hamilton LLP as to all matters of U.S. law.

INDEPENDENT ACCOUNTANTS

The consolidated financial statements of the Company as of and for the years ended December 31, 2017, 2018 and 2019 included elsewhere in this Offering Circular have been audited by KPMG Samjong Accounting Corp., independent auditors, as stated in their reports appearing elsewhere in this Offering Circular.

With respect to the unaudited consolidated interim financial statements of the Company as at September 30, 2020 and for the three- and nine-month periods ended September 30, 2020 included elsewhere in this Offering Circular, Samil PricewaterhouseCoopers reported that they have applied limited procedures in accordance with professional standards for a review of such information. However, the separate report dated November 13, 2020 appearing herein states that they did not audit and they do not express an opinion on such interim financial information. Accordingly, the degree of reliance on their report on such information should be restricted in light of the limited nature of the review procedures applied.

With respect to the unaudited condensed consolidated interim statements of comprehensive income of the Company for the three- and nine-month periods ended September 30, 2019 and the condensed consolidated interim statements of changes in equity and cash flows for the nine-month period ended September 30, 2019 included elsewhere in this Offering Circular, KPMG Samjong Accounting Corp. reported that they have applied limited procedures in accordance with professional standards for a review of such information. However, the separate report dated November 12, 2019 of KPMG Samjong Accounting Corp. appearing herein states that they did not audit and they do not express an opinion on such interim financial information. Accordingly, the degree of reliance on their report on such information should be restricted in light of the limited nature of the review procedures applied.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report on Review of Consolidated Interim Financial Statements

(English Translation of a Report Originally Issued in Korean)

To the Shareholders and Board of Directors of
SK hynix Inc.

Reviewed Financial Statements

We have reviewed the accompanying consolidated interim financial statements of SK hynix Inc. and its subsidiaries (collectively referred to as the "Group"). These financial statements consist of the consolidated interim statement of financial position of the Group as at September 30, 2020, and the related consolidated interim statements of comprehensive income for the three-month and nine-month periods ended September 30, 2020, and consolidated interim statement of changes in equity and cash flows for the nine-month period ended September 30, 2020, and a summary of significant accounting policies and other explanatory notes, expressed in Korean won.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these consolidated interim financial statements in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (Korean IFRS) 1034 *Interim Financial Reporting,* and for such internal control as management determines is necessary to enable the preparation of consolidated interim financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to issue a report on these consolidated interim financial statements based on our review.

We conducted our review in accordance with quarterly or semi-annual review standards established by the Securities and Futures Commission of the Republic of Korea. A review of interim financial information consists of making inquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures. A review is substantially less in scope than an audit conducted in accordance with Korean Standards on Auditing and consequently does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

Conclusion

Based on our review, nothing has come to our attention that causes us to believe that the accompanying consolidated interim financial statements are not presented fairly, in all material respects, in accordance with Korean IFRS 1034 *Interim Financial Reporting*.

Emphasis of Matters

Users need to pay attention to Note 3, which does not affect our review conclusion, on the consolidated interim financial statements. Note 3 on the consolidated interim financial statements describes the uncertainties associated with the impact of COVID-19 (Coronavirus) on the Group's operations, including market demands and the Group's production capacity. These matters do not affect our conclusion.

Other Matters

The consolidated interim statements of comprehensive income for the three-month and nine-month periods ended September 30, 2019, and consolidated interim statements of changes in equity and cash flows for the nine-month period ended September 30, 2019, presented herein for comparative purposes, were reviewed by another auditor whose report dated November 12, 2019. Based on their review, nothing has come to their attention that causes them to believe the accompanying consolidated interim financial statements do not present fairly, in all material respects, in accordance with Korean IFRS 1034 *Interim Financial Reporting.*

The consolidated financial statements of the Group for the year ended December 31, 2019, were audited by another auditor who expressed an unqualified opinion on those statements, not presented herein, on February 25, 2020. The consolidated statement of financial position as at December 31, 2019, presented herein for comparative purposes, is consistent, in all material respects, with the above audited statement of financial position as at December 31, 2019.

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

/s/ Samil PricewaterhouseCoopers

Seoul, Korea
Novembert 13, 2020

This report is effective as of November 13, 2020, the review report date. Certain subsequent events or circumstances, which may occur between the review report date and the time of reading this report, could have a material impact on the accompanying consolidated interim financial statements and notes thereto. Accordingly, the readers of the review report should understand that there is a possibility that the above review report may have to be revised to reflect the impact of such subsequent events or circumstances, if any.

Independent Auditors' Review Report

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

Reviewed financial statements
We have reviewed the accompanying condensed consolidated interim statements of comprehensive income of SK hynix, Inc. and its subsidiaries (the "Group") for the three- and nine-month periods ended September 30, 2019, and changes in equity and cash flows for the nine-month period ended September 30, 2019 and notes, comprising a summary of significant accounting policies and other explanatory information.

Management's responsibility
Management is responsible for the preparation and fair presentation of these condensed consolidated interim financial statements in accordance with Korean International Financial Reporting Standards ("K-IFRS") No.1034 *'Interim Financial Reporting'*, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' review responsibility
Our responsibility is to issue a report on these condensed consolidated interim financial statements based on our reviews.

We conducted our reviews in accordance with the Review Standards for Quarterly and Semiannual Financial Statements established by the Securities and Futures Commission of the Republic of Korea. A review of interim financial statements consists of making inquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures. A review is substantially less in scope than an audit conducted in accordance with Korean Standards on Auditing and consequently does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

Conclusion
Based on our reviews, nothing has come to our attention that causes us to believe that the accompanying condensed consolidated interim financial statements referred to above are not prepared fairly, in all material respects, in accordance with K-IFRS No.1034 *'Interim Financial Reporting'*.

Other matters

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

/s/ KPMG Samjong Accounting Corp.

KPMG Samjong Accounting Corp.
Seoul, Korea
November 12, 2019

This report is effective as of November 12, 2019, the review report date. Certain subsequent events or circumstances, which may occur between the review report date and the time of reading this report, could have a material impact on the accompanying condensed consolidated interim financial statements and notes thereto. Accordingly, the readers of the review report should understand that the above review report has not been updated to reflect the impact of such subsequent events or circumstances, if any.

SK hynix Inc. and Subsidiaries
Consolidated Interim Statements of Financial Position
September 30, 2020 and December 31, 2019

(In millions of Korean won)	Notes		September 30, 2020 (Unaudited)		December 31, 2019
Assets					
Current assets					
Cash and cash equivalents	5,6	₩	2,807,138	₩	2,306,070
Short-term financial instruments	5,6,7		451,585		298,350
Short-term investment assets	5,6		1,497,165		1,390,293
Trade receivables, net	5,6,8,32		5,475,806		4,261,674
Loans and other receivables, net	5,6,8,32		86,793		23,508
Inventories, net	9		6,150,544		5,295,835
Current tax assets			1,835		199,805
Other financial assets	5,6		30		30
Other current assets	10,32,33		565,314		682,037
			17,036,210		14,457,602
Non-current assets					
Investments in associates and joint ventures	11		1,279,160		768,767
Long-term trade receivables, net	5,6,8		-		44,775
Long-term investment assets	5,6,12		4,629,562		4,381,812
Loans and other receivables, net	5,6,8,32		70,177		109,079
Other financial assets	5,6,7,21		15,014		901
Property, plant and equipment, net	13,33		40,712,211		39,949,940
Right-of-use assets, net	14,32		1,289,127		1,250,576
Intangible assets, net	15		3,502,348		2,571,049
Investment property, net	16		250		258
Deferred tax assets			680,670		670,866
Employee benefit assets	20		257		3,406
Other non-current assets	10,32,33		52,187		580,463
			52,230,963		50,331,892
Total assets		₩	69,267,173	₩	64,789,494

(In millions of Korean won)

	Notes		September 30, 2020 (Unaudited)		December 31, 2019
Liabilities					
Current liabilities					
Trade payables	5,6,32	₩	1,014,432	₩	1,042,542
Other payables	5,6,32		1,927,189		2,367,673
Other non-trade payables	5,6,32		1,391,838		1,257,895
Borrowings	5,6,17,33,34		3,593,603		2,737,770
Provisions	19		8,810		10,701
Current tax liabilities			520,015		89,217
Lease liabilities	5,14,32		215,033		205,238
Other financial liabilities	5,6,21		562		-
Other current liabilities	18,32		180,136		162,997
			8,851,618		7,874,033
Non-current liabilities					
Long-term other payables	5,6,32		312,178		-
Other non-trade payables	5,6,32		8,207		18,266
Borrowings	5,6,17,33,34		8,109,190		7,785,736
Defined benefit liabilities, net	20		277,906		53,624
Deferred tax liabilities			60,528		15,743
Lease liabilities	5,14,32		1,026,824		995,592
Other financial liabilities	5,21		31,416		15,532
Other non-current liabilities	18		90,247		87,773
			9,916,496		8,972,266
Total liabilities			18,768,114		16,846,299
Equity					
Equity attributable to owners of the Parent Company					
Capital stock	22		3,657,652		3,657,652
Capital surplus	22		4,143,736		4,143,736
Other equity	22,35		(2,503,527)		(2,504,713)
Accumulated other comprehensive loss	23		(40,080)		(298,935)
Retained earnings	24		45,221,291		42,930,675
Total equity attributable to owners of the Parent Company			50,479,072		47,928,415
Non-controlling interests			19,987		14,780
Total equity			50,499,059		47,943,195
Total liabilities and equity		₩	69,267,173	₩	64,789,494

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

SK hynix Inc. and Subsidiaries
Consolidated Interim Statements of Comprehensive Income
Three-month and Nine-month Periods Ended September 30, 2020 and 2019

(In millions of Korean won, except per share information)

		Period Ended September 30							
		2020 (Unaudited)				2019 (Unaudited)			
	Notes		Three months		Nine months		Three months		Nine months
Revenue	4,25,32	₩	8,128,767	₩	23,934,193	₩	6,838,766	₩	20,063,622
Cost of sales	27,32		5,285,510		15,554,658		5,023,127		13,550,971
Gross profit			2,843,257		8,379,535		1,815,639		6,512,651
Selling and administrative expense	26,27,32		1,543,561		4,332,823		1,343,078		4,035,970
Operating profit			1,299,696		4,046,712		472,561		2,476,681
Finance income	28		346,708		1,139,390		416,962		1,305,369
Finance expenses	28		301,542		1,130,276		389,229		1,113,882
Share of profit (loss) of equity-accounted investees	11		(3,459)		12,719		4,469		14,522
Other income	29,32		23,568		61,631		31,440		80,822
Other expenses	29,32		16,263		125,954		15,904		87,652
Profit before income tax			1,348,708		4,004,222		520,299		2,675,860
Income tax expense	30		270,846		1,013,050		24,815		541,221
Profit for the period		₩	1,077,862	₩	2,991,172	₩	495,484	₩	2,134,639
Other comprehensive income									
Item that will not be reclassified to profit or loss:									
Remeasurements of defined benefit liabilities, net of tax	20		(4,504)		(13,688)		(5,129)		(16,441)
Items that may be subsequently reclassified to profit or loss:									
Foreign operations – foreign currency translation differences, net of tax	23		36,078		263,338		46,371		270,592
Loss on valuation of derivatives, net of tax	23		(524)		(13,332)		-		-
Equity-accounted investees – share of other comprehensive income (loss), net of tax	11,23		(13,133)		9,135		18,238		47,127
Other comprehensive income for the period, net of tax			17,917		245,453		59,480		301,278
Total comprehensive income for the period		₩	1,095,779	₩	3,236,625	₩	554,964	₩	2,435,917
Profit attributable to:									
Owners of the Parent Company		₩	1,077,262	₩	2,988,306	₩	493,201	₩	2,131,483
Non-controlling interests			600		2,866		2,283		3,156
Total comprehensive income (loss) attributable to:									
Owners of the Parent Company		₩	1,095,806	₩	3,233,473	₩	553,260	₩	2,432,987
Non-controlling interests			(27)		3,152		1,704		2,930
Earnings per share	31								
Basic earnings per share (in Korean won)		₩	1,575	₩	4,369	₩	721	₩	3,116
Diluted earnings per share (in Korean won)		₩	1,575	₩	4,368	₩	721	₩	3,116

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

SK hynix Inc. and Subsidiaries
Consolidated Interim Statements of Changes in Equity
Nine-month Periods Ended September 30, 2020 and 2019

(In millions of Korean won)		Attributable to owners of the Parent Company							
	Notes	Capital stock	Capital surplus	Other equity	Accumulated other comprehensive income (loss)	Retained earnings	Total	Non-controlling interests	Total equity
Balance at January 1, 2019		₩ 3,657,652	₩ 4,143,736	₩ (2,506,451)	₩ (482,819)	₩ 42,033,601	₩ 46,845,719	₩ 6,612	₩ 46,852,331
Comprehensive income:									
Profit for the period		-	-	-	-	2,131,483	2,131,483	3,156	2,134,639
Remeasurements of defined benefit liabilities, net of tax	20	-	-	-	-	(16,441)	(16,441)	-	(16,441)
Other comprehensive income of associates, net of tax	11,23	-	-	-	47,127	-	47,127	-	47,127
Foreign currency translation differences for foreign operations, net of tax	23	-	-	-	270,818	-	270,818	(226)	270,592
Total comprehensive income for the period		-	-	-	317,945	2,115,042	2,432,987	2,930	2,435,917
Transactions with owners of the Parent Company:									
Increase of non-controlling interests		-	-	-	-	-	-	2,718	2,718
Dividends paid		-	-	-	-	(1,026,003)	(1,026,003)	-	(1,026,003)
Share-based payments	35	-	-	1,263	-	-	1,263	-	1,263
Total transactions with owners of the Parent Company		-	-	1,263	-	(1,026,003)	(1,024,740)	2,718	(1,022,022)
Balance at September 30, 2019 (Unaudited)		₩ 3,657,652	₩ 4,143,736	₩ (2,505,188)	₩ (164,874)	₩ 43,122,640	₩ 48,253,966	₩ 12,260	₩ 48,266,226

SK hynix Inc. and Subsidiaries
Consolidated Interim Statements of Changes in Equity, Continued
Nine-month Periods Ended September 30, 2020 and 2019

(In millions of Korean won)

		Attributable to owners of the Parent Company							
	Notes	Capital stock	Capital surplus	Other equity	Accumulated other comprehensive income (loss)	Retained earnings	Total	Non-controlling interests	Total equity
Balance at January 1, 2020		₩ 3,657,652	₩ 4,143,736	₩ (2,504,713)	₩ (298,935)	₩ 42,930,675	₩ 47,928,415	₩ 14,780	₩ 47,943,195
Comprehensive income:									
Profit for the period		-	-	-	-	2,988,306	2,988,306	2,866	2,991,172
Remeasurements of defined benefit liabilities, net of tax	20	-	-	-	-	(13,688)	(13,688)	-	(13,688)
Other comprehensive income of associate, net of tax	11,23	-	-	-	9,135	-	9,135	-	9,135
Loss on valuation of derivatives	23	-	-	-	(13,332)	-	(13,332)	-	(13,332)
Foreign currency translation differences for foreign operations, net of tax	23	-	-	-	263,052	-	263,052	286	263,338
Total comprehensive income for the period		-	-	-	258,855	2,974,618	3,233,473	3,152	3,236,625
Transactions with owners of the Parent Company:									
Increase of non-controlling interests		-	-	-	-	-	-	2,055	2,055
Dividends paid	24	-	-	-	-	(684,002)	(684,002)	-	(684,002)
Share-based payments	35	-	-	1,186	-	-	1,186	-	1,186
Total transactions with owners of the Parent Company		-	-	1,186	-	(684,002)	(682,816)	2,055	(680,761)
Balance at September 30, 2020 (Unaudited)		₩ 3,657,652	₩ 4,143,736	₩ (2,503,527)	₩ (40,080)	₩ 45,221,291	₩ 50,479,072	₩ 19,987	₩ 50,499,059

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

SK hynix Inc. and Subsidiaries
Consolidated Interim Statements of Cash Flows
Nine-month Periods Ended September 30, 2020 and 2019

(In millions of Korean won)	Notes		2020 (Unaudited)		2019 (Unaudited)
Cash flows from operating activities					
Cash generated from operations	34	₩	9,573,120	₩	8,857,851
Interest received			28,552		24,946
Interest paid			(224,824)		(167,009)
Dividends received			15,631		14,648
Income tax paid			(339,735)		(4,830,821)
Net cash inflow from operating activities			9,052,744		3,899,615
Cash flows from investing activities					
Decrease in short-term financial instruments			581,860		982,126
Increase in short-term financial instruments			(733,794)		(770,905)
Decrease (increase) in short-term investment assets, net			(82,005)		3,818,234
Decrease in loans and other receivables			26,011		8,695
Increase in loans and other receivables			(70,901)		(47,331)
Acquisitions of investments in associates			(478,591)		(117,514)
Proceeds from disposal of long-term investment assets			545		1,790
Acquisitions of long-term investment assets			(76,998)		(73,313)
Decrease in other financial assets			776		-
Increase in other financial assets			(206)		(626)
Proceeds from disposal of property, plant and equipment			38,166		51,895
Acquisitions of property, plant and equipment			(7,539,113)		(11,388,920)
Proceeds from disposal of intangible assets			445		183
Acquisitions of intangible assets			(530,128)		(495,510)
Proceeds from business transfer			2,958		-
Net cash outflow from investing activities			(8,860,975)		(8,031,196)
Cash flows from financing activities					
Proceeds from borrowings	34		4,005,000		7,962,788
Repayments of borrowings	34		(2,864,569)		(3,785,399)
Dividends paid			(684,002)		(1,026,003)
Repayments of lease liabilities	34		(157,975)		(201,324)
Increase of non-controlling interests			2,055		2,718
Net cash inflow from financing activities			300,509		2,952,780
Effects of exchange rate changes on cash and cash equivalents			8,790		32,625
Net increase (decrease) in cash and cash equivalents			501,068		(1,146,176)
Cash and cash equivalents at the beginning of the period			2,306,070		2,349,319
Cash and cash equivalents at the end of the period		₩	2,807,138	₩	1,203,143

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

1. General Information

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

The Parent Company manufactures, distributes and sells semiconductor products. The Parent Company was established on October 15, 1949 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 September 30, 2020, 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	80,018,070	10.99
Other investors	457,883,725	62.90
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, respectively.

1. General Information, Continued

(2) Details of the Group's consolidated subsidiaries as of September 30, 2020 and December 31, 2019 are as follows:

Company	Location	Business	Ownership (%) 2020	2019
SK hyeng Inc.	Korea	Construction and service	100.00	100.00
SK hystec Inc.	Korea	Business support and service	100.00	100.00
Happymore Inc.	Korea	Manufacturing cleanroom suits and cleaning	100.00	100.00
SK hynix system ic Inc.	Korea	Semiconductor manufacturing and sales	100.00	100.00
HappyNarae Co., Ltd.	Korea	Industrial material supply	100.00	100.00
SK hynix America Inc.	U.S.A.	Semiconductor sales	97.74	97.74
SK hynix Deutschland GmbH	Germany	Semiconductor sales	100.00	100.00
SK hynix Asia Pte. Ltd.	Singapore	Semiconductor sales	100.00	100.00
SK hynix Semiconductor Hong Kong Ltd.	Hong Kong	Semiconductor sales	100.00	100.00
SK hynix U.K. Ltd.	U.K.	Semiconductor sales	100.00	100.00
SK hynix Semiconductor Taiwan Inc.	Taiwan	Semiconductor sales	100.00	100.00
SK hynix Japan Inc.	Japan	Semiconductor sales	100.00	100.00
SK hynix Semiconductor (Shanghai) Co., Ltd.	China	Semiconductor sales	100.00	100.00
SK hynix Semiconductor India Private Ltd.[1]	India	Semiconductor sales	100.00	100.00
SK hynix (Wuxi) Semiconductor Sales Ltd.	China	Semiconductor sales	100.00	100.00
SK hynix Semiconductor (China) Ltd.	China	Semiconductor manufacturing	100.00	100.00
SK hynix Semiconductor (Chongqing) Ltd. [2]	China	Semiconductor manufacturing	100.00	100.00
SK hynix Italy S.r.l	Italy	Semiconductor research and development	100.00	100.00
SK hynix memory solutions America Inc.	U.S.A.	Semiconductor research and development	100.00	100.00
SK hynix memory solutions Taiwan Ltd.	Taiwan	Semiconductor research and development	100.00	100.00
SK hynix memory solutions Eastern Europe LLC.	Belarus	Semiconductor research and development	100.00	100.00
SK APTECH Ltd.	Hong Kong	Overseas investment	100.00	100.00
SK hynix Ventures Hong Kong Limited	Hong Kong	Overseas investment	100.00	100.00
SK hynix (Wuxi) Investment Ltd.[3]	China	Overseas investment	100.00	100.00
SK hynix (Wuxi) Industry Development Ltd. [4]	China	Foreign hospital construction	100.00	100.00
SK hynix Happiness (Wuxi) Hospital Management Ltd.[4]	China	Foreign hospital operation	70.00	70.00
SK hynix system ic (Wuxi) Co., Ltd.[5]	China	Overseas Semiconductor manufacturing and sales	100.00	100.00
SK hynix cleaning (Wuxi) Ltd.[4]	China	Building maintenance	100.00	100.00
SUZHOU HAPPYNARAE Co., Ltd.[6]	China	Overseas industrial material supply	100.00	100.00
CHONGQING HAPPYNARAE Co., Ltd.[7]	China	Overseas industrial material supply	100.00	100.00
SkyHigh Memory Limited[5]	Hong Kong	Overseas Semiconductor manufacturing and sales	60.00	60.00
SK hynix (Wuxi) Education Technology Co.,Ltd.[4]	China	Education	100.00	100.00
Gauss Labs Inc.[8]	U.S.A	Telecommunication of information	100.00	-
MMT (Money Market Trust)	Korea	Money Market Trust	100.00	100.00

1. General Information, Continued

(2) Details of the Group's consolidated subsidiaries as of September 30, 2020 and December 31, 2019 are as follows, continued:

[1] Subsidiary of SK hynix Asia Pte. Ltd.
[2] Subsidiary of SK APTECH Ltd.
[3] Subsidiary of SK hynix Semiconductor (China) Ltd.
[4] Subsidiary of SK hynix (Wuxi) Investment Ltd.
[5] Subsidiary of SK hynix system ic
[6] Subsidiary of HappyNarae Co., Ltd.
[7] Subsidiary of SUZHOU HAPPYNARAE Co., Ltd.
[8] Gauss Labs Inc. has been established during the nine-month period ended September 30, 2020.

(3) Changes in the Group's consolidated subsidiaries for the nine-month periods ended September 30, 2020 are as follows:

Type	Company	Reason
Addition	Gauss Labs Inc.	New establishment

(4) Major subsidiaries' summarized statements of financial position as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)	September 30, 2020			December 31, 2019		
	Assets	Liabilities	Equity	Assets	Liabilities	Equity
SK hynix system ic Inc.	₩ 1,005,221	₩ 393,539	₩ 611,682	₩ 666,171	₩ 130,880	₩ 535,291
SK hynix America Inc.	2,548,466	2,154,537	393,929	1,801,366	1,436,975	364,391
SK hynix Asia Pte. Ltd.	507,984	416,506	91,478	387,860	298,657	89,203
SK hynix Semiconductor Hong Kong Ltd.	251,120	89,236	161,884	195,262	44,405	150,857
SK hynix U.K. Ltd.	226,693	205,385	21,308	217,160	197,293	19,867
SK hynix Semiconductor Taiwan Inc.	254,137	234,650	19,487	247,671	219,056	28,615
SK hynix Japan Inc.	245,205	171,884	73,321	305,770	235,243	70,527
SK hynix (Wuxi) Semiconductor Sales Ltd.	1,952,677	1,734,855	217,822	1,646,998	1,510,156	136,842
SK hynix Semiconductor (China) Ltd.	11,764,953	6,797,503	4,967,450	9,605,890	4,937,517	4,668,373
SK hynix Semiconductor (Chongqing) Ltd.	923,198	316,195	607,003	837,339	309,283	528,056
HappyNarae Co., Ltd.	129,225	75,916	53,309	186,079	136,257	49,822

1. General Information, Continued

(5) Major subsidiaries' summarized statements of comprehensive income (loss) for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)	2020			2019		
	Revenue	Profit (loss)	Total comprehensive income (loss)	Revenue	Profit (loss)	Total comprehensive income (loss)
SK hynix system ic Inc.	₩ 528,132	₩ 79,085	₩ 79,192	₩ 488,871	₩ 53,563	₩ 53,529
SK hynix America Inc.	9,097,316	25,167	25,167	5,938,080	23,465	23,465
SK hynix Asia Pte. Ltd.	1,492,156	1,097	1,097	1,219,687	3,112	3,112
SK hynix Semiconductor Hong Kong Ltd.	1,298,850	8,409	8,409	1,247,485	10,686	10,686
SK hynix U.K. Ltd.	687,066	1,199	1,199	690,719	5,526	5,526
SK hynix Semiconductor Taiwan Inc.	1,432,623	(2,678)	(2,678)	1,073,654	6,331	6,331
SK hynix Japan Inc.	394,745	(430)	(430)	545,838	6,883	6,883
SK hynix (Wuxi) Semiconductor Sales Ltd.	8,317,555	75,718	75,718	8,305,745	61,109	61,109
SK hynix Semiconductor (China) Ltd.	2,914,942	128,715	128,715	2,325,077	(47,594)	(47,594)
SK hynix Semiconductor (Chongqing) Ltd.	504,135	59,182	59,182	320,669	28,571	28,571
HappyNarae Co., Ltd.	698,707	3,487	3,487	756,706	2,579	2,579

(6) There are no significant non-controlling interests to the Group as of September 30, 2020 and December 31, 2019.

2. Summary of Significant Accounting Policies

2.1 Basis of Financial Statements preparation

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

The Group's consolidated interim financial statements for the nine-month period ended September 30, 2020, have been prepared in accordance with Korean IFRS 1034 *Interim Financial Reporting*. These consolidated interim financial statements have been prepared in accordance with Korean IFRS which is effective or early adopted as of September 30, 2020.

2.1.1 New and amended standards or interpretations adopted by the Group

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

① Amendments to Korean IFRS 1001 *Presentation of Financial Statements* and Korean IFRS 1008 *Accounting policies, changes in accounting estimates and errors* – *Definition of Material*

The amendments clarify the explanation of the definition of material and amended Korean IFRS 1001 and Korean IFRS 1008 in accordance with the clarified definitions. Materiality is assessed by reference to omission or misstatement of material information as well as effects of immaterial information, and to the nature of the users when determining the information to be disclosed by the Group. The amendment does not have a significant impact on the consolidated financial statements.

② Amendments to Korean IFRS 1103 *Business Combination* – *Definition of a Business*

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

2. Summary of Significant Accounting Policies, Continued

③ Amendments to Korean IFRS 1109 *Financial Instruments*, Korean IFRS 1039 *Financial Instruments: Recognition and Measurement* and Korean IFRS 1107 *Financial Instruments: Disclosure* – *Interest Rate Benchmark Reform*

The amendments allow to apply the exceptions when forward-looking analysis is performed in relation the application of hedge accounting while uncertainties arising from interest rate benchmark reform exist. The exceptions require the Group assumes that the interest rate benchmark on which the hedged items and the hedging instruments are based on is not altered as a result of interest rate benchmark reform, when determining whether the expected cash flows are highly probable, whether an economic relationship between the hedged item and the hedging instrument exists, and when assessing the hedging relationship is highly effective. The amendments do not have a significant impact on the consolidated financial statements.

2.1.2 New and amended standards or interpretations not yet adopted by the Group

The following new accounting standards and interpretations that have been published that are not mandatory for September 30, 2020 reporting periods and have not been early adopted by the Group.

① Amendments to Korean IFRS 1116 *Lease – Practical expedient for COVID-19-Related Rent Exemption, Concessions, Suspension*

As a practical expedient, a lessee may elect not to assess whether a rent concession occurring as a direct consequence of the COVID-19 pandemic is a lease modification. A lessee that makes this election shall account for any change in lease payments resulting from the rent concession the same way it would account for the change applying this standard if the change were not a lease modification. These amendments should be applied for annual periods beginning on or after June 1, 2020, and earlier application of permitted. The Group does not expect that these amendments have a significant impact on the consolidated financial statements.

2.2 Significant Accounting Policies

Significant accounting policies and method of computation used in the preparation of the consolidated interim financial statements are consistent with those of the consolidated annual financial statements for the year ended December 31, 2019, except for the changes due to the application of amendments and enactments of standards described in Note 2.1.1 and as described below.

2.2.1 Income tax expense

Income tax expense for the interim period is recognized based on management's best estimate of the weighted average annual income tax rate expected for the full financial year. The estimated average annual effective income tax rate is applied to the pre-tax income.

2.2.2 Lease

From January 1, 2020, the Group has changed its accounting policy by adopting accounting treatments in accordance with agenda decisions for *'Lease Term and Useful Life of Leasehold Improvements'* issued by IFRS Interpretations Committee on December 16, 2019. The Group determines the lease term as the enforceable period of a lease, together with both (a) periods covered by an option to extend the lease if the lessee is reasonably certain to exercise that option; and (b) periods covered by an option to terminate the lease if the lessee is reasonably certain not to exercise that option. When the lessee and the lessor each has the right to terminate the lease without permission from the other party, the Group should consider a termination penalty in determining the period for which the contract is enforceable.

The Group is assessing the impact of changes in accounting policy on the financial statements for the enforceable period according to the decision and will reflect the effects in the consolidated financial statements once the assessment is completed.

3. Critical Accounting Estimates and Assumptions

The Group makes estimates and assumptions concerning the future. Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results.

During 2020, the spread of Coronavirus disease 2019 (“COVID-19”) has a material impact on domestic and global economy. It may have a negative impact; such as, decrease in productivity, decrease or delay in sales, collection of existing receivables and others. Accordingly, it may have a negative impact on the financial position and financial performance of the Group, which could continue in its consolidated annual financial statements of 2020.

Significant accounting estimates and assumptions applied in the preparation of the consolidated interim financial statements can be adjusted depending on changes in the uncertainty from COVID-19. Also, the ultimate effect of COVID-19 to the Group’s business, financial position and financial performance cannot presently be determined.

Significant accounting estimates and assumptions applied in the preparation of these consolidated interim financial statements are the same as those applied to the consolidated financial statements for the year ended December 31, 2019, except for the estimates used to determine income tax expense.

4. Operating Segment Information

The Group has a single reportable segment that is engaged in the manufacture and sale of semiconductor products. Management of the Group reviews the operational results of the semiconductor business with the reporting information which is prepared in the same manner as management reviews during the establishment of the Group's business strategy.

(1) The Group's non-current assets (excluding long-term trade receivables, financial assets, loans and other receivables, investment in associates and joint ventures and deferred tax assets) information by region based on the location of the Parent Company and its subsidiaries as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)		September 30, 2020		December 31, 2019
Korea	₩	34,904,397	₩	35,109,665
China		10,230,144		8,814,465
Asia (other than China)		20,658		21,497
U.S.A.		387,175		395,772
Europe		14,006		14,293
	₩	45,556,380	₩	44,355,692

(2) For the nine-month period ended September 30, 2020, revenue of ₩3,720,380 million, ₩2,577,774 million and ₩2,569,116 million, over 10% of the Group's revenue, are derived from external customers A, B and C, respectively and for the nine-month period ended September 30, 2019, revenues of ₩3,956,456 million and ₩2,258,689 million, over 10% of the Group's revenue, are derived from a single external customer A and C, respectively.

5. Carrying Amounts of Financial Instruments by Categories

(1) Carrying amounts of financial assets by categories as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)

	September 30, 2020		
	Financial assets at fair value through profit or loss	Financial assets at fair value through other comprehensive income or loss	Financial assets at amortized cost
Cash and cash equivalents	₩ -	₩ -	₩ 2,807,138
Short-term financial instruments	227,500	-	224,085
Short-term investment assets	1,497,165	-	-
Trade receivables[1]	-	426,463	5,049,343
Loans and other receivables	-	-	156,970
Other financial assets	-	-	391
Long-term investment assets	4,629,562	-	-
	₩ 6,354,227	₩ 426,463	₩ 8,237,927

(In millions of Korean won)

	September 30, 2020	
	Other financial assets	Total
Cash and cash equivalents	₩ -	₩ 2,807,138
Short-term financial instruments	-	451,585
Short-term investment assets	-	1,497,165
Trade receivables[1]	-	5,475,806
Loans and other receivables	-	156,970
Other financial assets	14,653	15,044
Long-term investment assets	-	4,629,562
	₩ 14,653	₩ 15,033,270

[1] The Group transferred certain portion of trade receivables, which are from specific customers, and derecognized the trade receivables from the financial statements as all the risks and rewards are substantially transferred. Accordingly, the Group recognized gain or loss on disposal of trade receivables.

(In millions of Korean won)

	December 31, 2019		
	Financial assets at fair value through profit or loss	Financial assets at amortized cost	Total
Cash and cash equivalents	₩ -	₩ 2,306,070	₩ 2,306,070
Short-term financial instruments	-	298,350	298,350
Short-term investment assets	1,390,293	-	1,390,293
Trade receivables	-	4,306,449	4,306,449
Loans and other receivables	-	132,587	132,587
Other financial assets	-	931	931
Long-term investment assets	4,381,812	-	4,381,812
	₩ 5,772,105	₩ 7,044,387	₩ 12,816,492

5. Carrying Amounts of Financial Instruments by Categories, Continued

(2) Carrying amounts of financial liabilities by categories as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)

	September 30, 2020							
		Financial liabilities at fair value through profit or loss		Financial liabilities at amortized cost		Other financial liabilities		Total
Trade payables	₩	-	₩	1,014,432	₩	-	₩	1,014,432
Other payables		5,321		2,234,046		-		2,239,367
Other non-trade payables[1]		-		1,400,045		-		1,400,045
Borrowings		-		11,702,793		-		11,702,793
Other financial liabilities		-		4,075		27,903		31,978
Lease liabilities		-		1,241,857		-		1,241,857
	₩	5,321	₩	17,597,248	₩	27,903	₩	17,630,472

(In millions of Korean won)

	December 31, 2019					
		Financial liabilities at fair value through profit or loss		Financial liabilities at amortized cost		Total
Trade payables	₩	-	₩	1,042,542	₩	1,042,542
Other payables		13,006		2,354,667		2,367,673
Other non-trade payables[1]		-		1,276,161		1,276,161
Borrowings		-		10,523,506		10,523,506
Other financial liabilities		15,532		-		15,532
Lease liabilities		-		1,200,830		1,200,830
	₩	28,538	₩	16,397,706	₩	16,426,244

[1] Details of other non-trade payables as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)		September 30, 2020		December 31, 2019
Current				
Accrued expenses	₩	1,391,838	₩	1,257,895
Non-current				
Long-term accrued expenses		2,828		4,779
Rent deposit payables		5,379		13,487
	₩	1,400,045	₩	1,276,161

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 consolidated interim financial statements do not include all the financial risk management policies and disclosures that are required in the consolidated annual financial statements; therefore, see the consolidated annual financial statements for full disclosure. There were no significant changes in risk management department and risk management policies subsequent to December 31, 2019.

(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, Japanese yen, Chinese yuan and Euro. 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 September 30, 2020 are as follows:

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

	Assets		Liabilities	
	Foreign currencies	Korean won equivalent	Foreign currencies	Korean won equivalent
USD	10,241	₩ 12,018,023	10,684	₩ 12,537,862
JPY	569	6,323	128,939	1,433,876
CNY	15	2,586	24	4,102
EUR	10	13,812	25	34,842

When the exchange rate of the functional currency for each foreign currency fluctuates by 10% as of September 30, 2020, the impact of the change in the exchange rate on profit before income tax expenses are as follows:

(In millions of Korean won)

	If increased by 10%	If decreased by 10%
USD	₩ 64,717	₩ (64,717)
JPY	(142,755)	142,755
CNY	(152)	152
EUR	(2,103)	2,103

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 due to 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.

The Group is managing cash flow interest rate risk using floating-to-fixed cross currency interest rate swaps. These interest rate swaps have an economic effect of converting floating interest borrowings into fixed interest borrowings. Generally, the Group borrows at a floating interest rate and then swaps at a fixed rate. Under the swap agreement, the Group will settle the difference between fixed interest costs and the floating interest costs calculated according to the principal agreed upon for each counterparty and specific period (mainly quarterly).

The Group is partially exposed to the risk of changing net interest costs due to changes in interest rates as of September 30, 2020. The Group has signed a currency interest rate swap contract on floating interest rate borrowings of ₩586,750 million and interest rate swap contract on floating interest rate borrowings of ₩117,350. Therefore, the changes in interest costs subject to fluctuation of interest rates do not have an impact on the profit before income tax for the nine-month period ended September 30, 2020.

As of September 30, 2020, if interest rates on borrowings had been 100 basis points higher/lower with all other variables held constant, profit before income tax would have been ₩55,584 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 September 30, 2020.

(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, and 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 continuously managing trade and other receivables by reevaluating the 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 September 30, 2020 is the carrying amount of trade and other receivables.

6. Financial Risk Management, Continued

(1) Financial risk management, Continued

(ii) Other financial assets
Credit risk also arises from other financial assets such as cash and cash equivalents, short-term financial instruments, long-term and short-term investment assets, and 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 September 30, 2020 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 loss from non-performance by the counterparties.

(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.

(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 and proceeds and repayments of borrowings, and issue new shares or sell assets to reduce debt.

The debt-to-equity ratio and net borrowing ratio as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)		**September 30, 2020**		**December 31, 2019**
Total liabilities (A)	₩	18,768,114	₩	16,846,299
Total equity (B)		50,499,059		47,943,195
Cash and cash equivalents, and others[1] (C)		4,755,888		3,994,713
Total borrowings (D)		11,702,793		10,523,506
Debt-to-equity ratio (A/B)		37.17%		35.14%
Net borrowing ratio (D-C)/B		13.76%		13.62%

[1] Total amount of cash and cash equivalents, short-term investment assets and short-term financial instruments.

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 that an entity can access at the measurement date.
- 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 September 30, 2020 and December 31, 2019:

(In millions of Korean won)

	September 30, 2020				
	Carrying amounts	Level 1	Level 2	Level 3	Total
Financial assets measured at fair value					
Short-term financial instruments	₩ 227,500	₩ -	₩ -	₩ 227,500	₩ 227,500
Short-term investment assets	1,497,165	-	1,497,165	-	1,497,165
Trade receivables[1]	426,463	-	426,463	-	426,463
Long-term investment assets	4,629,562	-	-	4,629,562	4,629,562
Other financial assets	14,653	-	14,653	-	14,653
	6,795,343	-	1,938,281	4,857,062	6,795,343
Financial assets not measured at fair value					
Cash and cash equivalents[2]	2,807,138	-	-	-	-
Short-term financial instruments[2]	224,085	-	-	-	-
Trade receivables[2]	5,049,343	-	-	-	-
Loans and other receivables[2]	156,970	-	-	-	-
Other financial assets[2]	391	-	-	-	-
	8,237,927	-	-	-	-
Total financial asset	₩ 15,033,270	₩ -	₩ 1,938,281	₩ 4,857,062	₩ 6,795,343
Financial liabilities measured at fair value					
Other payables	₩ 5,321	₩ -	₩ -	₩ 5,321	₩ 5,321
Other financial liabilities	27,903	-	27,903	-	27,903
	33,224	-	27,903	5,321	33,224
Financial liabilities not measured at fair value					
Trade payables[2]	1,014,432	-	-	-	-
Other payables[2]	2,234,046	-	-	-	-
Other non-trade payables[2]	1,400,045	-	-	-	-
Borrowings	11,702,793	-	11,834,335	-	11,834,335
Lease liabilities[2]	1,241,857	-	-	-	-
Other financial liabilities[2]	4,075	-	-	-	-
	17,597,248	-	11,834,335	-	11,834,335
Total financial liabilities	₩ 17,630,472	₩ -	₩ 11,862,238	₩ 5,321	₩ 11,867,559

6. Financial Risk Management, Continued

(3) Fair value, Continued

[1] The Group transferred some of the trade receivables and majority of the risks and rewards to the customer. Accordingly, the Group derecognized trade receivables from the financial statement on the date of assets transfer and recognized gain or loss on disposal of trade receivables.
[2] The Group did not include fair values of financial assets and liabilities of which carrying amounts are considered to be a reasonable approximation of fair values.

(In millions of Korean won)

		December 31, 2019								
		Carrying amounts		Level 1		Level 2		Level 3		Total
Financial assets measured at fair value										
Short-term investment asset	₩	1,390,293	₩	-	₩	1,390,293	₩	-	₩	1,390,293
Long-term investment asset		4,381,812		-		-		4,381,812		4,381,812
		5,772,105		-		1,390,293		4,381,812		5,772,105
Financial assets not measured at fair value										
Cash and cash equivalents[1]		2,306,070		-		-		-		-
Short-term financial instruments[1]		298,350		-		-		-		-
Trade receivables[1]		4,306,449		-		-		-		-
Loans and other receivables[1]		132,587		-		-		-		-
Other financial assets[1]		931		-		-		-		-
		7,044,387		-		-		-		-
Total financial asset	₩	12,816,492	₩	-	₩	1,390,293	₩	4,381,812	₩	5,772,105
Financial liabilities measured at fair value										
Other payables	₩	13,006	₩	-	₩	-	₩	13,006	₩	13,006
Other financial liabilities		15,532		-		15,532		-		15,532
		28,538		-		15,532		13,006		28,538
Financial liabilities not measured at fair value										
Trade payables[1]		1,042,542		-		-		-		-
Other payables[1]		2,354,667		-		-		-		-
Other non-trade payables[1]		1,276,161		-		-		-		-
Borrowings		10,523,506		-		10,585,029		-		10,585,029
Lease liabilities[1]		1,200,830		-		-		-		-
		16,397,706		-		10,585,029		-		10,585,029
Total financial liabilities	₩	16,426,244	₩	-	₩	10,600,561	₩	13,006	₩	10,613,567

[1] The Group did not include fair values of financial assets and liabilities of which carrying amounts are considered to be a reasonable approximation of fair values.

(b) The valuation techniques
(In millions of Korean won)

		Fair value	Level	Valuation Techniques
Financial assets at fair value through profit or loss:				
Short-term investment assets	₩	1,497,165	2	Present value technique
Long-term investment assets		4,629,562	3	Present value technique and others
Short-term financial instruments		227,500	3	Present value technique
Financial assets at fair value through other comprehensive income:				
Other financial assets	₩	14,653	2	Present value technique
Trade receivables		426,463	2	Present value technique
Financial liabilities at fair value through other comprehensive income:				
Other payables	₩	5,321	3	Present value technique
Other financial liabilities		27,903	2	Present value technique

6. Financial Risk Management, Continued

(c) There was no transfer between fair value hierarchy levels for the nine-month period ended September 30, 2020. The movements in financial assets classified as level 3 fair value measurements during the nine-month period ended September 30, 2020 are as follows:

(In millions of Korean won)

	Beginning Balance	Acqu-isition	Disposal	Pay-ments	Profit or loss on valuation	Foreign exchange difference	Transfer	Ending Balance
Financial assets								
Short-term financial instruments	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 227,500	₩ 227,500
Long-term investment assets	4,381,812	78,484	(544)	-	(51)	194,841	(24,980)	4,629,562
Financial liabilities								
Other payables	₩ 13,006	₩ -	₩ -	₩ (7,914)	₩ -	₩ 229	₩ -	₩ 5,321

7. Restricted Financial Instruments

Details of restricted financial instruments as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)	September 30, 2020	December 31, 2019	Description
Short-term financial instruments	₩ 227,500	₩ 227,500	Restricted for supporting small businesses
	8,896	6,381	Pledged for consumption tax
	91,032	-	Guarantee deposits for repayments of borrowings
	327,428	233,881	
Other financial assets	11	11	Bank overdraft guarantee deposit
	313	269	Others
	324	280	
	₩ 327,752	₩ 234,161	

8. Trade Receivables and Loans and Other Receivables

(1) Details of loans and other receivables as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)		September 30, 2020		December 31, 2019
Current				
Other receivables	₩	28,005	₩	11,104
Accrued income		1,510		2,043
Short-term loans		5,318		6,816
Short-term guarantee and other deposits		51,960		3,545
		86,793		23,508
Non-current				
Long-term other receivables		2,966		2
Long-term loans		36,176		35,299
Guarantee deposits		30,804		73,550
Others		231		228
		70,177		109,079
	₩	156,970	₩	132,587

(2) Trade receivables and loans and other receivables, net of provision for impairment, as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)		September 30, 2020				
		Gross amount		Provision for impairment		Carrying amount
Trade receivables	₩	5,475,851	₩	(45)	₩	5,475,806
Current loans and other receivables		88,071		(1,278)		86,793
Non-current loans and other receivables		71,353		(1,176)		70,177
	₩	5,635,275	₩	(2,499)	₩	5,632,776

(In millions of Korean won)		December 31, 2019				
		Gross amount		Provision for impairment		Carrying amount
Trade receivables	₩	4,306,458	₩	(9)	₩	4,306,449
Current loans and other receivables		24,788		(1,280)		23,508
Non-current loans and other receivables		110,241		(1,162)		109,079
	₩	4,441,487	₩	(2,451)	₩	4,439,036

8. Trade Receivables and Loans and Other Receivables, Continued

(3) Details of provision for impairment

Changes in the provision for impairment of trade receivables for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		2020		2019
Beginning balance	₩	9	₩	48
Bad debt expense		563		-
Write-off		(526)		-
Foreign exchange difference		(1)		1
Ending balance	₩	45	₩	49

Changes in the provision for impairment of current loans and other receivables for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		2020		2019
Beginning balance	₩	1,280	₩	1,323
Reversal		(2)		(44)
Foreign exchange difference		-		1
Ending balance	₩	1,278	₩	1,280

Movements in the provision for impairment of non-current loans and other receivables for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		2020		2019
Beginning balance	₩	1,162	₩	1,117
Foreign exchange difference		14		76
Ending balance	₩	1,176	₩	1,193

9. Inventories

Details of inventories as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)

	September 30, 2020		
	Acquisition cost	Inventory valuation allowance	Carrying amount
Merchandise	₩ 3,034	₩ (31)	₩ 3,003
Finished goods	1,233,634	(185,392)	1,048,242
Work-in-process	3,714,587	(192,789)	3,521,798
Raw materials	807,685	(11,367)	796,318
Supplies	634,522	(31,866)	602,656
Goods in transit	178,527	-	178,527
	₩ 6,571,989	₩ (421,445)	₩ 6,150,544

(In millions of Korean won)

	December 31, 2019		
	Acquisition cost	Inventory valuation allowance	Carrying amount
Merchandise	₩ 2,843	₩ (21)	₩ 2,822
Finished goods	1,253,542	(195,108)	1,058,434
Work-in-process	3,383,814	(395,052)	2,988,762
Raw materials	659,893	(34,114)	625,779
Supplies	544,271	(23,203)	521,068
Goods in transit	98,970	-	98,970
	₩ 5,943,333	₩ (647,498)	₩ 5,295,835

10. Other Current and Non-current Assets

Details of other current and non-current assets as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)	September 30, 2020	December 31, 2019
Current		
Advance payments	₩ 76,398	₩ 64,429
Prepaid expenses	195,031	218,365
Value added tax refundable	239,478	343,434
Contract assets	54,344	55,715
Others	63	94
	565,314	682,037
Non-current		
Long-term advance payments	36,451	44,746
Long-term prepaid expenses	14,292	535,717
Others	1,444	-
	52,187	580,463
	₩ 617,501	₩ 1,262,500

11. Investments in Associates and Joint Ventures

(1) General information of investments in associates and joint ventures is as follows:

Type	Investee	Location	Business
Associate	Stratio, Inc[1].	U.S.A	Development and manufacture of semiconductor parts
	SK China Company Limited[2]	China	Consulting and investment
	Gemini Partners Pte. Ltd.	Singapore	Consulting
	TCL Fund[1]	China	Investment
	SK South East Asia Investment Pte. Ltd.	Singapore	Consulting and investment
	Hushan Xinju (Chengdu) Venture Investment Center(Smartsource)[2]	China	Venture Capital
	Prume Social Farm, Co., Ltd[3].	Korea	Growing crops
	Wuxi xinfa IC industry park., Ltd[4].	China	Developing Science-Technological Park
	Magnus Private Investment Co.,Ltd[5]	Korea	Investment
	L&S (No.10) Early Stage Ⅲ Investment Association[6]	Korea	Investment
	SiFive Inc[7].	U.S.A	Design and manufacture of semiconductor
Joint venture	HITECH Semiconductor (Wuxi) Co., Ltd[8].	China	Manufacture of semiconductor parts
	Hystars Semiconductor (Wuxi) Co., Ltd[8].	China	Foundry factory construction
	Specialized Investment-type Private Equity Investment Trust For Growth Of Semiconductor[9]	Korea	Investment
	Specialized Investment-type Private Equity Investment Trust For Win-win System Semiconductor[10]	Korea	Investment

11. Investments in Associates and Joint Ventures, Continued

(2) Details of investments in associates and joint ventures as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)	September 30, 2020			December 31, 2019	
Investee	Ownership (%)	Net asset value	Carrying amount	Ownership (%)	Carrying amount
Associate:					
Stratio, Inc.[1]	9.12 ₩	97 ₩	403	9.12 ₩	395
SK China Company Limited[2]	11.87	212,381	264,731	11.87	259,272
Gemini Partners Pte. Ltd.	20.00	2,613	2,613	20.00	2,735
TCL Fund[1]	11.64	9,299	9,664	11.06	4,995
SK South East Asia Investment Pte. Ltd.	20.00	359,550	359,550	20.00	237,599
Hushan Xinju (Chengdu) Venture Investment Center (Smartsource)[2]	16.67	8,249	8,249	16.67	5,659
Prume Social Farm, Co., Ltd.[3]	31.95	412	965	31.95	1,000
Wuxi xinfa IC industry park., Ltd.[4]	30.00	21,654	21,654	-	-
Magnus Private Investment Co.,Ltd.[5]	49.76	206,850	206,850	-	-
L&S (No.10) Early Stage Ⅲ Investment Association[6]	24.39	1,890	1,890	-	-
SiFive Inc.[7]	8.53	7,141	35,607	-	-
Joint venture:					
HITECH Semiconductor (Wuxi) Co., Ltd.[8]	45.00	117,811	117,811	45.00	114,518
Hystars Semiconductor (Wuxi) Co., Ltd.[8]	50.10	207,809	209,399	50.10	142,594
Specialized Investment-type Private Equity Investment Trust For Growth Of Semiconductor[9]	33.33	24,871	24,871	-	-
Specialized Investment-type Private Equity Investment Trust For Win-win System Semiconductor[10]	37.50	14,903	14,903	-	-
			₩ 1,279,160		₩ 768,767

[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 associates.

[2] Management of the Group is able to exercise significant influence over the entity by participating Board of Directors. Accordingly, the investments in these investees have been classified as associates.

[3] WooYoung Farm Co., Ltd.has changed its name to “Prume Social Farm, Co., Ltd.” during the nine-month period ended September 30, 2020.

[4] The Group has acquired 30.00% of ownership in Wuxi xinfa IC industry park., Ltd. during the nine-month period ended September 30, 2020, and the Group has significant influence over Wuxi xinfa IC industry park., Ltd., accordingly, the investment in this investee has been classified as an associate.

[5] The Group has acquired 49.76% of the Magnus Private Investment Co., Ltd.’s interest for the nine-month period ended September 30, 2020, and the entity has been classified as an associate as the Group has significant influence.

[6] L&S (No.10) Early Stage Ⅲ Investment Association has been reclassified from long-term investment assets to associates for the nine-month period ended September 30, 2020.

[7] The Group has acquired 8.53% of ownership in SiFive during the nine-month period ended September 30, 2020. It has been classified as an associate since the Group is able to exercise significant influence through its right to appoint a director to the Board of Directors of the investee.

[8] Since the relevant contract stipulates that important matters have to be resolved unanimously, the Group has classified it as a joint venture.

[9] It was reclassified from long-term investment assets to joint venture for the nine-month period ended September 30, 2020, as it is stated in the agreement that unanimous vote is required for relevant activities.

[10] The Group has acquired 37.5% of ownership in Specialized Investment-type Private Equity Investment Trust For Win-win System Semiconductor’s interest during the nine-month period ended September 30, 2020. It has been classified as a joint venture since it is stated in the agreement that unanimous vote is required for relevant activities.

11. Investments in Associates and Joint Ventures, Continued

(3) Changes in investments in associates and joint ventures for the nine-month periods ended September 30, 2020 and 2019 are as follows :

(In millions of Korean won)

	2020						
	Beginning balance	Acquisition	Transfer	Share of profit (loss)	Other equity movement	Dividend	Ending balance
Stratio, Inc.	₩ 395	₩ -	₩ -	₩ 7	₩ 1	₩ -	₩ 403
SK China Company Limited	259,272	-	-	3,859	1,600	-	264,731
Gemini Partners Pte. Ltd.	2,735	-	-	(115)	(7)	-	2,613
TCL Fund	4,995	3,785	-	420	464	-	9,664
SK South East Asia Investment Pte. Ltd.	237,599	121,450	-	1,279	(778)	-	359,550
Hushan Xinju (Chengdu) Venture Investment Center (Smartsource)	5,659	2,565	-	(198)	223	-	8,249
Prume Social Farm, Co., Ltd.	1,000	-	-	(35)	-	-	965
Wuxi xinfa IC industry park., Ltd.	-	21,860	-	(5)	(201)	-	21,654
Magnus Private Investment Co., Ltd.	-	207,346	-	(496)	-	-	206,850
L&S (No.10) Early Stage Ⅲ Investment Association	-	1,500	500	(110)	-	-	1,890
SiFive Inc.	-	35,709	-	-	(102)	-	35,607
HITECH Semiconductor (Wuxi) Co., Ltd.	114,518	-	-	16,285	2,041	(15,033)	117,811
Hystars Semiconductor (Wuxi) Co., Ltd.	142,594	69,377	-	(8,466)	5,894	-	209,399
Specialized Investment-type Private Equity Investment Trust For Growth Of Semiconductor	-	-	24,480	391	-	-	24,871
Specialized Investment-type Private Equity Investment Trust For Win-win System Semiconductor	-	15,000	-	(97)	-	-	14,903
	₩ 768,767	₩ 478,592	₩ 24,980	₩ 12,719	₩ 9,135	₩ (15,033)	₩ 1,279,160

11. Investments in Associates and Joint Ventures, Continued

(3) Changes in investments in associates and joint ventures for the nine-month periods ended September 30, 2020 and 2019 are as follows, Continued :

(In millions of Korean won)	2019					
	Beginning balance	Acquisition	Share of profit (loss)	Other equity movement	Dividend	Ending balance
Stratio, Inc.	₩ 2,079	₩ -	₩ 11	₩ 7	₩ -	₩ 2,097
SK China Company Limited	246,052	-	3,127	21,190	-	270,369
Gemini Partners Pte. Ltd.	2,601	-	(155)	155	-	2,601
TCL Fund	3,464	513	27	113	(10)	4,107
SK South East Asia Investment Pte. Ltd.	111,810	113,470	65	14,969	-	240,314
Hushan Xinju (Chengdu) Venture Investment Center (Smartsource)	3,241	2,531	(106)	39	-	5,705
Prume Social Farm, Co., Ltd.	-	1,000	-	-	-	1,000
HITECH Semiconductor (Wuxi) Co., Ltd.	109,708	-	11,538	7,755	(14,458)	114,543
Hystars Semiconductor (Wuxi) Co., Ltd.	83,239	-	15	2,899	-	86,153
	₩ 562,194	₩ 117,514	₩ 14,522	₩ 47,127	₩ (14,468)	₩ 726,889

11. Investments in Associates and Joint Ventures, Continued

(4) Associates and joint ventures' summarized statements of financial position as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)	September 30, 2020			
	Current assets	**Non-current assets**	**Current liabilities**	**Non-current liabilities**
Stratio, Inc.	₩ 412	₩ 844	₩ 186	₩ -
SK China Company Limited	385,201	1,739,155	68,469	265,149
Gemini Partners Pte. Ltd.	6,300	6,878	113	-
TCL Fund	17,591	66,699	4,373	-
SK South East Asia Investment Pte. Ltd.	863,354	1,788,601	1,708	-
Hushan Xinju (Chengdu) Venture Investment Center(Smartsource)	7,729	41,765	-	-
Prume Social Farm, Co., Ltd.	560	732	-	-
Wuxi xinfa IC industry park., Ltd.	16,482	55,696	(2)	-
Magnus Private Investment Co., Ltd.	1,085	415,343	748	-
L&S (No.10) Early Stage Ⅲ Investment Association	1,628	6,250	128	-
SiFive Inc.	76,395	108,460	48,583	52,573
HITECH Semiconductor (Wuxi) Co., Ltd.	242,325	393,143	144,003	229,661
Hystars Semiconductor (Wuxi) Co., Ltd.	124,120	526,227	2,119	233,440
Specialized Investment-type Private Equity Investment Trust For Growth Of Semiconductor	40,392	34,662	439	-
Specialized Investment-type Private Equity Investment Trust For Win-win System Semiconductor	32,022	8,000	279	-

(In millions of Korean won)	December 31, 2019			
	Current assets	**Non-current assets**	**Current liabilities**	**Non-current liabilities**
Stratio, Inc.	₩ 431	₩ 715	₩ 169	₩ -
SK China Company Limited	604,127	1,357,238	46,747	170,812
Gemini Partners Pte. Ltd.	6,851	6,912	54	33
TCL Fund	12,652	35,809	3,256	-
SK South East Asia Investment Pte. Ltd.	108,465	1,705,297	91	-
Hushan Xinju (Chengdu) Venture Investment Center (Smartsource)	20,623	13,657	329	-
Prume Social Farm, Co., Ltd	1,016	610	2	222
HITECH Semiconductor (Wuxi) Co., Ltd.	193,377	442,510	84,071	297,330
Hystars Semiconductor (Wuxi) Co., Ltd.	167,238	388,318	48,984	225,075

11. Investments in Associates and Joint Ventures, Continued

(5) Associates and joint ventures' summarized statements of comprehensive income (loss) for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)	2020		2019	
	Revenue	**Profit (loss) for the period**	**Revenue**	**Profit (loss) for the period**
Stratio, Inc.	₩ 80	₩ 79	₩ 31	₩ 116
SK China Company Limited	101,343	32,527	71,659	26,353
Gemini Partners Pte. Ltd.	-	(576)	-	(776)
TCL Fund	-	3,487	-	243
SK South East Asia Investment Pte. Ltd.	7,658	6,395	3,726	326
Hushan Xinju (Chengdu) Venture Investment Center(Smartsource)	-	(1,188)	-	(245)
Prume Social Farm, Co., Ltd.	-	(111)	-	-
Wuxi xinfa IC industry park., Ltd.	-	(19)	-	-
Magnus Private Investment Co., Ltd.	-	(997)	-	-
L&S (No.10) Early Stage Ⅲ Investment Association	8	(450)	-	-
SiFive Inc.	-	-	-	-
HITECH Semiconductor (Wuxi) Co., Ltd.	475,858	37,614	487,772	25,641
Hystars Semiconductor (Wuxi) Co., Ltd.	-	(16,897)	-	31
Specialized Investment-type Private Equity Investment Trust For Growth Of Semiconductor	361	(79)	-	-
Specialized Investment-type Private Equity Investment Trust For Win-win System Semiconductor	22	(258)	-	-

12. Long-term Investment Assets

Changes in the carrying amount of long-term investment assets for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		2020		2019
Beginning balance	₩	4,381,812	₩	4,325,550
Acquisition		78,484		74,726
Disposal		(544)		(1,732)
Profit and loss on valuation		(51)		(26)
Foreign exchange difference		194,841		420,525
Transfer[1]		(24,980)		-
Ending balance	₩	4,629,562	₩	4,819,043

[1] Certain long-term investment assets have been transferred to associates and joint ventures during the nine-month period ended September 30, 2020.

13. Property, Plant and Equipment

(1) Changes in property, plant and equipment for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		2020		2019
Beginning balance	₩	39,949,940	₩	34,952,617
Impacts on transition to Korean IFRS 1116		-		(73,069)
Beginning balance after transition adjustments		39,949,940		34,879,548
Acquisition		6,847,670		9,408,579
Disposal and retirement		(64,087)		(38,694)
Depreciation		(6,328,110)		(5,489,731)
Transfer		1,336		1,105
Foreign exchange difference		305,462		177,153
Ending balance	₩	40,712,211	₩	38,937,960

(2) Certain property, plant and equipment are pledged as collaterals for borrowings of the Group as of September 30, 2020 (Note 33).

14. Leases

(1) Changes in right-of-use assets for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		2020		2019
Beginning balance	₩	1,250,576	₩	-
Impacts on transition to Korean IFRS 1116		-		1,188,304
Beginning balance after transition adjustments		1,250,576		1,188,304
Acquisition		162,180		44,252
Depreciation		(146,931)		(192,994)
Foreign exchange difference		23,302		15,463
Ending balance	₩	1,289,127	₩	1,055,025

(2) Changes in lease liabilities for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		2020		2019
Beginning balance	₩	1,200,830	₩	-
Impacts on transition to Korean IFRS 1116		-		1,192,096
Beginning balance after transition adjustments		1,200,830		1,192,096
Acquisition		161,440		44,564
Interest expenses		19,597		19,211
Payments		(162,728)		(203,736)
Foreign exchange difference		22,718		30,837
Ending balance	₩	1,241,857	₩	1,082,972

15. Intangible Assets

(1) Changes in intangible assets for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		2020		2019
Beginning balance	₩	2,571,049	₩	2,678,770
Acquisition		486,740		495,510
Business combination		-		3,208
Disposal and retirement		(10,826)		(9,890)
Amortization		(704,931)		(625,463)
Impairment		-		(71)
Transfer		(1,336)		-
Others[1]		1,161,652		24,159
Ending balance	₩	3,502,348	₩	2,566,223

[1] Others include reclassification of license assets and impact from exchange rates fluctuation.

(2) Among costs associated with development activities, ₩174,699 million that met capitalization criteria, were capitalized as development cost for the nine-month period ended September 30, 2020 (2019: ₩248,537 million). In addition, costs associated with research activities and other development expenditures that did not meet the criteria amounting to ₩2,371,536 million were recognized as expenses for the nine-month period ended September 30, 2020 (2019: ₩2,079,521 million).

16. Investment Property

(1) Changes in investment property for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		2020		2019
Beginning balance	₩	258	₩	1,400
Depreciation		(8)		(34)
Transfer(*)		-		(1,105)
Ending balance	₩	250	₩	261

(*) Certain investment properties have been transferred to property, plant and equipment during the nine-month period ended September 30, 2019.

(2) The depreciation expense of ₩8 million was charged to cost of sales for the nine-month period ended September 30, 2020 (2019: ₩34 million).

(3) Rental income from certain investment properties during the nine-month period ended September 30, 2020 was ₩7 million (2019: ₩121 million).

17. Borrowings

Details of borrowings as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)		September 30, 2020		December 31, 2019
Current				
Short-term borrowings	₩	680,209	₩	1,168,354
Current portion of long-term borrowings		2,483,522		1,259,593
Current portion of debentures		429,872		309,823
		3,593,603		2,737,770
Non-current				
Long-term borrowings		4,627,055		5,040,371
Debentures		3,482,135		2,745,365
		8,109,190		7,785,736
	₩	11,702,793	₩	10,523,506

18. Other Current and Non-current Liabilities

Details of other current and non-current liabilities as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)		September 30, 2020		December 31, 2019
Current				
Advance receipts	₩	8,778	₩	9,901
Unearned income		1,262		190
Withholdings		51,304		59,186
Deposits received		13,817		1,341
Contract liabilities		99,363		86,999
Others		5,612		5,380
		180,136		162,997
Non-current				
Other long-term employee benefits		85,347		82,873
Long-term advance receipts		4,900		4,900
		90,247		87,773
	₩	270,383	₩	250,770

19. Provisions

(1) Changes in provisions for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)	2020									
		Beginning Balance		Increase		Utilization		Reversal		Ending Balance
Warranty	₩	4,081	₩	819	₩	(1,962)	₩	-	₩	2,938
Emission allowances		6,620		8,160		(8,908)		-		5,872
	₩	10,701	₩	8,979	₩	(10,870)	₩	-	₩	8,810

(In millions of Korean won)	2019									
		Beginning Balance		Increase		Utilization		Reversal		Ending Balance
Warranty	₩	3,992	₩	10,278	₩	(10,641)	₩	-	₩	3,629
Legal claims		5,881		-		(5,881)		-		-
Emission allowances		46,335		-		(2,702)		(42,379)		1,254
	₩	56,208	₩	10,278	₩	(19,224)	₩	(42,379)	₩	4,883

(2) Provisions for warranty

The Group estimates the expected warranty costs based on historical results and records 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

(1) Details of defined benefit liabilities as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)		**September 30, 2020**		**December 31, 2019**
Present value of defined benefit obligations	₩	2,148,747	₩	1,936,868
Fair value of plan assets		(1,871,098)		(1,886,650)
Net defined benefit liabilities	₩	277,649	₩	50,218
Defined benefit liabilities	₩	277,906	₩	53,624
Defined benefit assets[1]	₩	(257)	₩	(3,406)

[1] Certain subsidiaries' fair value of plan assets in excess of the present value of defined benefit obligations, presented as defined benefit assets, amounted to ₩257 million and ₩ 3,406 million as of September 30, 2020 and December 31, 2019, respectively.

(2) Principal actuarial assumptions as of September 30, 2020 and December 31, 2019 are as follows:

	September 30, 2020 (%)	**December 31, 2019 (%)**
Discount rate for defined benefit obligations	1.92 ~ 3.47	1.92 ~ 3.47
Expected rate of salary increase	2.70 ~ 5.94	2.70 ~ 5.94

(3) Changes in defined benefit obligations for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)		**2020**		**2019**
Beginning balance	₩	1,936,868	₩	1,609,055
Current service cost		195,102		163,492
Interest cost		48,507		44,696
Transferred from associates		(988)		2,252
Benefits paid		(30,792)		(27,934)
Others		50		79
Ending balance	₩	2,148,747	₩	1,791,640

(4) Changes in plan assets for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)		**2020**		**2019**
Beginning balance	₩	1,886,650	₩	1,608,832
Interest income		47,158		44,700
Contributions		-		1,570
Transferred from associates		224		3,277
Benefits paid		(49,248)		(32,124)
Remeasurements		(13,688)		(16,441)
Others		2		2
Ending balance	₩	1,871,098	₩	1,609,816

20. Defined Benefit Liabilities, Continued

(5) The amounts recognized in profit or loss for the three-month and the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)	2020		2019	
	Three months	**Nine months**	**Three months**	**Nine months**
Current service cost	₩ 64,963	₩ 195,102	₩ 54,525	₩ 163,492
Net interest expense(income)	451	1,349	(8)	(4)
	₩ 65,414	₩ 196,451	₩ 54,517	₩ 163,488

(6) Details of plan assets as of September 30, 2020 and December 31, 2019, are as follows:

(In millions of Korean won)	**September 30, 2020**	**December 31, 2019**
Deposits	₩ 1,869,914	₩ 1,884,630
Others	1,184	2,020
	₩ 1,871,098	₩ 1,886,650

Actual return on plan assets for the nine-month periods ended September 30, 2020 and 2019 amounted to ₩33,471 million and ₩28,259 million, respectively.

(7) Contributions to defined contribution plans amounting to ₩696 million (2019: ₩298 million) was recognized as current expenses for the nine-month period ended September 30, 2020.

21. Derivative Financial Instruments

(1) Details of derivative financial instruments applying cash flow hedge accounting as of September 30, 2020 are as follows:

(In thousands of foreign currencies)

Hedged items			Hedging instruments		
Borrowing date	**Financial instrument**	**Hedged risk**	**Type of contract**	**Financial institution**	**Contract period**
2019.09.17	Foreign currency denominated bond with fixed rate (Par value: USD 500,000)	Foreign currency risk	Fixed-to-fixed cross currency swap	Kookmin Bank and others	2019.09.17 ~ 2024.09.17
2019.10.02	Foreign currency denominated borrowing for equipment with floating rate (Par value: USD 500,000)	Foreign currency and interest rate risk	Floating-to-fixed cross currency interest rate swap	Korea Development Bank	2019.10.02 ~ 2026.10.02
2020.02.03	Foreign currency denominated borrowing with floating rate (Par value: USD 50,000)	Interest rate risk	Interest rate swap	Woori Bank	2020.02.03 ~ 2023.02.03
2020.03.18	Foreign currency denominated borrowing with floating rate (Par value: USD 50,000)	Interest rate risk	Interest rate swap	Woori Bank	2020.03.18 ~ 2023.02.03

(2) The derivative financial instruments held by the Group are presented in non-current other financial assets and non-current other financial liabilities in the consolidated financial statements of financial position as of September 30, 2020, and the details are as follows:

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

Type of contract	Hedged items	Cash flow hedge	Fair value
Financial assets			
Fixed-to-fixed cross currency swap	Foreign currency denominated bond with fixed rate (Par value: USD 500,000)	₩ 14,653	₩ 14,653
			₩ 14,653
Financial liabilities			
Floating-to-fixed cross currency interest rate swap	Foreign currency denominated borrowing for equipment with floating rate (Par value: USD 500,000)	₩ 25,317	₩ 25,317
Interest rate swap	Foreign currency denominated borrowing with floating rate (Par value: USD 50,000)	1,813	1,813
Interest rate swap	Foreign currency denominated borrowing with floating rate (Par value: USD 50,000)	773	773
			₩ 27,903

As of September 30, 2020, changes of fair value of the derivative is recognized in other comprehensive income or loss as all of designated hedging instruments are effective for foreign currency risk or foreign currency and interest rate risk.

22. 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 September 30, 2020. The number of shares issued, common stock, capital surplus and other capital as of September 30, 2020 and December 31, 2019, are as follows:

(In millions of Korean won and thousands of shares)		**September 30, 2020**		**December 31, 2019**
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)		(2,508,427)
Share options		4,900		3,714
	₩	(2,503,527)	₩	(2,504,713)
Number of treasury shares		44,001		44,001

[1] As of September 30, 2020, the number of outstanding shares is 728,002 thousand shares, which differs from total issued shares due to share retirement.

(2) The number of outstanding shares, which deducted treasury shares held by the Parent Company from listed shares, is 684,002 thousands as of September 30, 2020 and December 31, 2019.

23. Accumulated Other Comprehensive Loss

(1) Details of accumulated other comprehensive loss as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)		**September 30, 2020**		**December 31, 2019**
Equity-accounted investees – share of other comprehensive income	₩	12,413	₩	3,278
Foreign operations – foreign currency translation differences		(51,914)		(314,966)
Gain (loss) on valuation of derivatives		(579)		12,753
	₩	(40,080)	₩	(298,935)

23. Accumulated Other Comprehensive Loss, Continued

(2) Changes in accumulated other comprehensive loss for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)		2020				
		Beginning		**Change**		**Ending**
Equity-accounted investees – share of other comprehensive income	₩	3,278	₩	9,135	₩	12,413
Foreign operations – foreign currency translation differences		(314,966)		263,052		(51,914)
Gain (loss) on valuation of derivatives		12,753		(13,332)		(579)
	₩	(298,935)	₩	258,855	₩	(40,080)

(In millions of Korean won)		2019				
		Beginning		**Change**		**Ending**
Equity-accounted investees – share of other comprehensive income (loss)	₩	(18,166)	₩	47,127	₩	28,961
Foreign operations – foreign currency translation differences		(464,653)		270,818		(193,835)
	₩	(482,819)	₩	317,945	₩	(164,874)

24. Retained Earnings

Retained earnings as of September 30, 2020 and December 31, 2019, are as follows:

(In millions of Korean won)		**September 30, 2020**		**December 31, 2019**
Legal reserve[1]	₩	349,955	₩	281,555
Discretionary reserve[2]		235,506		235,506
Unappropriated retained earnings[3]		44,635,830		42,413,614
	₩	45,221,291	₩	42,930,675

[1] The Commercial Code of the Republic of Korea requires the Parent Company to appropriate for each financial period, as a legal reserve, an amount equal to a minimum of 10% of cash dividends paid until such reserve equals 50% of its issued 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 the reserve for technology development.
[3] Dividends in the amount of ₩684,002 million were approved at shareholders' meeting held on March 20, 2020, and the dividends were paid in the nine-month period ended September 30, 2020.

25. Revenue

(1) Details of the Group's revenue for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)		2020				2019		
		Three months		Nine months		Three months		Nine months
Sale of goods	₩	8,114,177	₩	23,885,908	₩	6,822,061	₩	20,010,917
Providing services		14,590		48,285		16,705		52,705
	₩	8,128,767	₩	23,934,193	₩	6,838,766	₩	20,063,622

(2) Details of the Group's revenue by product and service types for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)		2020				2019		
		Three months		Nine months		Three months		Nine months
DRAM	₩	5,714,710	₩	16,900,935	₩	5,106,760	₩	15,264,389
NAND Flash		1,930,391		5,687,166		1,313,200		3,723,604
Others		483,666		1,346,092		418,806		1,075,629
	₩	8,128,767	₩	23,934,193	₩	6,838,766	₩	20,063,622

(3) The Group's revenue information by region based on the location of selling entities for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)		2020				2019		
		Three months		Nine months		Three months		Nine months
Korea	₩	355,059	₩	1,057,236	₩	344,700	₩	961,526
China		3,141,516		9,658,673		3,348,413		9,630,830
Taiwan		454,772		1,423,945		393,529		1,070,715
Asia (other than China and Taiwan)		748,051		1,886,910		597,144		1,778,180
U.S.A.		3,196,067		9,041,157		1,933,145		5,801,586
Europe		233,302		866,272		221,835		820,785
	₩	8,128,767	₩	23,934,193	₩	6,838,766	₩	20,063,622

(4) Details of the Group's revenue by the timing of revenue recognition during the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)		2020				2019		
		Three months		Nine months		Three months		Nine months
Performance obligations satisfied at a point in time	₩	8,114,177	₩	23,885,908	₩	6,822,061	₩	20,010,917
Performance obligations satisfied over time		14,590		48,285		16,705		52,705
	₩	8,128,767	₩	23,934,193	₩	6,838,766	₩	20,063,622

26. Selling and Administrative Expenses

Selling and administrative expenses for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)	2020		2019	
	Three months	Nine months	Three months	Nine months
Salaries	₩ 155,432	₩ 455,584	₩ 121,067	₩ 400,316
Defined benefit plan	14,148	41,596	11,925	35,259
Employee benefits	38,410	113,366	33,512	103,047
Commission	82,830	236,949	118,907	334,391
Depreciation	62,165	182,396	52,237	149,922
Amortization	208,697	526,084	149,112	546,714
Freight and custody charges	12,080	37,244	10,076	29,090
Legal cost	5,388	16,322	6,251	25,830
Rentals	2,320	6,456	2,064	5,324
Taxes and dues	16,502	42,394	12,924	43,136
Training	16,272	44,668	11,086	33,193
Advertising	25,291	62,725	20,379	51,946
Utilities	3,576	10,474	3,119	9,040
Supplies	22,362	63,712	21,186	59,851
Repairs	7,273	18,002	10,962	22,647
Travel and transportation	830	3,585	3,783	12,264
Others	36,674	99,730	39,163	94,479
	710,250	1,961,287	627,753	1,956,449
Research and developments:				
Expenditure on research and developments	886,352	2,546,235	796,573	2,328,058
Development costs capitalized	(53,041)	(174,699)	(81,248)	(248,537)
	833,311	2,371,536	715,325	2,079,521
	₩ 1,543,561	₩ 4,332,823	₩ 1,343,078	₩ 4,035,970

27. Expenses by Nature

Nature of expenses for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)	2020		2019	
	Three months	Nine months	Three months	Nine months
Changes in finished goods and work-in-process	₩ (143,588)	₩ (522,843)	₩ 224,485	₩ (682,630)
Raw materials and consumables	1,903,982	5,592,631	1,679,000	4,883,749
Labor costs	1,009,482	2,999,390	861,403	2,751,694
Depreciation, amortization and others	2,462,227	7,174,259	2,158,144	6,296,293
Commission	537,168	1,560,431	534,259	1,556,274
Utilities	379,922	1,087,415	352,282	1,011,359
Repair	261,257	829,005	233,513	780,898
Outsourcing	280,824	895,389	297,608	871,473
Other operating expenses	201,579	469,142	109,469	377,132
Transfer: capitalized development cost and others	(63,782)	(197,338)	(83,958)	(259,301)
Total[1]	₩ 6,829,071	₩ 19,887,481	₩ 6,366,205	₩ 17,586,941

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

28. Finance Income and Expenses

Finance income and expenses for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

	2020		2019	
	Three months	Nine months	Three months	Nine months
Finance income				
Interest income	₩ 13,017	₩ 23,007	₩ 7,268	₩ 24,864
Dividend income	32	631	129	211
Foreign exchange differences[1]	328,551	1,090,886	397,224	1,224,366
Gain on valuation of short-term investment assets	(491)	2,010	(2,408)	3,555
Gain on disposal of short-term investment assets	5,599	22,856	13,957	50,511
Gain on disposal of long-term investment assets	-	-	58	58
Gain on valuation of financial liabilities at fair value through profit or loss	-	-	734	1,804
	346,708	1,139,390	416,962	1,305,369
Finance expense				
Interest expenses	47,327	181,741	70,714	171,166
Foreign exchange differences	254,197	948,484	318,511	942,690
Loss on valuation of long-term investment assets	18	51	4	26
	301,542	1,130,276	389,229	1,113,882
Net finance income	₩ 45,166	₩ 9,114	₩ 27,733	₩ 191,487

[1] For the nine-month period ended September 30, 2020, the foreign exchange difference gain from long-term investment assets amounting to ₩194,841 million (2019: ₩ 420,524 million) is included.

29. Other Income and Expenses

(1) Other income for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		2020			2019		
		Three months		Nine months		Three months		Nine months
Gain on disposal of property, plant and equipment	₩	35	₩	18,640	₩	5,450	₩	24,401
Gain on disposal of intangible assets		-		122		-		-
Others		23,533		42,869		25,990		56,421
	₩	23,568	₩	61,631	₩	31,440	₩	80,822

(2) Other expenses for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		2020				2019		
		Three months		Nine months		Three months		Nine months
Loss on disposal of property, plant and equipment	₩	2,795	₩	44,258	₩	2,496	₩	10,619
Loss on disposal of intangible assets		2,299		3,631		4,628		7,005
Loss on impairments of intangible assets		-		-		1		71
Loss on disposal of trade receivables		1,061		5,268		1,775		5,798
Donation		6,928		56,895		5,454		43,139
Others		3,180		15,902		1,550		21,020
	₩	16,263	₩	125,954	₩	15,904	₩	87,652

30. Income Tax Expense

Income tax expense is recognized based on management's best estimate of the average annual effective income tax rate expected for the full financial year multiplied by the pre-tax income of the interim reporting period. Income tax expense includes current tax expense adjustments related to prior periods.

31. 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 for the three-month and nine-month periods ended September 30, 2020 and 2019.

(1) Basic earnings per share for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows:

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

	2020		2019	
	Three months	**Nine months**	**Three months**	**Nine months**
Profit attributable to ordinary shareholders of the Parent Company	₩ 1,077,262	₩ 2,988,306	₩ 493,201	₩ 2,131,483
Weighted average number of outstanding ordinary shares[1]	684,001,795	684,001,795	684,000,795	684,000,795
Basic earnings per share (in Korean won)	₩ 1,575	₩ 4,369	₩ 721	₩ 3,116

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

(In shares)

	2020		2019	
	Three months	**Nine months**	**Three months**	**Nine months**
Outstanding ordinary shares	728,002,365	728,002,365	728,002,365	728,002,365
Treasury shares	(44,000,570)	(44,000,570)	(44,000,570)	(44,000,570)
Weighted average number of outstanding ordinary shares	684,001,795	684,001,795	684,001,795	684,001,795

(2) Diluted earnings per share for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows:

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

	2020		2019	
	Three months	**Nine months**	**Three months**	**Nine months**
Profit attributable to ordinary shareholders of the Parent Company	₩ 1,077,262	₩ 2,988,306	₩ 493,201	₩ 2,131,483
Weighted average number of diluted outstanding ordinary shares[1]	684,110,584	684,126,060	684,090,845	684,080,420
Diluted earnings per share (in Korean won)	₩ 1,575	₩ 4,368	₩ 721	₩ 3,116

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

(In shares)	2020		2019	
	Three months	Nine months	Three months	Nine months
Weighted average number of outstanding ordinary shares	684,001,795	684,001,795	684,001,795	684,001,795
Share options	108,789	124,265	89,050	78,625
Weighted average number of diluted outstanding ordinary shares	684,110,584	684,126,060	684,090,845	684,080,420

32. Transactions with Related Parties and Others

(1) Details of related parties as of September 30, 2020 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), Prume Social Farm, Co., Ltd, Wuxi xinfa IC industry park., Ltd., Magnus Private Investment Co., Ltd., L&S (No.10) Early Stage Ⅲ Investment Association, SiFive Inc.
Joint ventures	HITECH Semiconductor (Wuxi) Co., Ltd., Hystars Semiconductor (Wuxi) Co., Ltd. Specialized Investment-type Private Equity Investment Trust For Growth Of Semiconductor, Specialized Investment-type Private Equity Investment Trust For Win-win System Semiconductor
Other related parties	SK Telecom Co., Ltd., which has significant influence over the Group, and its subsidiaries, SK Holdings Co., Ltd., which has control over SK Telecom Co., Ltd., and its subsidiaries

(2) Significant transactions for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		For the three-month period ended September 30, 2020			
	Company	Operating revenue and others	Operating expense and others	Asset acquisition	Dividend received
Associate	SK China Company Limited	₩ 6	₩ 2,357	₩ -	₩ -
Joint venture	HITECH Semiconductor (Wuxi) Co., Ltd.	930	147,923	2	15,033
	Hystars Semiconductor (Wuxi) Co., Ltd.	39	-	-	-
Other related parties	SK Telecom Co., Ltd. [1]	16,706	2,921	2,042	-
	SK Holdings Co., Ltd. [2]	4,839	81,949	44,451	-
	ESSENCORE Limited	145,465	-	-	-
	SK Engineering & Construction Co., Ltd.	9,993	-	224,313	-
	SK Energy Co., Ltd.	9,438	11,831	-	-
	SK Networks Co., Ltd.	3,751	3,629	34	-
	SKC Solmics Co., Ltd.	145	23,665	86	-
	Chungcheong energy service Co., Ltd.	3	2,823	-	-
	SK Materials Co., Ltd.	998	24,151	-	-
	SK Siltron Co., Ltd.	7,887	95,773	-	-
	SK Airgas Co., Ltd.	77	14,703	110,858	-
	Others	46,303	171,834	14,082	-
		₩ 246,580	₩ 583,559	₩ 395,868	₩ 15,033

32. Transactions with Related Parties and Others, Continued

(In millions of Korean won)		For the nine-month period ended September 30, 2020			
	Company	**Operating revenue and others**	**Operating expense and others**	**Asset acquisition**	**Dividend received**
Associate	SK China Company Limited	₩ 12	₩ 5,574	₩ -	₩ -
Joint venture	HITECH Semiconductor (Wuxi) Co., Ltd.	4,522	480,113	4,746	15,033
	Hystars Semiconductor (Wuxi) Co., Ltd.	148	-	-	-
Other related parties	SK Telecom Co., Ltd. [1]	74,112	165,225	6,372	-
	SK Holdings Co., Ltd. [2]	15,992	188,093	197,820	-
	ESSENCORE Limited	510,176	-	-	-
	SK Engineering & Construction Co., Ltd.	34,891	121	926,507	-
	SK Energy Co., Ltd.	37,141	53,345	-	-
	SK Networks Co., Ltd.	7,009	6,621	411	-
	SKC Solmics Co., Ltd.	446	70,322	141	-
	Chungcheong energy service Co., Ltd.	45	18,084	-	-
	SK Materials Co., Ltd.	2,996	70,283	-	-
	SK Siltron Co., Ltd.	24,298	293,349	-	-
	SK Airgas Co., Ltd.	13,170	39,934	110,858	-
	Others	120,161	449,715	43,189	-
		₩ 845,119	₩ 1,840,779	₩ 1,290,044	₩ 15,033

[1] Operating expense and others include dividend of ₩146,100 million paid.
[2] For the nine-month period ended September 30, 2020, royalty paid for the use of the SK brand amounted to ₩40,866 million.

32. Transactions with Related Parties and Others, Continued

(In millions of Korean won)		For the three-month period ended September 30, 2019			
	Company	**Operating revenue and others**	**Operating expense and others**	**Asset acquisition**	**Dividend received**
Associate	SK China Company Limited	₩ 4	₩ 2,427	₩ -	₩ -
Joint venture	HITECH Semiconductor (Wuxi) Co., Ltd.	1,611	158,505	-	-
	Hystars Semiconductor (Wuxi) Co., Ltd.	1	-	-	-
Other related parties	SK Telecom Co., Ltd. [1]	36,000	5,741	1,501	-
	SK Holdings Co., Ltd. [2]	5,159	63,332	71,513	-
	ESSENCORE Limited	202,928	-	-	-
	SK Engineering & Construction Co., Ltd.	12,003	6	372,372	-
	SK Energy Co., Ltd.	17,009	11,433	-	-
	SK Networks Co., Ltd.	3,310	2,632	-	-
	SKC solmics Co., Ltd.	153	19,728	138	-
	Chungcheong energy service Co., Ltd.	169	3,408	-	-
	SK Materials Co., Ltd.	1,070	20,871	-	-
	SK Siltron Co., Ltd.	7,728	105,284	-	-
	SK Airgas Co., Ltd.	16	18,017	-	-
	Others	41,287	116,154	11,675	-
		₩ 328,448	₩ 527,538	₩ 457,199	₩ -

32. Transactions with Related Parties and Others, Continued

(In millions of Korean won)		For the nine-month period ended September 30, 2019			
	Company	Operating revenue and others	Operating expense and others	Asset acquisition	Dividend received
Associate	SK China Company Limited	₩ 11	₩ 7,063	₩ -	₩ -
Joint venture	HITECH Semiconductor (Wuxi) Co., Ltd.	3,414	488,787	-	14,458
	Hystars Semiconductor (Wuxi) Co., Ltd.	238	-	-	-
Other related parties	SK Telecom Co., Ltd.[1]	97,011	235,847	7,977	-
	SK Holdings Co., Ltd.[2]	19,318	196,384	201,046	-
	ESSENCORE Limited	600,853	-	-	-
	SK Engineering & Construction Co., Ltd.	42,362	6	960,132	-
	SK Energy Co., Ltd.	41,307	52,634	-	-
	SK Networks Co., Ltd.	9,219	8,607	-	-
	SKC solmics Co., Ltd.	528	60,851	1,047	-
	Chungcheong energy service Co., Ltd.	175	19,891	-	-
	SK Materials Co., Ltd.	3,217	59,863	-	-
	SK Siltron Co., Ltd.	24,316	324,113	-	-
	SK Airgas Co., Ltd.	56	53,334	-	-
	Others	105,506	362,134	20,965	-
		₩ 947,531	₩ 1,869,514	₩ 1,191,167	₩ 14,458

[1] Operating expense includes dividend of ₩219,200 million paid.
[2] For the nine-month period ended September 30, 2019, royalty paid for the use of the SK brand amounted to ₩61,972 million.

32. Transactions with Related Parties and Others, Continued

(3) The balances from significant transactions as of September 30, 2020 and December 31, 2019 are as follows:

(In millions of Korean won)		September 30, 2020	
	Company	**Trade receivables and others**	**Other payables and others**
Associate	SK China Company Limited	₩ 3	₩ 6,999
Joint ventures	HITECH Semiconductor (Wuxi) Co., Ltd.	1,551	96,398
	Hystars Semiconductor (Wuxi) Co., Ltd.	7	-
Other related parties	SK Telecom Co., Ltd.	5,116	6,879
	SK Holdings Co., Ltd.	1,782	157,441
	ESSENCORE Limited	40,460	-
	SK Engineering & Construction Co., Ltd.	3,603	413,294
	SK Energy Co., Ltd.	1,389	17,507
	SK Networks Co., Ltd.	138	1,966
	SKC Solmics Co., Ltd.	57	22,737
	Chungcheong energy service Co., Ltd.	3	847
	SK Materials Co., Ltd.	294	13,381
	SK Siltron Co., Ltd.[1]	58,874	53,352
	SK Airgas Co., Ltd.	65	376,929
	Others	26,377	108,006
		₩ 139,719	₩ 1,275,736

[1] Trade receivable and others include ₩55,878 million of advance paid for the purchase of wafers (Note 33-(9)).

(In millions of Korean won)		December 31, 2019	
	Company	**Trade receivables and others**	**Other payables and others**
Associate	SK China Company Limited	₩ 1	₩ 10,883
Joint ventures	HITECH Semiconductor (Wuxi) Co., Ltd.	357	395,529
Other related parties	SK Telecom Co., Ltd.	9,334	7,342
	SK Holdings Co., Ltd.	3,668	151,940
	ESSENCORE Limited	37,823	-
	SK Engineering & Construction Co., Ltd.	6,012	855,621
	SK Energy Co., Ltd.	3,207	24,203
	SK Networks Co., Ltd.	897	7,243
	SKC solmics Co., Ltd.	55	17,463
	Chungcheong energy service Co., Ltd.	13	3,599
	SK Materials Co., Ltd.	360	7,681
	SK Siltron Co., Ltd.[1]	99,203	36,395
	SK Airgas Co., Ltd.	43	277,059
	Others	20,486	102,535
		₩ 181,459	₩ 1,897,493

[1] Trade receivable and others include ₩96,216 million of advance paid for the purchase of wafers (Note 33-(9)).

32. Transactions with Related Parties and Others, Continued

(4) Key management compensation

The Group considers registered directors who have authority and responsibility for planning, directing and controlling the activities of the Group as key management. The compensation paid to key management for employee services for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)	2020		2019	
	Three months	Nine months	Three months	Nine months
Salaries	₩ 1,022	₩ 3,605	₩ 494	₩ 3,351
Defined benefit plan	136	409	102	305
Share-based payment	293	883	303	650
	₩ 1,451	₩ 4,897	₩ 899	₩ 4,306

(5) The significant transactions between the Group and the companies that are in the same conglomerate group according to '*Fair Trade Law'* for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows. These entities are not related parties according to Korean IFRS 1024 *Related Party Disclosures*.

(In millions of Korean won)	2020					
	Operating revenue and others		Operating expense and others		Asset acquisition	
Company	Three months	Nine months	Three months	Nine months	Three months	Nine months
SK Chemicals Co., Ltd.	₩ 2,595	₩ 7,458	₩ 365	₩ 1,100	₩ -	₩ -
SK Bioscience Co., Ltd.	549	1,334	92	95	-	-
ANTS Co., Ltd.	1	3	2,169	6,697	-	-
SMCore. Inc	-	-	148	301	1,059	16,248
Korea Nexlene Company	1,171	3,283	-	-	-	-
Others	381	2,799	234	712	-	-
	₩ 4,697	₩ 14,877	₩ 3,008	₩ 8,905	₩ 1,059	₩ 16,248

(In millions of Korean won)	2019			
	Operating revenue and others		Operating expense and others	
Company	Three months	Nine months	Three months	Nine months
SK Chemicals Co., Ltd.	₩ 2,339	₩ 7,025	₩ 379	₩ 1,155
SK Bioscience Co., Ltd.	1,201	3,628	5	28
ANTS Co., Ltd.	2	6	2,542	5,921
Others	1,074	2,410	-	-
	₩ 4,616	₩ 13,069	₩ 2,926	₩ 7,104

32. 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*' as of September 30, 2020 and December 31, 2019 are as follows. These entities are not related parties according to Korean IFRS 1024 *Related Party Disclosures*.

(In millions of Korean won)	September 30, 2020	
Company	Trade receivables and others	Other payables and others
SK Chemicals Co., Ltd.	₩ 1,110	₩ 176
SK Bioscience Co., Ltd	221	93
ANTS Co., Ltd.	-	-
SMCore. Inc	-	1,460
Korea Nexlene Company	212	-
Others	178	94
	₩ 1,721	₩ 1,823

(In millions of Korean won)	December 31, 2019	
Company	Trade receivables and others	Other payables and others
SK Chemicals Co., Ltd.	₩ 886	₩ 114
SK Bioscience Co., Ltd	177	20
ANTS Co., Ltd.	1	942
Others	645	-
	₩ 1,709	₩ 1,076

(7) The right-of-use assets and lease liabilities recognized regarding the lease agreements entered with the related parties for the nine-month period ended September 30, 2020 amount to ₩130,215 million and ₩130,221 million, respectively, and lease payments to the related parties amount to ₩29,907 million for the nine-month period ended September 30, 2020.

(8) The Group provides a payment guarantee amounting to RMB 701 million to Hystars Semiconductor (Wuxi) Co., Ltd., a joint venture (Note 33).

(9) The establishment of the subsidiary is explained in Note 1, and the acquisitions and additional investments of associates and joint ventures are explained in Note 11.

33. Commitments and Contingencies

(1) Significant pending litigations and claims of the Group as of September 30, 2020 are as follows:

(a) Lawsuit from Netlist, Inc. (“Netlist”)
Netlist filed a lawsuit against the Parent Company and its subsidiaries including SK hynix America Inc. and SK hynix memory solutions America Inc. alleging infringement of multiple patents to the U.S. International Trade Commission ("U.S. ITC"), on September 1, 2016 and on October 31, 2017.

The lawsuit filed to the U.S. ITC on September 1, 2016 was provisionally concluded on January 16, 2018 that the Parent Company and its subsidiaries, SK hynix America Inc. and SK hynix memory solutions America Inc., did not infringe the patents of Netlist. Netlist filed an appeal against the conclusion; however. the U.S. Federal Court of Appeals rejected the petition on December 12, 2019; accordingly, it is finally concluded that the Parent Company and its subsidiaries, SK hynix America Inc. and SK hynix memory solutions America Inc. did not infringe the patents.

Regarding the patent infringement case that was filed on October 31, 2017, the U.S. ITC determined that the Parent Company and its subsidiaries, SK Hynix America Inc. and SK Hynix memory solutions America Inc. did not infringe the patents of Netlist on April 7, 2020. Netlist filed for an appeal on April 29, 2020 and withdrew the appeal on June 23, 2020; accordingly, it is finally concluded that the Parent Company and its subsidiaries, SK hynix America Inc. and SK hynix memory solutions America Inc. did not infringe the patents.

In addition, Netlist filed lawsuits against the Parent Company and its subsidiaries, SK hynix America Inc. and SK hynix memory solutions America Inc., with the U.S. District Court for the Central District of California on August 31, 2016 and June 14, 2017, and filed a lawsuit against the Parent Company and its subsidiary, SK hynix America Inc., with the U.S. District Court for the Western District of Texas on March 17, 2020 and June 15, 2020 for infringement of U.S. patent of Netlist. As of September 30, 2020, the litigation value has not been determined and the final results cannot be predicted.

(b) Price-fixing class action lawsuits in North America
On April 27, 2018, a class action lawsuit against the Parent Company and its subsidiary, SK hynix America Inc., for price fixing by major DRAM companies (period from June 1, 2016 to February 1, 2018) was filed with the U.S. District Court for the Northern District of California. Similar class action lawsuits have been filed with the U.S. District Court for the Northern District of California, the Supreme Court of British Columbia, the Quebec District Court, and the Ontario Federal and District Court. As of September 30, 2020, the Group cannot predict the outcome of these lawsuits.

(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, and the investigation has been started. The pending case currently is under investigation. As of September 30, 2020, the Group cannot predict the outcome of these investigation.

(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 recognizes liabilities when it represents a present obligation as a result of past event and it is probable that an outflow of resources will arise and a loss can be reliably estimated.

33. Commitments and Contingencies, Continued

(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 royalty payables are recognized as intangible assets, and the amount is amortized on a straight-line basis for the patent license agreement period and recognized as amortization expense.

(3) Contract for supply of industrial water
The Group has entered into a re-newal contract with Veolia Water Industrial Development Co., Ltd. ("Veolia") under which the Group purchases industrial water from Veolia during the 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.

(4) Back-end process service contract with HITECH Semiconductor (Wuxi) Co., Ltd. (“HITECH”)
The Group has entered into an agreement with HITECH to be provided with back-end 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 as the Group has priority to use HITECH’s equipment.

(5) Assets provided as collateral

Details of assets provided as collateral as of September 30, 2020 are as follows:

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

Category	Book value		Pledged amount			Remark
	Currency	Amount	Currency	Amount in USD	Amount in KRW	
Land and buildings	KRW	57,266	USD	51	60,312	Borrowings for equipment and others
			KRW	-	5,854	
Machinery	KRW	5,811,179	USD	7,343	8,616,478	
			KRW	-	1,020,000	
	KRW	5,868,445	USD	7,394	8,676,790	
			KRW	-	1,025,854	

33. Commitments and Contingencies, Continued

(6) Financing agreements

Details of credit lines with financial institutions as of September 30, 2020 are as follows:

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

	Financial Institution	Commitment	Currency	Amount
The Parent Company	Hana Bank and others	Import finance including usance	USD	500
		Comprehensive limit contract for import and export including usance	USD	1,060
		Overdrafts with banks	KRW	20,000
		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	2,450
			USD	490
SK hynix America Inc. and other sales entities	Citibank and others	Accounts receivable factoring contracts which have no right to recourse	USD	757
Domestic subsidiaries	Hana Bank and others	Import finance including usance	USD	45

33. Commitments and Contingencies, Continued

(7) Details of guarantees provided to others as of September 30, 2020 are as follows:

(In millions of foreign currencies)	Currency	Amount	Remark
Taiwan Semiconductor Manufacturing Company, Limited.[1]	USD	80	Guarantees for supply agreement
Wuxi Xinfa Group Co., Ltd.[2]	RMB	701	Guarantees for borrowing

[1] The Group is provided a deposit of ₩1,000 million as collateral from AD Technology Inc. regarding payment guarantee for Taiwan Semiconductor Manufacturing Company, Limited.
[2] The Group provides a payment guarantee to Wuxi Xinfa Group Co., Ltd. for borrowings of Hystars Semiconductor (Wuxi) Co., Ltd., a joint venture of the Group.

(8) Capital commitments
The Group's unrecorded commitments in relation to the capital expenditures on property, plant and equipment and intangible assets as of September 30, 2020 are ₩4,436,460 million (as of December 31, 2019: ₩232,387 million).

(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 a stable supply of wafer with an advanced payment of ₩150,000 million made in 2017. The advanced payment used in connection with the purchase of wafer during the current period is ₩40,338 million, and the balance of the advance payment as of September 30, 2020, is ₩55,878 million. Meanwhile, SK Siltron Co., Ltd. is providing a certain portion of its property, plant and equipment as collateral to secure the advanced payment.

(10) Investment in KIOXIA Holdings Corporation ("KIOXIA")
In regard to the Group's interests in KIOXIA through its investments in BCPE Pangea Intermediate holdings Cayman, L.P. and BCPE Pangea Cayman2 Limited, equity shares in KIOXIA 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 same periods, the Group does not have the right in appointing KIOXIA's directors and is unable to exercise significant influence over decision-making for KIOXIA's operations and management.

34. Cash Flows

(1) Reconciliations between profit for the period and cash generated from operations for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		2020		2019
Profit for the period	₩	2,991,172	₩	2,134,639
Adjustment				
Income tax expense		1,013,050		541,221
Interest expense		181,741		171,166
Interest income		(23,007)		(24,864)
Depreciation of property, plant and equipment		6,328,110		5,489,731
Depreciation of investment property		8		34
Amortization		704,931		625,463
Depreciation of right-of-use assets		146,931		192,994
Loss on disposal of property, plant and equipment		44,258		10,619
Loss on disposal of intangible assets		3,631		7,005
Impairment of intangible assets		-		71
Defined benefit plan		196,451		163,488
Compensation expense associated with share options		1,186		1,263
Loss on foreign currency translation		169,720		364,012
Gain on disposal of property, plant and equipment		(18,640)		(24,401)
Gain on disposal of intangible assets		(122)		-
Gain on foreign currency translation		(450,426)		(454,970)
Gain on equity method investments, net		(12,719)		(14,522)
Gain on valuation of short-term investment assets		(2,010)		(3,555)
Gain on disposal of short-term investment assets		(22,856)		(50,511)
Loss on valuation of long-term investment assets		51		26
Gain on disposal of long-term investment assets		-		(58)
Gain on financial liabilities at fair value through profit or loss		-		(1,804)
Loss on disposal of trade receivables		5,268		-
Others		(9,279)		5,452
Changes in operating assets and liabilities				
Decrease (increase) in trade receivables		(1,079,468)		1,944,010
Decrease in loans and other receivables		2,968		52,275
Increase in inventories		(825,233)		(1,015,550)
Decrease (increase) in other assets		(19,750)		121,709
Decrease in trade payables		(89,638)		(541,370)
Increase(decrease) in other payables		162,602		(75,903)
Increase(decrease) in other non-trade payables		152,950		(705,282)
Increase (decrease) in provisions		7,017		(48,607)
Increase (decrease) in other liabilities		15,075		(530)
Contributions to plan assets		-		(1,570)
Payment of defined benefit liabilities		(852)		(3,830)
Cash generated from operations	₩	9,573,120	₩	8,857,851

(2) Details of significant transactions without inflows and outflows of cash for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		2020		2019
Decrease in other payables related to property, plant and equipment	₩	(744,609)	₩	(2,004,071)

34. Cash Flows, Continued

(3) Changes in liabilities arising from financial activities for the nine-month periods ended September 30, 2020 and 2019 are as follows:

(In millions of Korean won)

		2020		2019
Beginning balance	₩	11,724,336	₩	5,281,937
Adjustments due to the transition to Korean IFRS 1116		-		1,123,937
Beginning balance after transition adjustments		11,724,336		6,405,874
Cash flows from financing activities				
- Proceeds from borrowings		4,005,000		7,962,788
- Repayments of borrowings		(2,864,569)		(3,785,399)
- Repayments of lease liabilities		(157,975)		(201,324)
Increase of lease liabilities		161,440		-
Foreign currency differences and others		58,188		385,605
Present value discount (interest expense)		22,982		20,756
Interest paid		(4,753)		(2,413)
Ending balance	₩	12,944,649	₩	10,785,887

(4) The Group presented the inflow and outflow of cash from short-term investment assets and others, which are frequently traded and have a large total amount and mature in a short period of time, as net increases and decreases.

35. Share-based Payment

(1) The Parent Company granted equity-settled share options to the Parent Company's key management during the nine-month period ended September 30, 2020 and the details of the share options as of September 30, 2020 are as follows:

(In shares)

	Total numbers of share option granted	Forfeited or Cancelled	Exercised	Outstanding at September 30, 2020
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
6th	8,171	8,171	-	-
7th	61,487	-	-	61,487
8th	61,487	-	-	61,487
9th	61,487	-	-	61,487
10th	54,020	-	-	54,020
11th	6,397	-	-	6,397
	566,819	8,171	-	558,648

	Grant date	Service Period for Vesting	Exercisable Period	Exercise price (in Korean 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 1, 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
6th	February 28, 2019	February 28, 2019 - February 28, 2021	March 1, 2021 - February 29, 2024	73,430
7th	March 22, 2019	March 22, 2019 - March 22, 2021	March 23, 2021 - March 22, 2024	71,560
8th	March 22, 2019	March 22, 2019 - March 22, 2022	March 23, 2022 - March 22, 2025	77,290
9th	March 22, 2019	March 22, 2019 - March 22, 2023	March 23, 2023 - March 22, 2026	83,470
10th	March 20, 2020	March 20, 2020 - March 20, 2023	March 21, 2023 - March 20, 2027	84,730
11th	March 20, 2020	March 20, 2020 - March 20, 2023	March 21, 2023 - March 20, 2027	84,730

35. Share-based Payment, Continued

(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 each grant date. The inputs used are as follows:

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th
Expected volatility	23.23%	23.23%	23.23%	22.50%	25.30%	25.60%	26.17%	26.17%	26.17%	26.15%	26.15%
Estimated fair value of share option (in Korean won)	10,026	9,613	9,296	16,687	18,362	16,505	17,744	16,888	16,093	11,786	11,786
Dividend yield ratio	1.20%	1.20%	1.20%	0.78%	1.23%	1.36%	1.98%	1.98%	1.98%	2.10%	2.10%
Risk free ratio	1.86%	1.95%	2.07%	2.38%	2.46%	1.89%	1.82%	1.88%	1.91%	1.59%	1.59%

(3) The compensation expense for the nine-month period ended September 30, 2020 was ₩1,186 million (2019: ₩1,263 million).

36. Events After the Reporting Period

In accordance with the resolution of Board of Directors on October 20, 2020, the Group decided to take over the entire NAND business division of Intel Corporation excluding the Optane division of Non-Volatile Memory Solutions Group; accordingly, the Group entered into a business transfer agreement with Intel Corporation.The entire business division and assets are expected to be transferred in two separate processes through subsidiaries that will be newly established overseas, and payment will be made in two installments. Total consideration amount of US$9 billion will be paid with thefirst installment of US$7 billion by the end of 2021 and the second installment of US$2 billion by March 2025. The closing of the business transfer depends on the satisfaction of an agreed upon set of conditions that include regulatory approvals of governmental authorities.

Independent Auditors' Report

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, 2019 and 2018, 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, 2019 and 2018, 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, 2019. 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) surement of fair value of financial instruments.

As described in note 6 and note 12 to the consolidated financial statements, the Group has equity investment ("SPC1") and convertible bonds ("SPC2") relating to investment in KIOXIA Holdings Corporation ("KIOXIA", formerly, Toshiba Memory Corporation). Those are measured at the fair value using significant unobservable inputs as of December 31, 2019 and amount to ₩4,216,218 million in the aggregate.

The fair values of financial instruments in connection with the investments in SPC1 and SPC2 are measured based on the equity value of KIOXIA, an unlisted company, which involves significant judgment in the application of probability-weighted expected return method and in determining the assumptions to be used, such as estimated future revenue, operating profit and discount rate. Accordingly, we identified the measurement of fair values 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:

- Testing certain internal controls relating to the fair value evaluation process of the financial instruments;
- 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;
- Involving our valuation professionals with specialized skills and knowledge who assisted us in evaluating the valuation result from the report issued by the external institution, and the valuation models (market approach, option-pricing method or present value method), and assumptions such as future revenue, operating profit and discount rate used by the Group to value investments in SPC1 and SPC2;
- Performing sensitivity analysis of significant unobservable inputs, including discount rate and weighting of different scenarios 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, 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 35, the price-fixing class-action lawsuits in North America and the antitrust investigation in China are ongoing, as of December 31, 2019. 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; 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:

- Testing certain internal controls relating to the contingent liabilities evaluation and disclosure process;
- Discussing the status and potential exposures with the Group internal legal counsel and obtaining confirmation letters regarding the litigation and regulatory investigation from the Group'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 adequate in accordance with K-IFRS.

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 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 Heon Chang Oh.

/s/ KPMG Samjong Accounting Corp.

Seoul, Korea
February 25, 2020

This report is effective as of February 25, 2020, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that 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, 2019 and 2018

(In millions of won)

	Note		2019	2018
Assets				
Current assets				
Cash and cash equivalents	*5,6*	₩	2,306,070	2,349,319
Short-term financial instruments	*5,6,7*		298,350	523,579
Short-term investment assets	*5,6*		1,390,293	5,496,452
Trade receivables, net	*5,6,8,34*		4,261,674	6,319,994
Loans and other receivables, net	*5,6,8,34*		23,508	18,392
Inventories, net	*9*		5,295,835	4,422,733
Current tax assets	*32*		199,805	22,252
Other current assets	*10*		682,037	741,425
Other financial assets	*5,6,7*		30	-
			14,457,602	19,894,146
Non-current assets				
Investments in associates and joint ventures	*11*		768,767	562,194
Long-term trade receivables	*5,6,8*		44,775	-
Long-term investment assets	*5,6,12*		4,381,812	4,325,550
Loans and other receivables, net	*5,6,8,34*		109,079	68,514
Other financial assets	*5,6,7*		901	310
Property, plant and equipment, net	*13,16,35*		39,949,940	34,952,617
Right-of-use assets, net	*3,14*		1,250,576	-
Intangible assets, net	*15*		2,571,049	2,678,770
Investment property, net	*13,16*		258	1,400
Deferred tax assets	*22,32*		670,866	544,016
Employee benefit assets, net	*21*		3,406	5,164
Other non-current assets	*10,35*		580,463	625,654
			50,331,892	43,764,189
Total assets		₩	64,789,494	63,658,335

See accompanying notes to the consolidated financial statements.

(In millions of won)

	Note		2019	2018
Liabilities				
Current liabilities				
Trade payables	*5,6,34*	₩	1,042,542	1,096,380
Other payables	*5,6,34*		2,367,673	3,681,933
Other non-trade payables	*5,6,16,34*		1,257,895	1,879,520
Borrowings	*5,6,17,35*		2,737,770	1,614,303
Provisions	*20*		10,701	56,208
Current tax liabilities	*32*		89,217	4,555,670
Lease liabilities	*3,5,6,14*		205,238	-
Other current liabilities	*19*		162,997	147,838
			7,874,033	13,031,852
Non-current liabilities				
Other non-trade payables	*5,6,17*		18,266	15,231
Borrowings	*5,6,18,35*		7,785,736	3,667,634
Defined benefit liabilities, net	*21*		53,624	5,387
Deferred tax liabilities	*22*		15,743	6,597
Lease liabilities	*3,5,6,14*		995,592	-
Other financial liabilities	*5,6,23*		15,532	-
Other non-current liabilities	*19*		87,773	79,303
			8,972,266	3,774,152
Total liabilities			16,846,299	16,806,004
Equity				
Equity attributable to owners of the Parent Company				
Capital stock	*1,24*		3,657,652	3,657,652
Capital surplus	*24*		4,143,736	4,143,736
Other equity	*24,37*		(2,504,713)	(2,506,451)
Accumulated other comprehensive loss	*25*		(298,935)	(482,819)
Retained earnings	*26*		42,930,675	42,033,601
Total equity attributable to owners of the Parent Company			47,928,415	46,845,719
Non-controlling interests			14,780	6,612
Total equity			47,943,195	46,852,331
Total liabilities and equity		₩	64,789,494	63,658,335

See accompanying notes to the consolidated financial statements.

Consolidated Statements of Comprehensive Income

For the years ended December 31, 2019 and 2018

(In millions of won, except per share information)

	Note		2019	2018
Revenue	*4,27,34*	₩	26,990,733	40,445,066
Cost of sales	*29,34*		18,825,275	15,180,838
Gross profit			8,165,458	25,264,228
Selling and administrative expenses	*28,29*		5,452,740	4,420,478
Operating profit			2,712,718	20,843,750
Finance income	*5,30*		1,247,640	1,691,955
Finance expenses	*5,30*		1,514,869	1,142,134
Share of profit of equity-accounted investees	*11*		22,633	13,007
Other income	*31*		88,179	112,810
Other expenses	*31*		113,575	178,358
Profit before income tax			2,442,726	21,341,030
Income tax expense	*32*		426,335	5,801,046
Profit for the year			2,016,391	15,539,984
Other comprehensive income (loss)				
Item that will never be reclassified to profit or loss:				
Remeasurements of defined benefit liability, net of tax	*21*		(90,211)	(77,029)
Items that are or may be reclassified to profit or loss:				
Foreign operations – foreign currency translation differences, net of tax	*25*		150,037	7,534
Gain on valuation of derivatives, net of tax	*23,25*		12,753	-
Equity-accounted investees – share of other comprehensive income, net of tax	*11,25*		21,444	2,276
Other comprehensive income (loss) for the year, net of tax			94,023	(67,219)
Total comprehensive income for the year		₩	2,110,414	15,472,765
Profit (loss) attributable to:				
Owners of the Parent Company		₩	2,013,288	15,540,111
Non-controlling interests			3,103	(127)
Total comprehensive income attributable to:				
Owners of the Parent Company			2,106,961	15,471,792
Non-controlling interests			3,453	973
Earnings per share				
Basic earnings per share (in won)	*33*		2,943	22,255
Diluted earnings per share (in won)	*33*		2,943	22,252

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, 2019 and 2018

(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, 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	*21*	-	-	-	-	(77,029)	(77,029)	-	(77,029)
Other comprehensive income from joint venture and associate, net of tax	*11,25*	-	-	-	2,276	-	2,276	-	2,276
Foreign currency translation differences for foreign operations, net of tax	*25*	-	-	-	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	*26*	-	-	-	-	(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 Changes in Equity, Continued

For the years ended December 31, 2019 and 2018

(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, 2019		₩	3,657,652	4,143,736	(2,506,451)	(482,819)	42,033,601	46,845,719	6,612	46,852,331
Total comprehensive income										
Profit for the year			-	-	-	-	2,013,288	2,013,288	3,103	2,016,391
Remeasurements of defined benefit liability, net of tax	*21*		-	-	-	-	(90,211)	(90,211)	-	(90,211)
Other comprehensive income from joint venture and associate, net of tax	*11,25*		-	-	-	21,444	-	21,444	-	21,444
Gain on valuation of derivatives, net of tax	*23*		-	-	-	12,753	-	12,753	-	12,753
Foreign currency translation differences for foreign operations, net of tax	*25*		-	-	-	149,687	-	149,687	350	150,037
Total comprehensive income			-	-	-	183,884	1,923,077	2,106,961	3,453	2,110,414
Transactions with owners of the Parent Company										
Increase of non-controlling interests			-	-	-	-	-	-	4,715	4,715
Dividends paid	*26*		-	-	-	-	(1,026,003)	(1,026,003)	-	(1,026,003)
Share-based payment transactions			-	-	1,738	-	-	1,738	-	1,738
Total transactions with owners of the Parent Company			-	-	1,738	-	(1,026,003)	(1,024,265)	4,715	(1,019,550)
Balance at December 31, 2019		₩	3,657,652	4,143,736	(2,504,713)	(298,935)	42,930,675	47,928,415	14,780	47,943,195

See accompanying notes to the consolidated financial statements.

SK HYNIX, INC. and Subsidiaries
Consolidated Statements of Cash Flows
For the years ended December 31, 2019 and 2018

(In millions of won)

	Note		2019	2018
Cash flows from operating activities				
Cash generated from operating activities	36	₩	11,822,354	25,825,017
Interest received			30,543	81,323
Interest paid			(231,382)	(126,029)
Dividends received			14,891	15,258
Income tax paid			(5,153,218)	(3,568,370)
Net cash provided by operating activities			6,483,188	22,227,199
Cash flows from investing activities				
Net change in short-term financial instruments			225,447	4,174,667
Net change in short-term investment asset			4,164,793	(4,519,395)
Decrease in other financial assets			-	116
Increase in other financial assets			(627)	(100)
Collection of loans and other receivables			13,057	21,824
Increase in loans and other receivables			(57,482)	(48,424)
Proceeds from disposal of long-term investment asset			4,316	7,118
Acquisition of long-term investment asset			(81,447)	(4,012,799)
Proceeds from disposal of property, plant and equipment			53,840	131,754
Acquisition of property, plant and equipment			(13,920,244)	(16,036,146)
Proceeds from disposal of intangible assets			183	2,532
Acquisition of intangible assets			(673,356)	(933,139)
Receipt of government grants			-	17,081
Acquisition of investments in associates			(176,954)	(200,508)
Acquisition of subsidiary, net of cash acquired			-	(33,330)
Net cash outflow from business combination			(2,462)	-
Net cash used in investing activities			(10,450,936)	(21,428,749)
Cash flows from financing activities				
Proceeds from borrowings	36		9,833,882	3,125,721
Repayments of borrowings	36		(4,585,425)	(2,078,522)
Payments of lease liabilities	36		(323,953)	-
Acquisition of treasury shares			-	(1,736,514)
Dividends paid			(1,026,003)	(706,002)
Increase of non-controlling interests			4,715	-
Net cash provided by (used in) financing activities			3,903,216	(1,395,317)
Effect of movements in exchange rates on cash and cash equivalents			21,283	(3,805)
Net decrease in cash and cash equivalents			(43,249)	(600,672)
Cash and cash equivalents at beginning of the year			2,349,319	2,949,991
Cash and cash equivalents at end of the year		₩	2,306,070	2,349,319

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, incorporated in October 15, 1949, is engaged in the manufactures, distribution and sales of 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, 2019, 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	74,571,776	10.24
Other investors	463,330,019	63.65
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, 2019 and 2018 are as follows:

Company	Location	Business	Ownership (%) 2019	Ownership (%) 2018
SK hyeng Inc.	Korea	Construction service	100.00	100.00
SK hystec Inc.	Korea	Business support service	100.00	100.00
Happymore Inc.	Korea	Manufacturing and cleaning cleanroom suits	100.00	100.00
SK hynix system ic Inc.	Korea	Semiconductor manufacturing and sales	100.00	100.00
HAPPYNARAE Co., Ltd.	Korea	Industrial material supply	100.00	100.00
SK hynix America Inc.	U.S.A.	Semiconductor sales	97.74	97.74
SK hynix Deutschland GmbH	Germany	Semiconductor sales	100.00	100.00
SK hynix Asia Pte. Ltd.	Singapore	Semiconductor sales	100.00	100.00
SK hynix Semiconductor Hong Kong Ltd.	Hong Kong	Semiconductor sales	100.00	100.00
SK hynix U.K. Ltd.	U.K.	Semiconductor sales	100.00	100.00
SK hynix Semiconductor Taiwan Inc.	Taiwan	Semiconductor sales	100.00	100.00
SK hynix Japan Inc.	Japan	Semiconductor sales	100.00	100.00
SK hynix Semiconductor (Shanghai) Co., Ltd.	China	Semiconductor sales	100.00	100.00
SK hynix Semiconductor India Private Ltd.[1]	India	Semiconductor sales	100.00	100.00
SK hynix (Wuxi) Semiconductor Sales Ltd.	China	Semiconductor sales	100.00	100.00
SK hynix Semiconductor (China) Ltd.	China	Semiconductor manufacturing	100.00	100.00
SK hynix Semiconductor (Chongqing) Ltd. [2]	China	Semiconductor manufacturing	100.00	100.00
SK hynix Italy S.r.l	Italy	Semiconductor research and development	100.00	100.00
SK hynix memory solutions America Inc.	U.S.A.	Semiconductor research and development	100.00	100.00
SK hynix memory solutions Taiwan Ltd.	Taiwan	Semiconductor research and development	100.00	100.00
SK hynix memory solutions Eastern Europe LLC.	Belarus	Semiconductor research and development	100.00	100.00
SK APTECH Ltd.	Hong Kong	Overseas investment	100.00	100.00
SK hynix Ventures Hong Kong Limited	Hong Kong	Overseas investment	100.00	100.00
SK hynix (Wuxi) Investment Ltd.[3]	China	Overseas investment	100.00	100.00
SK hynix (Wuxi) Industry Development Ltd. [4]	China	Foreign hospital construction	100.00	100.00
SK hynix Happiness (Wuxi) Hospital Management Ltd.[4]	China	Foreign hospital operation	70.00	100.00
SK hynix system ic (Wuxi) Co., Ltd.[5]	China	Overseas Semiconductor manufacturing and sales	100.00	100.00
SK hynix cleaning (Wuxi) Ltd.[4]	China	Building maintenance	100.00	100.00
SUZHOU HAPPYNARAE Co., Ltd.[6]	China	Overseas industrial material supply	100.00	100.00
CHONGQING HAPPYNARAE Co., Ltd.[7]	China	Overseas industrial material supply	100.00	100.00
SkyHigh Memory Limited[8]	Hong Kong	Overseas manufacturing and sales of semiconductor	60.00	-
SK hynix (Wuxi) Education Technology Co.,Ltd.[9]	China	Education	100.00	-
MMT (Money Market Trust)	Korea	Money Market Trust	100.00	100.00

1. Reporting Entity, Continued

(2) Details of the Group's consolidated subsidiaries as of December 31, 2019 and 2018 are as follows, Continued:

[1] Subsidiary of SK hynix Asia Pte. Ltd.
[2] Subsidiary of SK APTECH Ltd.
[3] Subsidiary of SK hynix Semiconductor (China) Ltd.
[4] Subsidiary of SK hynix (Wuxi) Investment Ltd.
[5] Subsidiary of SK hynix system ic Inc.
[6] Subsidiary of HAPPYNARAE Co., Ltd.
[7] Subsidiary of SUZHOU HAPPYNARAE Co., Ltd.
[8] SkyHigh Memory Limited was established during the year ended December 31, 2019 and is a subsidiary of SK hynix system ic Inc.
[9] SK hynix (Wuxi) Education Technology Co., Ltd. was established during the year ended December 31, 2019 and is a subsidiary of SK hynix (Wuxi) Investment Ltd.

(3) Changes in the consolidated subsidiaries for the year ended December 31, 2019 are as follows:

	Company	Description
Newly included	SkyHigh Memory Limited	Newly established
Newly included	SK hynix (Wuxi) Education Technology Co., Ltd.	Newly established

1. Reporting Entity, Continued

(4) Major subsidiaries' summarized separate statements of financial position as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019			2018		
		Assets	Liabilities	Equity	Assets	Liabilities	Equity
SK hynix system ic Inc.	₩	666,171	130,880	535,291	550,323	92,989	457,334
SK hynix America Inc.		1,801,366	1,436,975	364,391	3,013,637	2,707,732	305,905
SK hynix Asia Pte. Ltd.		387,860	298,657	89,203	933,268	848,990	84,278
SK hynix Semiconductor Hong Kong Ltd.		195,262	44,405	150,857	347,109	204,622	142,487
SK hynix U.K. Ltd.		217,160	197,293	19,867	536,208	518,036	18,172
SK hynix Semiconductor Taiwan Inc.		247,671	219,056	28,615	449,054	427,498	21,556
SK hynix Japan Inc.		305,770	235,243	70,527	837,362	770,819	66,543
SK hynix (Wuxi) Semiconductor Sales Ltd.		1,646,998	1,510,156	136,842	535,819	492,934	42,885
SK hynix Semiconductor (China) Ltd.		9,605,890	4,937,517	4,668,373	6,390,490	2,158,715	4,231,775
SK hynix Semiconductor (Chongqing) Ltd.		837,339	309,283	528,056	540,284	124,451	415,833
Happynarae Co., Ltd.		186,079	136,257	49,822	185,177	143,517	41,660

(5) Major subsidiaries' summarized separate statements of comprehensive income for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019			2018		
		Revenue	Profit	Total comprehensive income	Revenue	Profit (loss)	Total comprehensive income (loss)
SK hynix system ic Inc.	₩	661,511	76,614	77,957	554,264	60,649	60,360
SK hynix America Inc.		8,353,658	47,947	47,947	14,296,762	30,800	30,800
SK hynix Asia Pte. Ltd.		1,662,315	1,965	1,965	3,531,313	3,999	3,999
SK hynix Semiconductor Hong Kong Ltd.		1,579,680	2,493	2,493	3,710,359	11,486	11,486
SK hynix U.K. Ltd.		907,945	1,057	1,057	1,517,706	1,005	1,005
SK hynix Semiconductor Taiwan Inc.		1,455,320	8,127	8,127	2,955,717	2,475	2,475
SK hynix Japan Inc.		672,393	701	700	1,084,079	(410)	(467)
SK hynix (Wuxi) Semiconductor Sales Ltd.		10,882,152	94,768	94,768	4,832,879	43,163	43,163
SK hynix Semiconductor (China) Ltd.		3,177,415	18,551	18,551	2,518,849	84,089	84,089
SK hynix Semiconductor (Chongqing) Ltd.		477,849	39,102	39,102	406,839	27,125	27,125
Happynarae Co., Ltd.		1,107,524	8,473	8,162	1,094,778	12,117	11,942

(6) There are no significant non-controlling interests to the Group as of December 31, 2019 and 2018.

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 30, 2020, which will be submitted for approval at the shareholders' meeting to be held on March 20, 2020.

This is the first set of the Group's annual financial statements in which K-IFRS No. 1116 *'Leases'* ("K-IFRS No. 1116") has 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) Judgments

Information about critical judgments in applying accounting policies that have the significant effect on the amounts recognized in the consolidated financial statements is included in the note for investments in associates and joint ventures.

(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 accompanying 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, and 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 K-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 note 6 financial risk management.

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, 2019, 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. Accordingly, 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 27.

(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 purpose 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

Derivatives are initially recognized at fair value. Subsequent to initial recognition, derivatives are measured at fair value at the end of each reporting period, and changes in the fair value of derivatives therein are accounted for as described below.

(a) Hedge accounting

The Group enters into a fixed-to-fixed cross currency swap contract and a floating-to-fixed cross currency interest rate swap contract to hedge interest rate risk and currency risk.

On initial designation of the hedge, the Group formally documents the relationship between the hedging instrument(s) and hedged item(s), including the risk management objectives and strategy in undertaking the hedge transaction. In addition, the document includes hedging instruments; hedged items; initial commencement date of those hedge relationship; fair value of hedged items based on hedged risk during the subsequent period; and the method of valuation on hedging instruments offsetting changes in cash flow.

- Cash flow hedge

When a derivative is designated to hedge the variability in cash flows attributable to a particular risk associated with a recognized asset or liability, the effective portion of changes in the fair value of the derivative is recognized in other comprehensive income, net of tax, and presented in accumulated other comprehensive income. Any ineffective portion of changes in the fair value of the derivative is recognized immediately in profit or loss. If the hedging instrument no longer meets the criteria for hedge accounting, expires or is sold, terminated, exercised, or the designation is revoked, then hedge accounting is discontinued prospectively. The cumulative gain or loss on the hedging instrument that has been recognized in other comprehensive income is reclassified to profit or loss in the periods which the forecasted transaction occurs.

(b) Other derivative financial instruments

Other derivative financial instrument not designated as a hedging instrument are measured at fair value, and the changes in fair value of the derivative financial instrument is recognized immediately in profit or loss.

3. Significant Accounting Policies, Continued

(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 measures impairment losses at an amount equal to lifetime ECLs except for the below assets, which are measured at 12-month ELCs.

- 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.

12-month ECLs are the portion of ECLs that result from all default events that are possible within the 12 months after the reporting date (or a shorter period if the expected life of the instrument is less than 12 months).

The maximum period considered when estimating ECLs is the maximum contractual period over 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 the 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 credit- impaired when one or more events that have a detrimental impact on the estimated future cash flows of that asset have occurred.

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 Group, for economic or legal reasons relating to the borrower's financial difficulty, granting to the borrower a concession that the Group 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 the financial asset because of financial difficulties.

3. Significant Accounting Policies, Continued

(7) Impairment of financial assets, Continued

(d) Presentation of credit loss allowance on financial position

Loss allowances for financial assets measured at amortized cost are deducted from the gross carrying amount of the assets.

(e) Write-off

The Group writes off 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. For corporate customers, the Group individually makes an assessment with respect to the timing and amount of write-off based on whether there is a reasonable expectation of recovery. However financial assets that are written off could still be subject to collection activities according to the Group's past due collection process.

(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
Other	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.

3. Significant Accounting Policies, Continued

(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.

(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 - 10

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.

3. Significant Accounting Policies, Continued

(10) Intangible assets, continued

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 others, are recognized in profit or loss as incurred.

(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 is depreciated on a straight-line basis over 40 years.

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.

(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.

3. Significant Accounting Policies, Continued

(13) Impairment of non-financial assets, continued

The value in use is estimated by applying a pre-tax discount rate that reflects 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 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 has applied K-IFRS No. 1116 using the modified retrospective approach by recognizing the cumulative effect of initial application of K-IFRS No. 1116 as of January 1, 2019 (the date of initial application). Accordingly, the comparative information presented in accordance with K-IFRS No. 1017 has not been restated. The details of the accounting policies applied under K-IFRS No. 1017 and K-IFRS No. 1116 are as follows:

(a) Accounting policies applied from January 1, 2019.

The Group assesses whether a contract is or contains a lease at inception of a contract. Under K-IFRS No. 1116, a contract is, or contains, a lease if the contract conveys a right to control the use of an identified asset for a period of time in exchange for consideration.

(i) As a lessee

The Group recognizes for a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, the initial amount of the lease liability, adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove of the underlying asset, or to restore the underlying asset or the site on which the underlying asset is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the end of the lease term. In case that ownership of the right-of-use asset is transferred at the end of the lease term, or the cost of the right-of-use asset includes the exercise price of a purchase option, the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property and equipment. In addition, the right-of-use asset may be reduced by an impairment loss or adjusted for remeasurements of the lease liability.

3. Significant Accounting Policies, Continued

(14) Leases, Continued

(a) Accounting policies applied from January 1, 2019, Continued

(i) As a lessee, Continued

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Group's incremental borrowing rate. The Group generally uses its incremental borrowing rate as the discount rate.
Lease payments included in the measurement of the lease liability consist of the following:
- fixed payments (including in-substance fixed payments)
- variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date
- amounts expected to be payable under a residual value guarantee
- the exercise price under a purchase option that the Group is reasonably certain to exercise
- lease payments in an optional renewal period, if the Group is reasonably certain to exercise extension option, and penalties for early termination of a lease unless the Group is reasonably certain not to terminate early.

The lease liability is subsequently increased by the interest expense recognized for the lease liability and decreased by reflecting the payment of the lease. The lease liability is remeasured when there is a change in future lease payments arising from changes in an index or a rate (interest rate), if there's a change in the Group's estimate of the amount expected to be paid under a residual value guarantee, or if the Group changes in the assessment of whether the option to buy or extend is reasonably certain to be exercised or not to exercise the termination option.

When the lease liabilities are remeasured, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

A lessee shall remeasure the lease liability as an adjustment to the right-of-use asset, if either:
- a change in the lease term or a change in circumstances or significant events that result in a change in the assessment of the exercise of the purchase option. In such cases, the lease liability is remeasured by discounting the modified lease payment at the revised discount rate;

- the lease payment changes due to changes in the index or rate (interest rate) or the amount expected to be paid according to the residual value guarantee. In such cases, the lease liability measures the modified lease fee again by discounting it at an unchanged discount rate. However, if a change in the variable interest rate causes a change in the lease payments, the revised discount rate that reflects the change in interest rates is used; or

- the lease agreement changes and is not accounted for as a separate lease. In such cases, the lease liability is remeasured by discounting the modified lease payment at the revised discount rate as of the effective date of the lease change, based on the lease term of the modified lease.

The Group has elected not to recognize right-of-use assets and lease liabilities for some leases of low-value assets and short-term leases. The Group recognizes the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

3. Significant Accounting Policies, Continued

(14) Leases, Continued

(a) Accounting policies applied from January 1, 2019, Continued

(i) As a lessee, Continued

At inception or on reassessment of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease and non-lease component on the basis of their relative stand-alone prices. However, for certain agreements, the Group has elected practical expedient not to separate non-lease components and account for the lease and non-lease components as a single lease component.

The Group separately presents right-of-use assets that do not meet the definition of investment property in the statement of financial position.

Subsequently, the right-of-use asset is accounted for consistently with the accounting policies applicable to the asset.

(ii) As a lessor

As a lessor, the Group determines whether the lease is a finance lease or an operating lease at the inception of the lease.

To classify each lease, the Group generally determines whether the lease transfers most of the risks and rewards of ownership of the underlying asset. If most of the risks and rewards of ownership of the underlying asset are transferred to the lessee, the lease is classified as a finance lease, otherwise the lease is classified as an operating lease. As part of this assessment, the Group considers whether the lease term represents a significant portion of the economic life of the underlying asset.

When the Group is an intermediate lessor, it accounts for its interests in the head lease and the sublease separately. In addition, the classification of a lease is determined by the right-of-use asset arising from the head lease, not the underlying asset. If a head lease is a short-term lease to which the Group applies the recognition exemption, then the sub-lease is classified as an operating lease.

The Group has applied K-IFRS No. 1115 *'Revenue from Contracts with Customers'* to allocate consideration in the contract to each lease and non-lease components.

The Group recognizes the lease payments received from operating leases on a straight-line basis over the lease term as revenue in 'other revenue'.

The accounting policies that the Group has applied to the comparative period as lessors are not different from those in K-IFRS No. 1116.

3. Significant Accounting Policies, Continued

(14) Leases, Continued

(b) Accounting policies applied before January 1, 2019.

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.

(i) Finance leases

At the commencement of the lease term, the Group recognizes as finance lease assets initially at the lower of their fair value and the present value of the minimum lease payments. Any initial direct costs are added to the amount recognized as an asset.

Minimum lease payments consist of finance expense and the repayment of lease liabilities. 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 charged 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.

(ii) Operating leases

Payments made under operating leases are recognized as expenses on straight-line basis over the lease term. Lease incentives received are recognized as an integral part of the lease expense, over the term of the lease.

(iii) 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.

If an arrangement contains lease, at inception or amendment 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 finance 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.

3. Significant Accounting Policies, Continued

(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 expire. 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 at 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.

(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.

3. Significant Accounting Policies, Continued

(16) Employee benefits, Continued

(c) Retirement benefits: defined benefit plans, Continued

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.

(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.

3. Significant Accounting Policies, Continued

(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* in Korea.

(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 are classified as intangible asset and are 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.

(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.

3. Significant Accounting Policies, Continued

(19) Foreign currencies, Continued

(b) Foreign operations, Continued

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 disposes treasury shares, the consideration paid or received is directly recognized in equity.

(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.

The Group accounts for share-based payment, with options to choose either cash-settled or equity-settled share-based payment, in accordance with the substance of transactions.

(22) Revenue from contracts with customers

The Group’s accounting policies relating to revenue from contracts with customers are described in note 27.

3. Significant Accounting Policies, Continued

(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 in debt securities carried at amortized cost method; and
- The gain on the remeasurement to fair value of any pre-existing interest in an acquire in a 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 amortized 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 amortized cost of the liability. However, for financial assets that have become credit-impaired subsequent to initial recognition, interest income is calculated by applying the effective interest rate to the amortized cost of the financial asset. If the asset is no longer credit-impaired, then the calculation of interest income reverts to the gross basis.

(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 income 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 amount of current tax payable or receivable is the best estimate of tax amount expected to be paid or received that reflects uncertainty related to income taxes. The taxable income 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.

3. Significant Accounting Policies, Continued

(24) Income taxes, Continued

(b) Deferred tax, Continued

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.

(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 stock options.

(26) Changes in accounting policies

The Group has initially adopted K-IFRS No. 1116 *'Leases'* from January 1, 2019. A number of other new standards are effective from January 1, 2019 and they do not have significant impact on the Group's consolidated financial statements.

K-IFRS No. 1116 introduced a single, on-balance sheet accounting model for lessees. As a result, the Group, as a lessee, has recognized right-of-use assets representing its rights to use the underlying assets and lease liabilities representing its obligation to make lease payments. Lessor accounting remains similar to previous accounting policies.

3. Significant Accounting Policies, Continued

(26) Changes in accounting policies, Continued

The Group recognized the cumulative effect of the initial application of K-IFRS No. 1116 in right-of-use assets and lease liabilities as of January 1, 2019 (the date of initial application). Accordingly, the comparative information presented for the prior year has not been restated - i.e. it is presented, as previously reported, under K-IFRS No. 1017 and related interpretations. Details of changes to the accounting policies are disclosed below.

(a) Definition of a lease

Previously, the Group determined at contract inception whether an arrangement was or contained a lease under K-IFRS Interpretation No. 2104, *'Determining Whether an Arrangement contains a Lease'*. The Group now assesses whether a contract is or contains a lease based on the new definition of a lease. Under K-IFRS No. 1116, a contract is, or contains, a lease if the contract conveys a right to control the use of an identified asset for a period of time in exchange for consideration.

(b) As a lessee

The Group leases many assets, including structures and production machinery. As a lessee, the Group previously classified leases as operating or finance leases based on its assessment of whether the lease transferred substantially all of the risks and rewards of ownership. Under K-IFRS No. 1116, the Group recognizes right-of-use assets and lease liabilities for most leases on the consolidated statements of financial position.

The Group separately presents right-of-use assets that do not meet the definition of investment property in the statement of financial position. The carrying amounts of right-of-use assets are as below.

(In millions of won)

		Properties	Structures	Machinery	Vehicles	Others	Total
Balance at January 1, 2019	₩	31,652	867,864	279,952	10,688	3,214	1,193,370
Balance at December 31, 2019	₩	97,855	975,996	153,447	11,491	11,787	1,250,576

Previously, the Group classified certain lease contracts for equipment and others as operating leases under K-IFRS No. 1017.

On transition, for leases classified as operating leases under K-IFRS No. 1017, lease liabilities were measured at the present value of the remaining lease payments, discounted at the Group's incremental borrowing rate as of January 1, 2019. Right-of-use assets are measured at an amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments.

The Group used the following practical expedients when applying K-IFRS No. 1116 to leases previously classified as operating leases under K-IFRS No. 1017.

- Excluded initial direct costs from the measurement of the right-of-use assets at the date of initial application.
- Used hindsight when determining the lease term if the contract contains options to extend or terminate the lease.
- Did not recognize right-of-use assets and liabilities for leases of which the lease term ends within 12 months of the date of initial application.
- Did not recognize right-of-use assets and liabilities for leases of low value assets.

3. Significant Accounting Policies, Continued

(26) Changes in accounting policies, Continued

(b) As a lessee, Continued

The Group leases a number of production equipment and others. Certain items were classified as finance leases under K-IFRS No. 1017. For these finance leases, the carrying amount of the right-of-use assets and the lease liability at January 1, 2019 were determined at the carrying amount of the lease asset and lease liability under K-IFRS No. 1017 immediately before that date.

(c) As a lessor

The Group leases out its investment property and property, plant and equipment. The Group has classified these leases as operating leases. The accounting policies applicable to the Group as a lessor are not different from those under K-IFRS No. 1017.

The Group is not required to make any adjustments on transition to K-IFRS No. 1116 for leases in which it acts as a lessor. However, the Group has applied K-IFRS No. 1115 '*Revenue from Contracts with Customers*' to allocate consideration in the contract to each lease and non-lease component.

(d) Impacts on consolidate financial statements

(i) Impacts on transition

On transition to K-IFRS No. 1116, the Group recognized additional right-of-use assets and lease liabilities. The impact on transition is summarized below.

(In millions of won)

		January 1, 2019
Right-of-use assets	₩	1,193,370
Property, plant and equipment		(73,069)
Intangible Assets		(5,582)
Lease liabilities		1,191,579
Borrowings		(68,158)
Other current liabilities		(8,702)

When measuring lease liabilities for leases that were classified as operating leases, the Group discounted lease payments using its incremental borrowing rate at January 1, 2019. The weighted average incremental borrowing rate is 2.22%.

(In millions of won)

		Amount
Operating lease commitment at January 1, 2019	₩	1,291,372
Discounted using the incremental borrowing rate at January 1, 2019		1,127,847
Finance lease liabilities recognized as of December 31, 2018		68,158
- Recognition exemption for leases of low-value assets		(835)
- Recognition exemption for leases of short-term leases		(3,591)
Lease liabilities recognized at January 1, 2019	₩	1,191,579

3. Significant Accounting Policies, Continued

(26) Change in accounting policies, Continued

(d) Impacts on consolidated financial statements, Continued

(ii) Impacts for the period

As a result of initially applying K-IFRS No. 1116, in relation to the leases that were previously classified as operating leases, the Group recognized ₩1,183,600 million of right-of-use assets and ₩1,141,106 million of lease liabilities as of December 31, 2019.

Also in relation to those leases under K-IFRS No. 1116, the Group has recognized depreciation and interest expenses, instead of operating lease expense. For the year ended December 31, 2019, the Group recognized ₩240,304 million of depreciation expenses and ₩23,317 million of interest expense from these leases.

(e) K-IFRS No. 1116, '*Leases*' – 'Enforceable period' and determination of the '*Lease term*'

In December 2019, the International Financial Reporting Standards Interpretations Committee ("IFRIC") issued its final agenda decision that the concept of penalty that should be considered in determining the enforceable period under IFRS 16 *'Leases'*, shall be determined considering broader economics of the contract, and not only contractual termination payments. Further, if only one party has the right to terminate the lease without permission from the other party with no more than an insignificant penalty, the contract is enforceable beyond the date on which the contract can be terminated by that party.

In preparing the 2019 consolidated financial statements, the Group only considered the specified amount of termination payments in the contract in determining enforceable period. Therefore, applying the above-mentioned agenda decision may change the judgment of the enforceable period for certain lease contracts the Group has entered into.

However, considering the type, number and complexity of lease contracts entered into as of and from January 1, 2019, the Group does not believe it had sufficient time to complete the analysis on its lease portfolios to reflect the impact of the above IFRIC agenda decision, if any, in its 2019 consolidated financial statements. The Group plans to complete the assessment and reflect the impact, if any, in its consolidated financial statements and related notes during 2020. Any change as a result will be accounted for as an in accounting policy change in the 2020 consolidated financial statements.

(27) Standards issued but not yet effective

The following new standards and amendments to standards are effective for accounting periods beginning on or after January 1, 2020 and earlier application is permitted; however, the Group has not early adopted them in preparing these consolidated financial statements.

(a) K-IFRS No. 1103, '*Business Combinations*' (Amendment)

This amendment clarifies that a business generally has outputs, but that an integrated set of activities and assets is not essential to meet the definition of a business. For acquired activities and groups of assets to be considered business, they should include at least inputs and substantive processes with the ability to contribute significantly together to the generation of output. It also provides judgment guidelines to help determine whether a substantive process has been acquired.

3. Significant Accounting Policies, Continued

(27) Standards issued but not yet effective, Continued

(a) K-IFRS No. 1103, '*Business Combinations*' (Amendment), Continued

This amendment introduces optional concentration tests that provide a brief assessment of whether acquired activities and groups of assets are not business. This is an assessment that results in an asset acquisition if substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or a similar identifiable group of assets.

This amendment applies prospectively to all business combinations and acquisitions of assets beginning the accounting period on or after January 1, 2020, and early application is permitted.

(b) K-IFRS Conceptual Framework for Financial Reporting (Amendment)

In addition to the revised *'Framework (2018)'*, which was introduced with the announcement on December 21, 2018, the International Accounting Standards Board also published 'Amendments to the Conceptual Framework Reference' in the International Accounting Standards. This document includes amendments to K-IFRS No. 1102, 1103, 1106, 1114, 1001, 1008, 1034, 1037, 1038, 2112, 2119, 2120, 2122, and 2032.

However, not all amendments require such references or references to the revised *'Framework (2018)'*. Some statements have been amended to clarify whether the referenced *'Conceptual Framework'* is a *'Conceptual Framework for the Preparation and Presentation of Financial Statements (2007)'*, the *'Conceptual Framework (2010)'*, or the newly revised *'Conceptual Framework (2018)'*, and some other wordings have been amended to state that the definition in International Accounting Standards has not changed to the new definition developed in the revised *'Conceptual Framework (2018)'*.

The amendment shall be applied prospectively for accounting periods beginning on or after January 1, 2020, if any changes are made, and early application is permitted.

(c) Other Restated/Amended Standards

The following new standards and amendments to standards are not expected to have a significant impact on the Group's consolidated financial statements.
- Definition of materiality (Amendments to K-IFRS No. 1001 '*Presentation of Financial Statements*' and K-IFRS No. 1008 '*Accounting Policies, Changes in Accounting Estimates and Errors*')
- K-IFRS No. 1117 '*Insurance Contracts*'

4. Geographic and Customer Information

The Group has a single reportable segment that is engaged in the manufacture and sale of semiconductor products. The Board of Directors of the Group reviews the operation result of the single reportable segment 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, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Korea	₩	35,109,665	32,768,811
China		8,814,465	5,100,869
Asia (other than China)		21,497	7,710
U.S.A.		395,772	376,307
Europe		14,293	9,908
	₩	44,355,692	38,263,605

(2) Revenue from customer A, and B each constitutes more than 10% of the Group's consolidated revenue for the year ended December 31, 2019 and amounts to ₩4,947,483 million (2018: ₩5,265,807 million) and ₩3,051,211 million (2018: ₩5,407,782 million), respectively.

5. Categories of Financial Instruments

(1) Categories of financial assets as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019		
		Financial assets at fair value through profit or loss	Financial assets at amortized cost	Total
Cash and cash equivalents	₩	-	2,306,070	2,306,070
Short-term financial instruments		-	298,350	298,350
Short-term investment assets		1,390,293	-	1,390,293
Trade receivables		-	4,306,449	4,306,449
Loans and other receivables		-	132,587	132,587
Other financial assets		-	931	931
Long-term investment assets		4,381,812	-	4,381,812
	₩	5,772,105	7,044,387	12,816,492

(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

5. Categories of Financial Instruments, Continued

(2) Categories of financial liabilities as of December 31, 2019 and December 31, 2018 are as follows:

(In millions of won)

		2019		
		Financial liabilities at fair value through profit or loss	**Financial liabilities measured at amortized cost**	**Total**
Trade payables	₩	-	1,042,542	1,042,542
Other payables		13,006	2,354,667	2,367,673
Other non-trade payables		-	1,276,161	1,276,161
Borrowings		-	10,523,506	10,523,506
Lease liabilities		-	1,200,830	1,200,830
Other financial liabilities		15,532	-	15,532
	₩	28,538	16,397,706	16,426,244

(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[1]		5,281,937
	₩	11,955,001

[1] As of December 31, 2018, borrowings include finance lease liabilities amounting to ₩68,158 million in accordance with K-IFRS No. 1017. Upon transition to K-IFRS No. 1116, lease liabilities are presented separately from borrowings in the consolidated statement of financial position as of December 31, 2019.

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, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Financial assets at amortized cost			
Interest income	₩	30,062	62,478
Foreign exchange differences		229,649	573,349
Reversal of impairment		85	44
		259,796	635,871
Financial assets at fair value through profit or loss			
Dividend income		429	2,136
Gain on disposal		59,217	41,853
Gain on valuation		(227,423)	197,919
Foreign exchange differences		209,563	122,375
		41,786	364,283
Financial liabilities measured at amortized cost			
Interest expenses		(238,508)	6(94,635)
Foreign exchange differences		(330,218)	(355,654)
		(568,726)	(450,289)
	₩	(267,144)	549,865

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 investment of excess liquidity.

(a) Market risk

(i) Foreign currency risk

The Group operates internationally and is exposed to foreign currency risk arising from various currency exposures, primarily with respect to US dollar, Chinese Yuan, Euro and Japanese Yen. Foreign currency 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, 2019 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	6,996	₩ 8,100,306	8,668	₩ 10,036,300
JPY	382	4,058	129,137	1,373,335
CNY	1,101	182,423	8	1,335
EUR	11	14,246	46	59,749

Also, as described in note 23, the Group entered into a fixed-to-fixed cross currency swap and a floating-to-fixed cross currency interest rate swap to hedge foreign currency rate risk relating to bonds and borrowings denominated in foreign currencies.

As of December 31, 2019, effects on profit before income tax as a result of strengthening or weakening of the foreign currencies by 10% are as follows:

(In millions of won)

	If strengthening by 10%	If weakening by 10%
USD	₩ (78,582)	78,582
JPY	(136,928)	136,928
CNY	18,109	(18,109)
EUR	(4,550)	4,550

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.

As of December 31, 2019, 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 ₩55,093 million (2018: ₩19,418 million) lower/higher, mainly as a result of higher/lower interest expense on floating rate borrowings (except for floating-rate borrowings amounting to ₩578,900 million under floating-to-fixed cross currency interest rate swap agreement) 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, 2019.

(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 overseas customers. The maximum exposure to credit risk as of December 31, 2019 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, 2019 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 the risk that the Group will encounter difficulty in having sufficient funds needed to meet obligations associated with its financial contracts until maturity. 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 based on the above-mentioned forecasts.

Contractual maturities of financial liabilities as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019				
		Less than 1 year	1 - 2 years	2 - 5 years	More than 5 years	Total
Borrowings[1]	₩	2,988,176	2,974,910	4,535,800	794,687	11,293,573
Lease liabilities		207,501	171,420	279,691	717,080	1,375,692
Trade payables		1,042,542	-	-	-	1,042,542
Other payables		2,367,673	-	-	-	2,367,673
Other non-trade payables		1,257,895	15,611	2,655	-	1,276,161
Other financial liabilities		(15,826)	(13,862)	(16,732)	5,522	(40,898)
Financial guarantee contract		69,468	-	-	-	69,468
	₩	7,917,429	3,148,079	4,801,414	1,517,289	17,384,211

[1] The cash flow includes payment of interest under terms and conditions of borrowing contracts and excludes the amount of lease liabilities as of December 31, 2019.

(In millions of won)

		2018				
		Less than 1 year	1 - 2 years	2 - 5 years	More than 5 years	Total
Borrowings[1]	₩	1,691,585	977,990	2,688,574	94,536	5,452,685
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		1,879,519	1,096	14,135	-	1,894,750
Financial guarantee contract		4	-	-	-	4
	₩	8,360,194	989,859	2,734,569	118,905	12,203,527

[1] The cash flow includes payment of interest under terms and conditions of borrowing contracts and excludes the amount of finance lease liabilities as of December 31, 2018.

6. Financial Risk Management, Continued

(1) Financial risk management, Continued

(c) Liquidity risk, Continued

The table above analyzes the Group's 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 repay debt.

The debt-to-equity ratio and net borrowing ratio as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Total liabilities (A)	₩	16,846,299	16,806,004
Total equity (B)		47,943,195	46,852,331
Cash and cash equivalents; short-term financial instruments; and short-term investment asset (C)		3,994,713	8,369,350
Total borrowings (D) [1]		10,523,506	5,281,937
Debt-to-equity ratio (A/B)		35.14%	35.87%
Net borrowing ratio (D-C)/B[2]		13.62%	-

[1] As of December 31, 2018, borrowings include finance lease liabilities amounting to ₩68,158 million in accordance with K-IFRS No. 1017. Meanwhile, as a result of the transition to K-IFRS No. 1116, lease liabilities are presented separately from borrowings in the consolidated statement of financial position as of December 31, 2019.

[2] Net borrowing ratio as of December 31, 2018 is not presented as the ratio was 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, 2019 and 2018:

(In millions of won)

		2019				
		Carrying amounts	**Level 1**	**Level 2**	**Level 3**	**Total**
Financial assets measured at fair value						
Short-term investment asset	₩	1,390,293	-	1,390,293	-	1,390,293
Long-term investment asset		4,381,812	-	-	4,381,812	4,381,812
		5,772,105	-	1,390,293	4,381,812	5,772,105
Financial assets not measured at fair value						
Cash and cash equivalents[1]		2,306,070	-	-	-	-
Short-term financial instruments[1]		298,350	-	-	-	-
Trade receivables[1]		4,306,449	-	-	-	-
Loans and other receivables[1]		132,587	-	-	-	-
Other financial assets[1]		931	-	-	-	-
		7,044,387	-	-	-	-
Financial liabilities measured at fair value						
Other financial liabilities		15,532	-	15,532	-	15,532
Other payables		13,006	-	-	13,006	13,006
		28,538	-	15,532	13,006	28,538
Financial liabilities not measured at fair value						
Trade payables[1]		1,042,542	-	-	-	-
Other payables[1]		2,354,667	-	-	-	-
Other non-trade payables[1]		1,276,161	-	-	-	-
Borrowings		10,523,506	-	10,585,029	-	10,585,029
Lease liabilities		1,200,830	-	-	-	-
	₩	16,397,706	-	10,585,029	-	10,585,029

[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

(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, 2019 and 2018, Continued:

(In millions of won)

		2018				
	Carrying amounts	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[2]	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.
[2] As of December 31, 2018, borrowings include finance lease liabilities in accordance with K-IFRS No. 1017.

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	₩	1,390,293	2	Present value technique
Long-term investment assets		4,381,812	3	Present value technique and others
Financial liabilities at fair value through profit or loss:				
Fixed-to-fixed cross currency swap and floating-to-fixed cross currency interest rate swap	₩	15,532	2	Present value technique
Other payables		13,006	3	Present value technique

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 ₩2,780,758 million and BCPE Pangea Cayman2 Limited ("SPC2") amounting to ₩1,435,460 million in connection with the acquisition of KIOXIA Holdings Corporation ("KIOXIA", formerly Toshiba Memory Corporation) (see note 12). The fair value of the long-term investments is measured based on the equity value of the underlying asset, KIOXIA.

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 based on the KIOXIA’s equity value, calculated using either market approach, option-pricing method or present value method. KIOXIA'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 KIOXIA's equity value, 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	₩	2,780,758	Present value technique, probability-weighted expected return method, market approach, and option-pricing method	Terminal growth rate	0%
				Weighted-average capital cost	8.6%
				EV/EBITDA multiples	4.7 ~ 5.3
				Cost of equity	10.3%
SPC2 convertible bonds		1,435,460	Present value technique and binomial model	Terminal growth rate	0%
				Weighted-average capital cost	8.6%
				Volatility	21.3%
				Risk free rate	-0.13%

In these level 3 significant unobservable inputs, an increase in terminal growth rate, and EV/EBITDA multiples or a decrease in weighted-average capital cost, cost of equity 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 significant and 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.

(c) There was no transfer between fair value hierarchy levels during the year ended December 31, 2019 and the changes in financial assets and financial liabilities classified as level 3 fair value measurements during the year ended December 31, 2019 are as follows:

(In millions of won)

		Beginning Balance	Acquisition	Disposals	Payments	Loss on Valuation	Foreign Exchange Difference	Ending Balance
Financial assets:								
Long-term investment assets	₩	4,325,550	82,861	(3,884)	-	(233,234)	210,519	4,381,812
Financial liabilities:								
Other payables		-	15,116	-	(2,462)	-	352	13,006

7. Restricted Financial Instruments

Details of restricted financial instruments as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018	Description
Short-term financial instruments	₩	227,500	227,500	Restricted for supporting small businesses
		6,381	6,079	Pledged for consumption tax
		233,881	233,579	
Other financial assets		11	11	Bank overdraft guarantee deposit
		269	265	Others
		280	276	
	₩	234,161	233,855	

8. Trade Receivables and Loans and Other Receivables

(1) Details of trade receivables as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Current			
Trade receivables	₩	4,175,470	6,207,936
Trade receivables to be collected from related parties		86,204	112,058
		4,261,674	6,319,994
Non-current			
Trade receivables		44,775	-
		4,306,449	6,319,994

(2) Details of loans and other receivables as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Current			
Other receivables	₩	11,104	8,465
Accrued income		2,043	3,899
Short-term loans		6,816	4,807
Short-term guarantee and other deposits		3,545	1,221
		23,508	18,392
Non-current			
Long-term other receivables		2	54
Long-term loans		35,299	28,125
Guarantee deposits		73,550	40,117
Others		228	218
		109,079	68,514
	₩	132,587	86,906

8. Trade Receivables and Loans and Other Receivables, continued

(3) Trade receivables and loans and other receivables, net of provision for impairment, as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019		
		Gross amount	**Provision for impairment**	**Carrying amount**
Trade receivables	₩	4,306,458	(9)	4,306,449
Current loans and other receivables		24,788	(1,280)	23,508
Non-current loans and other receivables		110,241	(1,162)	109,079
	₩	4,441,487	(2,451)	4,439,036

(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

(4) Details of provision for impairment

Changes in the provision for impairment of trade receivables for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	**2018**
Beginning balance	₩	48	46
Reversal		(40)	(3)
Foreign exchange difference		1	-
Business combination		-	5
Ending balance	₩	9	48

Changes in the provision for impairment of current loans and other receivables for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	**2018**
Beginning balance	₩	1,323	1,327
Reversal		(45)	(4)
Foreign exchange difference		2	-
Ending balance	₩	1,280	1,323

8. Trade Receivables and Loans and Other Receivables, continued

(4) Details of provision for impairment, continued

Changes in the provision for impairment of non-current loans and other receivables for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Beginning balance	₩	1,117	1,087
Reversal		-	(37)
Foreign exchange difference		45	67
Ending balance	₩	1,162	1,117

(5) The aging analysis of trade receivables and loans and other receivables as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019					
		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	₩	4,306,453	-	-	-	5	4,306,458
Current loans and other receivables		23,508	-	-	-	1,280	24,788
Non-current loans and other receivables		109,079	-	-	-	1,162	110,241
	₩	4,439,040	-	-	-	2,447	4,441,487

(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

9. Inventories

(1) Details of inventories as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019		
		Acquisition cost	Inventory valuation allowance	Carrying amount
Merchandise	₩	2,843	(21)	2,822
Finished goods		1,253,542	(195,108)	1,058,434
Work-in-process		3,383,814	(395,052)	2,988,762
Raw materials		659,893	(34,114)	625,779
Supplies		544,271	(23,203)	521,068
Goods in transit		98,970	-	98,970
	₩	5,943,333	(647,498)	5,295,835

(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

(2) The amount of the inventories recognized as cost of sales and loss on valuation allowance of inventories charged to cost of sales are as follows:

(In millions of won)

		2019	2018
Inventories recognized as cost of sales	₩	18,822,989	15,178,673
Loss on valuation allowance of inventories		269,506	195,881

10. Other Current and Non-current Assets

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

(In millions of won)

		2019	2018
Current			
Advance payments	₩	64,429	113,030
Prepaid expenses		218,365	260,064
Value added tax refundable		343,434	343,821
Contract asset		55,715	24,294
Others		94	216
		682,037	741,425
Non-current			
Long-term advance payments		44,746	96,817
Long-term prepaid expenses		535,717	528,837
		580,463	625,654
	₩	1,262,500	1,367,079

11. Investments in Associates and Joint Ventures

(1) Details of investments in associates and joint ventures as of December 31, 2019 and 2018 are as follows:

(In millions of won)

				2019				2018		
Type	Investee	Location	Business	Ownership (%)		Net asset value	Carrying amount	Ownership (%)		Carrying amount
Associate	Stratio, Inc.[1]	U.S.A	Development and manufacturing	9.12	₩	89	395	9.12	₩	2,079
	SK China Company Limited[2]	China	Consulting and investment	11.87		206,922	259,272	11.87		246,052
	Gemini Partners Pte. Ltd.	Singapore	Consulting	20.00		2,735	2,735	20.00		2,601
	TCL Fund[1]	China	Investment	11.06		4,995	4,995	11.06		3,464
	SK South East Asia Investment Pte. Ltd.	Singapore	Consulting and investment	20.00		237,599	237,599	20.00		111,810
	Hushan Xinju (Chengdu) Venture Investment Center (Smartsource)[2]	China	Venture Capital	16.67		5,659	5,659	46.30		3,241
	WooYoung Farm Co., Ltd.[3]	Korea	Growing crops	31.95		448	1,000	-		-
Joint venture	HITECH Semiconductor (Wuxi) Co., Ltd.	China	Manufacturing semiconductor parts	45.00		114,518	114,518	45.00		109,708
	Hystars Semiconductor (Wuxi) Co., Ltd.	China	Foundry factory construction	50.10		141,030	142,594	50.10		83,239
					₩	713,995	768,767		₩	562,194

[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 associates.

[2] The management of the Group is able to exercise significant influence over the entity by participating board of directors. Accordingly, the investments in these investees have been classified as associates.

[3] The Group acquired 31.95% of ownership in WooYoung Farm Co., Ltd. during year ended December 31, 2019, and the Group has significant influence over WooYoung Farm Co., Ltd. Accordingly the investment in this investee has been classified as an associate.

11. Investments in Associates and Joint Ventures, continued

(2) Changes in investments in associates and joint ventures for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019						
		Beginning balance	Acquisition	Share of profit (loss)	Other equity movement	Dividend	Impairment	Ending balance
Stratio, Inc.	₩	2,079	-	8	3	-	(1,695)	395
SK China Company Limited		246,052	-	3,358	9,862	-	-	259,272
Gemini Partners Pte. Ltd.		2,601	-	(10)	144	-	-	2,735
TCL Fund		3,464	1,406	84	41	-	-	4,995
SK South East Asia Investment Pte. Ltd.		111,810	113,470	5,752	6,567	-	-	237,599
Hushan Xinju (Chengdu) Venture Investment Center (Smartsource)		3,241	2,531	(67)	(46)	-	-	5,659
WooYoung Farm Co., Ltd.		-	1,000	-	-	-	-	1,000
HITECH Semiconductor (Wuxi) Co., Ltd.		109,708	-	15,725	3,543	(14,458)	-	114,518
Hystars Semiconductor (Wuxi) Co., Ltd.		83,239	58,547	(522)	1,330	-	-	142,594
	₩	562,194	176,954	24,328	21,444	(14,458)	(1,695)	768,767

(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

11. Investments in Associates and Joint Ventures, continued

(3) Associates and joint ventures' summarized consolidated statements of financial position as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019			
		Current assets	Non-current assets	Current liabilities	Non-current liabilities
Stratio, Inc.	₩	431	715	169	-
SK China Company Limited		604,127	1,357,238	46,747	170,812
Gemini Partners Pte. Ltd.		6,851	6,912	54	33
TCL Fund		12,652	35,809	3,256	-
SK South East Asia Investment Pte. Ltd.		108,465	1,705,297	91	-
Hushan Xinju (Chengdu) Venture Investment Center (Smartsource)		20,623	13,657	329	-
WooYoung Farm Co., Ltd.		1,016	610	2	222
HITECH Semiconductor (Wuxi) Co., Ltd.		193,377	442,510	84,071	297,330
Hystars Semiconductor (Wuxi) Co., Ltd.		167,238	388,318	48,984	225,075

(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	-

11. Investments in Associates and Joint Ventures, continued

(4) Associates and joint ventures' summarized consolidated statements of income (loss) for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019		2018	
		Revenue	**Profit (loss) for the period**	**Revenue**	**Profit (loss) for the period**
Stratio, Inc.	₩	242	81	88	(330)
SK China Company Limited		120,317	28,309	94,966	20,176
Gemini Partners Pte. Ltd.		-	(49)	-	1,279
TCL Fund		-	759	-	713
SK South East Asia Investment Pte. Ltd.		10,294	28,763	-	-
Hushan Xinju (Chengdu) Venture Investment Center (Smartsource)		-	(837)	-	(31)
WooYoung Farm Co., Ltd.		19	(105)	-	-
HITECH Semiconductor (Wuxi) Co., Ltd.		657,741	36,398	621,528	27,438
Hystars Semiconductor (Wuxi) Co., Ltd.		-	(1,044)	-	(658)

12. Long-term Investment Asset

(1) Details of long-term investment assets as of December 31, 2019 and 2018 are as follows:

(In millions of won)

	2019				2018
	Ownership (%)/ Type		Acquisition cost	Book value	Book value
ProMOS Technologies Inc.	13.34	₩	21,847	-	-
Intellectual Discovery	4.80		4,000	2,392	1,376
MEMS DRIVE, INC.	3.25		2,397	1,251	919
Semiconductor Growth Fund	Certificate		25,000	24,480	24,878
China Walden Venture Investments II, L.P.	Certificate		7,895	9,138	7,611
China Walden Venture Investments III, L.P.	Certificate		5,448	5,790	3,487
Keyssa,Inc	2.81		6,174	822	838
AutoTech Fund I, L.P.	Certificate		3,152	3,198	2,789
RENO SUB-SYSTEM, INC.	4.09		2,597	657	226
TransLink Capital Partners IV, L.P.	Certificate		2,386	2,175	1,627
Impact Venture Capital I, L.P.	Certificate		3,174	4,010	2,707
BCPE Pangea Intermediate Holdings Cayman, L.P.[1]	Certificate		2,694,692	2,780,758	2,721,554
BCPE Pangea Cayman2, Ltd.[1]	Convertible bond		1,280,294	1,435,460	1,461,451
FemtoMetrix, Inc.	Convertible bond		4,387	4,387	3,209
TidalScale, Inc.	4.79		3,360	1,278	3,360
GigaIO Networks, Inc.	8.97		4,066	4,066	1,678
Aeye, Inc.	1.46		2,819	1,187	2,819
Lion Semiconductor Inc.	6.55		3,539	3,474	-
TetraMem Holdings, Incorporation	Convertible bond		2,349	2,349	-
Beijing Starblaze Technology Co., Ltd.	5.43		3,315	2,143	3,255
Shanghai Natlinear Electronics Co., Ltd.	3.67		1,657	2,010	1,628
Shanghai IoT Phase II Venture Capital Fund Partnership, L.P	Certificate		8,287	7,729	5,909
Beijing Horizon Robotics Technology Co., Ltd.	2.57		58,340	63,550	56,029
Shanghi Sitrus Microelectronics Technology Co., Ltd.	4.55		4,144	1,360	4,069
Shinhan AIM Social Enterprise Private Equity I	Certificate		3,550	3,162	585
Others	-		14,605	14,986	13,546
		₩	4,173,474	4,381,812	4,325,550

[1] In 2017, the Group participated in a consortium that includes Bain Capital in connection with acquisition of a stake in Toshiba Memory Corporation ("TMC"). On March 1, 2019 Toshiba Memory Holdings Corporation ("TMCHD") was established as the holding company for TMC. Subsequently TMCHD and TMC were renamed KIOXIA Holdings Corporation ("KIOXIA") and KIOXIA Corporation respectively. As of December 31, 2019, the Group holds equity interests in SPC1, which holds equity interests in KIOXIA, and convertible bonds issued by SPC2, which may be later convertible to 15% stake in KIOXIA upon certain events. Management and decision-making rights of the Group for SPC1 and SPC2 are limited. Accordingly, the Group does not control or have any significant influence on SPC1 and SPC2. The investments in SPC1 and SPC2 are classified as financial assets which are debt instruments measured at fair value through profit or loss.

12. Long-term Investment Asset, continued

(2) Changes in the carrying amount of long-term investment assets for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Beginning balance	₩	4,325,550	43,226
Acquisition		82,861	4,012,799
Disposal		(3,884)	(1,614)
Gain (loss) on valuation		(233,234)	181,179
Foreign exchange difference		210,519	87,246
Business combination		-	2,714
Ending balance	₩	4,381,812	4,325,550

13. Property, Plant and Equipment

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

(In millions of won)

		2019							
		Land	Buildings	Structures	Machinery	Vehicles	Others	Construction -in-progress	Total
Beginning balance	₩	1,020,229	4,529,947	1,281,816	22,642,498	11,315	623,311	4,843,501	34,952,617
Impacts on transition to K-IFRS No. 1116		-	-	-	(73,069)	-	-	-	(73,069)
Beginning balance after transition adjustments		1,020,229	4,529,947	1,281,816	22,569,429	11,315	623,311	4,843,501	34,879,548
Changes during 2019									
Acquisitions		16,882	375,243	325,189	8,428,185	1,715	328,079	3,100,165	12,575,458
Disposals		(48)	(447)	(432)	(37,468)	(3)	(1,110)	(337)	(39,845)
Depreciation		-	(211,287)	(95,114)	(6,952,920)	(2,124)	(250,349)	-	(7,511,794)
Transfers[1]		3,051	848,071	106,110	2,982,080	32,184	62,397	(4,032,788)	1,105
Exchange differences and others		1,657	6,217	1,495	(15,036)	9	1,715	49,411	45,468
Ending balance		1,041,771	5,547,744	1,619,064	26,974,270	43,096	764,043	3,959,952	39,949,940
Acquisition cost		1,041,771	6,794,238	2,193,817	67,650,975	48,061	1,882,254	3,959,952	83,571,068
Accumulated depreciation		-	(1,207,184)	(555,649)	(40,510,568)	(4,949)	(1,118,187)	-	(43,396,537)
Accumulated impairment		-	(23,699)	(19,104)	(163,270)	-	(24)	-	(206,097)
Government grants		-	(15,611)	-	(2,867)	(16)	-	-	(18,494)
	₩	1,041,771	5,547,744	1,619,064	26,974,270	43,096	764,043	3,959,952	39,949,940

[1] Certain investment property was transferred to property, plant and equipment during the year ended December 31, 2019.

13. Property, Plant and Equipment, Continued

(1) Changes in property, plant and equipment for the years ended December 31, 2019 and 2018 are as follows, Continued :

(In millions of won)

		2018							
		Land	Buildings	Structures	Machinery	Vehicles	Others	Construction-in-progress	Total
Beginning balance	₩	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		-	(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 balance		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] Certain investment property was transferred to property, plant and equipment during the year ended December 31, 2018.

(2) Details of depreciation expense allocation for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Cost of sales	₩	6,878,303	5,421,324
Selling and administrative expenses		574,961	365,508
Other expenses		14,923	10,152
Development costs and other		43,607	107,172
	₩	7,511,794	5,904,156

(3) Certain machinery and others are pledged as collaterals for borrowings of the Group as of December 31, 2019 (see note 35).

13. Property, Plant and Equipment, Continued

(4) The Group capitalized borrowing costs amounting to ₩36,302 million (2018: ₩33,086 million) on qualifying assets during the year ended December 31, 2019. Borrowing costs were calculated using a capitalization rate of 2.84% (2018: 3.08%) for the year ended December 31, 2019.

(5) Details of insured assets as of December 31, 2019 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	₩	95,928,300	Hyundai Marine & Fire Insurance Co., Ltd. and others
Fire insurance	Property, plant and equipment; investment property		74,552	
Erection all risks insurance	Property, plant and equipment		8,147,662	
		₩	104,150,514	

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

(6) The Group provides certain property, plant, and equipment as operating leases. Rental income from the property, plant and equipment during the year ended December 31, 2019 are ₩29,746 million (2018: ₩15,277 million).

14. Leases

(1) Leases as lessee

(a) Changes in right-of-use assets for the year ended December 31, 2019 are as follows

(In millions of won)

		2019					
		Properties	Structures	Machinery	Vehicles	Others	Total
Beginning balance	₩	-	-	-	-	-	-
Adjustment on initial application of K-IFRS No.1116		31,652	867,864	279,952	10,688	3,214	1,193,370
Beginning balance after transition adjustments		31,652	867,864	279,952	10,688	3,214	1,193,370
Increase		79,295	170,887	18,051	11,776	-	280,009
Others		4,163	-	-	1,250	13,647	19,060
Depreciation		(16,949)	(67,586)	(144,532)	(12,255)	(5,074)	(246,396)
Foreign exchange difference		(306)	4,831	(24)	32	-	4,533
Ending balance		97,855	975,996	153,447	11,491	11,787	1,250,576
Acquisition cost		144,208	1,058,738	234,006	17,959	16,330	1,471,241
Accumulated amortization		(14,546)	(82,742)	(80,559)	(6,468)	(4,543)	(188,858)
Government grants		(31,807)	-	-	-	-	(31,807)
	₩	97,855	975,996	153,447	11,491	11,787	1,250,576

14. Leases, continued

(b) Changes in lease liabilities for the year ended December 31, 2019 are as follows.

(In millions of won)

		2019
Beginning balance	₩	-
Impacts on transition to K-IFRS No. 1116		1,191,579
Beginning balance after transition adjustments		1,191,579
Increase		280,009
Others		19,357
Interest expense		25,656
Payments		(327,578)
Foreign exchange difference		11,807
Ending balance	₩	1,200,830

(c) The details of the minimum lease payment to be paid in the future for each period in connection with lease liabilities, present value and current/non-current classification of lease liabilities as of December 31, 2019 are as follows:

(In millions of won)

		2019
Less than 1 year	₩	207,501
1~5 years		451,111
More than 5 years		717,080
Total lease liabilities undiscounted as of December 31, 2019		1,375,692
Present value of lease liabilities recognized as of December 31, 2019		1,200,830
Current lease liabilities		205,238
Non-current lease liabilities		995,592

(d) The amounts recognized in profit or loss in relation to right-of-use assets and lease liabilities for the year ended December 31, 2019 are as follows:

(In millions of won)

		2019
Depreciation of right-to-use assets	₩	246,396
Interest expenses of lease liabilities		25,656
Expenses relating to short-term leases		14,489
Expenses relating to leases of low-value assets		1,234

14. Leases, continued

(2) Leases as lessor

The Group provides certain property, plant, and equipment and investment property as leases (See note 12,17). All leases are classified as operating leases.

Details of the undiscounted operating lease payments to be received in the future periods subsequent to December 31, 2019 are as follows:

(In millions of won)

		Property, Plant and Equipment	Investment Property	Total
Less than 1 year	₩	25,856	9	25,865
1~2 years		9,476	-	9,476
2~3 years		9,476	-	9,476
3~4 years		9,476	-	9,476
4~5 years		3,958	-	3,958
	₩	58,242	9	58,251

15. Intangible Assets

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

(In millions of won)

		2019				
		Goodwill	Industrial property rights	Development costs	Others	Total
Beginning balance	₩	709,811	96,065	1,153,956	718,938	2,678,770
Impacts on transition to K-IFRS No. 1116		-	-	-	(5,582)	(5,582)
Beginning balance after transition adjustments		709,811	96,065	1,153,956	713,356	2,673,188
Changes during 2019						
Internal development		-	-	332,888	-	332,888
External acquisition		-	9,626	-	331,704	341,330
Business combination		-	-	-	18,333	18,333
Disposals		-	(3,964)	-	(6,589)	(10,553)
Amortization		-	(16,003)	(555,056)	(224,110)	(795,169)
Impairment		-	-	-	(71)	(71)
Exchange differences		10,386	-	-	717	11,103
Ending balance		720,197	85,724	931,788	833,340	2,571,049
Acquisition cost		720,197	184,942	2,926,382	1,568,718	5,400,239
Accumulated amortization and impairment		-	(99,218)	(1,994,594)	(735,378)	(2,829,190)
	₩	720,197	85,724	931,788	833,340	2,571,049

15. Intangible Assets, continued

(1) Changes in intangible assets for the years ended December 31, 2019 and 2018 are as follows, continued

(In millions of won)

		2018				
		Goodwill	Industrial property rights	Development costs	Others	Total
Beginning balance	₩	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 balance		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

(2) Details of amortization expense allocation for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Cost of sales	₩	88,445	65,885
Selling and administrative expenses		705,383	456,269
Development costs		1,341	1,941
	₩	795,169	524,095

(3) Goodwill impairment tests

The Group performs goodwill impairment tests annually. For the purpose of impairment tests, goodwill is allocated to CGU. The recoverable amount of the CGU as of December 31, 2019 was determined based on fair value less costs to sell, which was determined using the current stock price as of December 31, 2019. No impairment loss of goodwill was recognized since the recoverable amount is higher than the carrying value of the CGU as of December 31, 2019.

(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, ₩332,888 million (2018: ₩610,954 million) that met capitalization criteria, were capitalized as development cost for the year ended December 31, 2019. In addition, costs associated with research activities and other development expenditures that did not meet the criteria in the amount of ₩2,855,643 million (2018: ₩2,284,000 million) were recognized as expenses for the year ended December 31, 2019.

15. Intangible Assets, continued

(4) Details of development costs, continued

(c) Details of development costs as of December 31, 2019 and 2018 are as follows:

(In millions of won)

	2019		
		Book value	Residual amortization period
DRAM	₩	263,262	11 ~23 months
		1,068	[1]
NAND		203,307	12 months
		351,745	[1]
CIS		19,613	1~14 months
		92,793	[1]
	₩	931,788	

[1] Amortization has not started as of December 31, 2019

(In millions of won)

	2018		
		Book value	Residual amortization period
DRAM	₩	457,682	7 ~23 months
		7,261	[1]
NAND		37,055	6 months
		573,658	[1]
CIS		4,298	13 months
		74,002	[1]
	₩	1,153,956	

[1] Amortization has not started as of December 31, 2018

(d) The Group did not recognize impairment loss in development costs for the year ended December 31, 2019. The Group recognized ₩4,482 million as an impairment loss in development costs for the year ended December 31, 2018. There are no accumulated impairment losses in development costs as of December 31, 2019 and 2018.

16. Investment Property

(1) Changes in investment property for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Beginning net book amount	₩	1,400	2,468
Depreciation		(37)	(84)
Transfer[1]		(1,105)	(984)
Ending net book amount		258	1,400
Acquisition cost		511	2,911
Accumulated depreciation		(253)	(1,511)
Ending net book amount	₩	258	1,400

[1] Certain investment property was transferred to property, plant and equipment during the year ended December 31, 2019 and 2018.

(2) The depreciation expense of ₩37 million was charged to cost of sales for the year ended December 31, 2019 (2018: ₩84 million).

(3) Rental income from investment property during the year ended December 31, 2019 was ₩123 million (2018: ₩308 million).

17. Other Payables

Details of other payables as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Current			
Accrued expenses	₩	1,257,895	1,879,520
Non-current			
Rent deposits payable		13,487	14,135
Long-term accrued expenses		4,779	1,096
		18,266	15,231
	₩	1,276,161	1,894,751

18. Borrowings

(1) Details of borrowings as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Current			
Short-term borrowings	₩	1,168,354	585,788
Current portion of long-term borrowings[1]		1,259,593	578,665
Current portion of debentures		309,823	449,850
		2,737,770	1,614,303
Non-current			
Long-term borrowings[1]		5,040,371	2,161,566
Debentures		2,745,365	1,506,068
		7,785,736	3,667,634
	₩	10,523,506	5,281,937

[1] As of December 31, 2018, the current portion of long-term borrowings and long-term borrowings include finance lease liabilities amounting to ₩10,563 million and ₩57,595 million, respectively, in accordance with K-IFRS No. 1017. Meanwhile, as a result of the transition to K-IFRS No. 1116, lease liabilities are presented separately from borrowings in the consolidated statement of financial position as of December 31, 2019.

(2) Details of short-term borrowings as of December 31, 2019 and 2018 are as follows:

In millions of won)

	Financial Institutions	Maturity date	Interest rate per annum in 2019 (%)[1]		2019	2018
General borrowings	Shinhan Bank	2020.09.27	3.10 ~ 3.61	₩	4,000	4,920
	Hyundai Card	2020.01.17 ~ 2020.03.18	1.94 ~ 1.96		215,073	-
Usance	Hana Bank and others	2020.04.20 ~ 2020.05.15	2.91 ~ 2.92		569,164	-
General borrowings	Industrial & Commercial Bank of China	2020.11.24 ~ 2020.12.04	3.05		107,731	-
	China Construction Bank and others	2020.08.14 ~ 2020.08.20	3M USD LIBOR + 0.95		173,435	-
	Bank of China	2020.08.20 ~ 2020.11.11	3M USD LIBOR + 0.90 ~ 1.00		66,436	-
	China Merchants Bank	2020.11.04	3M USD LIBOR +1.00		9,979	-
	City Bank	2020.08.06 ~ 2020.12.04	3M USD LIBOR +1.00		22,536	22,341
	China Development Bank	–	-		-	558,527
				₩	1,168,354	585,788

18. Borrowings, Continued

(3) Details of long-term borrowings as of December 31, 2019 and 2018 are as follows:

(In millions of won)

	Financial institutions	Maturity date	Interest rate per annum in 2019 (%)[1]		2019	2018
Local currency borrowings:						
Funds for equipment	Korea Development Bank	2021.09.29 ~ 2022.04.07	2.02 ~ 2.50	₩	500,000	500,000
	NongHyup Bank	2025.03.31 ~ 2026.03.31	1.00		1,248	1,248
	Shinhan Bank	2026.12.19	2.96		760	-
Finance lease liabilities[2]	Hansu Technical Service Ltd.	-	-		-	66,757
	Veolia Water Industrial Development Co., Ltd.	-	-		-	1,400
					502,008	569,405
Foreign currency borrowings:						
General borrowings	The Export-Import Bank of Korea	2021.05.31	3M JPY LIBOR + 0.57		850,776	810,544
Funds for equipment	The Export-Import Bank of Korea	2020.10.27 ~ 2022.03.10	3M USD LIBOR + 1.03~1.40		607,845	978,233
Funds for equipment	The Export-Import Bank of Korea	2021.12.25 ~ 2021.12.27	3M USD LIBOR + 1.65		289,059	-
	Korea Development Bank	2020.06.30 ~ 2026.10.02	3M USD LIBOR + 0.95 ~1.1		622,318	181,692
	Woori Bank	2020.03.11	3M USD LIBOR + 0.98		43,417	125,787
	Hana Bank	-	-		-	44,724
	NongHyup Bank	-	-		-	22,362
	China Bank	2022.11.28	3M USD LIBOR + 1.70		124,873	7,484
Syndicated loan	Industrial & Commercial Bank of China and others	2024.04.24	3M USD LIBOR + 1.65		3,272,146	-
					5,810,434	2,170,826
					6,312,442	2,740,231
Less: Current portion[2]					(1,259,593)	(578,665)
Less: Present value discount					(12,478)	-
				₩	5,040,371	2,161,566

[1] As of December 31, 2019, the annual interest rates are as follows:

Type	Interest rate per annum as of December 31, 2019
3M USD LIBOR	1.91%
3M JPY LIBOR	-0.05%

[2] As of December 31, 2018, finance lease borrowings are subject to finance lease liabilities in accordance with K-IFRS No. 1017. As a result of the transition to K-IFRS No. 1116, lease liabilities are presented separately from borrowings in the consolidated statement of financial position as of December 31, 2019.

18. Borrowings, Continued

(4) Details of debentures as of December 31, 2019 and 2018 are as follows:

(In millions of won)

	Maturity date	Interest rate per annum in 2019 (%)	2019	2018
Unsecured notes in local currency:				
Unsecured corporate bonds 212th	2019.05.30	-	₩ -	450,000
Unsecured corporate bonds 214-1st	2020.08.26	2.27	210,000	210,000
Unsecured corporate bonds 214-2nd	2022.08.26	2.63	140,000	140,000
Unsecured corporate bonds 215-2nd	2020.11.25	2.56	100,000	100,000
Unsecured corporate bonds 215-3rd	2022.11.25	2.75	10,000	10,000
Unsecured corporate bonds 216-2nd	2021.02.19	2.22	180,000	180,000
Unsecured corporate bonds 216-3rd	2023.02.19	2.53	80,000	80,000
Unsecured corporate bonds 217-2nd	2021.05.27	2.30	150,000	150,000
Unsecured corporate bonds 218th	2023.03.14	3.01	300,000	300,000
Unsecured corporate bonds 219-1st	2023.08.27	2.48	250,000	250,000
Unsecured corporate bonds 219-2nd	2025.08.27	2.67	90,000	90,000
Unsecured corporate bonds 220-1st	2022.05.09	1.96	410,000	-
Unsecured corporate bonds 220-2nd	2024.05.09	1.99	200,000	-
Unsecured corporate bonds 220-3rd	2026.05.09	2.17	120,000	-
Unsecured corporate bonds 220-4rd	2029.05.09	2.54	250,000	-
			2,490,000	1,960,000
Unsecured notes in foreign currency:				
Unsecured global bonds 9th	2024.09.17	3.00	578,900	-
			3,068,900	1,960,000
Less: Discounts on debentures			(13,712)	(4,082)
Less: Current portion			(309,823)	(449,850)
			₩ 2,745,365	1,506,068

19. Other Current and Non-current Liabilities

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

(In millions of won)

		2019	2018
Current			
Advance receipts	₩	9,901	8,973
Unearned income		190	186
Withholdings		59,186	49,770
Deposits received		1,341	1,036
Contract liabilities		86,999	80,373
Others		5,380	7,500
		162,997	147,838
Non-current			
Other long-term employee benefits		82,873	74,403
Long-term advance receipts		4,900	4,900
		87,773	79,303
	₩	250,770	227,141

20. Provisions

(1) Details of changes in provisions for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019				
		Beginning balance	Increase	Utilization	Reversal	Ending Balance
Warranty	₩	3,992	15,811	(15,722)	-	4,081
Legal claims		5,881	-	(5,881)	-	-
Emission allowances		46,335	-	(2,702)	(37,013)	6,620
	₩	56,208	15,811	(24,305)	(37,013)	10,701

(In millions of won)

		2018			
		Beginning balance	Increase	Utilization	Ending Balance
Warranty	₩	3,807	8,848	(8,663)	3,992
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

(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*.

21. 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 (assets) as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Present value of defined benefit obligations	₩	1,936,868	1,609,055
Fair value of plan assets		(1,886,650)	(1,608,832)
Net defined benefit liabilities	₩	50,218	223
Defined benefit liabilities		53,624	5,387
Defined benefit assets[1]		(3,406)	(5,164)

[1] The Parent Company and certain subsidiaries' fair value of plan assets in excess of the present value of defined benefit obligations amounted to ₩3,406 million and ₩5,164 million as of December 31, 2019 and 2018 are presented as defined benefit assets.

(2) Principal actuarial assumptions as of December 31, 2019 and 2018 are as follows:

	2019 (%)	2018 (%)
Discount rate for defined benefit obligations	1.92 ~ 3.47	2.64 ~ 3.78
Expected rate of salary increase	2.70 ~ 5.94	2.70 ~ 5.83

(3) Weighted average durations of defined benefit obligations as of December 31, 2019 and 2018 are 11.48 and 11.64 years, respectively.

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

(In millions of won)

		2019	2018
Beginning balance	₩	1,609,055	1,330,559
Current service cost		220,870	179,689
Interest expense		59,683	56,465
Transfer from associates		2,408	1,077
Remeasurements:		97,434	73,727
Demographic assumption		67	3,138
Financial assumption		76,241	102,639
Adjustment based on experience		21,126	(32,050)
Benefits paid		(52,609)	(36,798)
Business combination		-	4,300
Effect of movements in exchange rates		27	36
Ending balance	₩	1,936,868	1,609,055

21. Defined Benefit Liabilities, Continued

(5) Changes in plan assets for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Beginning balance	₩	1,608,832	1,337,848
Contributions		279,751	276,739
Interest income		59,554	56,651
Transfer from associates		3,430	1,837
Benefits paid		(38,008)	(34,768)
Business combination		-	3,009
Remeasurements		(26,909)	(32,484)
Ending balance	₩	1,886,650	1,608,832

(6) The amounts recognized in profit or loss for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Current service cost	₩	220,870	179,689
Net interest expense		129	(186)
	₩	220,999	179,503

(7) The amounts in which defined benefit plan related expenses are included for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Cost of sales	₩	120,736	101,944
Selling and administrative expenses		100,263	77,559
	₩	220,999	179,503

(8) Details of plan assets as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Deposits	₩	1,884,630	1,607,552
Others		2,020	1,280
	₩	1,886,650	1,608,832

Actual return on plan assets for the years ended December 31, 2019 and 2018 amounted to ₩32,645 million and ₩24,167 million, respectively.

(9) As of December 31, 2019, 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, 2020 is ₩196,131 million under the assumption that the Group maintains the defined benefit plan.

21. Defined Benefit Liabilities, Continued

(10) The sensitivity analysis of the defined benefit obligations as of December 31, 2019 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%)	₩	(197,787)	233,001
Expected rate of salary increase (if changed by 1%)		231,698	(200,399)

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, 2019 is as follows:

(In millions of won)

		Less than 1 year	**2 - 5 years**	**6 - 10 years**	**More than 11 years**	**Total**
Benefits paid	₩	59,918	348,940	623,402	1,854,515	2,886,775

Information about the maturity profile is based on the undiscounted and vested amount of defined benefit obligation as of December 31, 2019, and classified by 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 ₩455 million (2018: ₩216 million) was expensed for the year ended December 31, 2019.

22. Deferred Income Tax

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

(In millions of won)

		2019				
		January 1, 2019	Profit or loss	Equity	Foreign exchange differences	December 31, 2019
Inventories, net	₩	102,812	73,691	-	240	176,743
Property, plant and equipment, net		140,762	71,659	-	(6,718)	205,703
Defined benefits liabilities, net		(609)	(25,776)	34,132	10	7,757
Short-term and long-term investment assets and others		(32,984)	5,429	-	-	(27,555)
Employee benefits		39,954	6,583	-	-	46,537
Provisions		19,169	(15,599)	-	19	3,589
Other assets and other liabilities		24,583	(12,872)	-	(82)	11,629
Accrued expenses		48,883	43,526	-	-	92,409
Others		56,653	(35,239)	-	(6,734)	14,680
Deferred tax assets for temporary differences, net		399,223	111,402	34,132	(13,265)	531,492
Tax credit carryforwards recognized		15,189	(9,542)	-	604	6,251
Tax loss carryforwards recognized		123,007	(10,023)	-	4,396	117,380
Deferred tax assets recognized, net	₩	537,419	91,837	34,132	(8,265)	655,123

(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, net	₩	594,229	(85,909)	29,182	(83)	537,419

22. Deferred Income Tax, Continued

(2) As of December 31, 2019 and 2018, the temporary differences that are not recognized as deferred tax assets (liabilities) are as follows:

(In millions of won)

		2019	2018
Investments in subsidiaries, associates, and joint ventures and others	₩	(344,446)	(5,139)
Deductible temporary differences and others		18,863	17,756

23. Derivative Financial Instruments

(1) Details of derivative financial instruments applying cash flow hedge accounting for the year ended December 31, 2019 is as follows:

(In millions of foreign currencies)

Hedged items			Hedging instruments		
Borrowing date	Financial instrument	Hedged risk	Type of contract	Financial institution	Contract period
2019.09.17	Foreign currency denominated bond with fixed rate (Par value: USD 500,000)	Foreign currency risk	Fixed-to-fixed cross currency swap	Kookmin Bank and other	2019.09.17~ 2024.09.17
2019.10.02	Foreign currency denominated borrowing for equipment with floating rate (Par value: USD 500,000)	Foreign currency and interest rate risk	Floating-to-fixed cross currency interest rate swap	Korea Development Bank	2019.10.02~ 2026.10.02

(2) The derivative financial instruments held by the Group are presented in non-current other financial liabilities in the consolidated financial statements of financial position and the details are as follows:

(In millions of won and millions of foreign currencies)

Type of contract	Hedged items		Cash flow hedge	Fair value
Fixed-to-fixed cross currency swap	Foreign currency denominated bond with fixed rate (Par value: USD 500,000)	₩	10,572	10,572
Floating-to-fixed cross currency interest rate swap	Foreign currency denominated borrowing for equipment with floating rate (Par value: USD 500,000)		4,960	4,960
		₩		15,532

As of December 31, 2019, changes of fair value of the derivative is recognized in other comprehensive income as all of designated hedging instruments are effective for foreign currency risk or foreign currency and interest rate risk.

24. 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, 2019. The number of shares issued, common stock, capital surplus and other capital as of December 31, 2019 and 2018, are as follows:

(In millions of won, thousands of shares)

		2019	2018
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)	(2,508,427)
Stock option		3,714	1,976
	₩	(2,504,713)	(2,506,451)
Number of treasury shares		44,001	44,001

[1] As of December 31, 2019, total number of shares is 728,002 thousand shares, which differs from total issued shares due to the effect of stock retirement.

(2) The number of outstanding shares, which deducted treasury shares held by the Parent Company from listed shares, is 684,002 thousands as of December 31, 2019 and 2018.

25. Accumulated Other Comprehensive Loss

(1) Details of accumulated other comprehensive loss as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Equity-accounted investees – share of other comprehensive income (loss)	₩	3,278	(18,166)
Foreign operations – foreign currency translation differences		(314,966)	(464,653)
Gain on valuation of derivatives		12,753	-
	₩	(298,935)	(482,819)

25. Accumulated Other Comprehensive Loss, continued

(2) Changes in accumulated other comprehensive income (loss) for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019		
		Beginning balance	**Change**	**Ending balance**
Equity-accounted investees – share of other comprehensive income (loss)	₩	(18,166)	21,444	3,278
Foreign operations – foreign currency translation differences		(464,653)	149,687	(314,966)
Gain on valuation of derivatives		-	12,753	12,753
	₩	(482,819)	183,884	(298,935)

(In millions of won)		2018			
		Beginning balance	**Change**	**Effect of significant change in accounting policy[1]**	**Ending balance**
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)

[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.

26. Retained Earnings and Dividends

(1) Details of retained earnings as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Legal reserve[1]	₩	281,555	178,954
Discretionary reserve[2]		235,506	235,506
Unappropriated retained earnings		42,413,614	41,619,141
	₩	42,930,675	42,033,601

[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, 2019 and 2018 are as follows:

(In millions of won and In thousands of shares)

		2019	2018
Type of dividends		Cash Dividends	Cash Dividends
Outstanding ordinary shares		684,002	684,002
Par value (in won)	₩	5,000	5,000
Dividend rate		20%	30%
Total dividends	₩	684,002	1,026,003

(b) Dividend payout ratio for the years ended December 31, 2019 and 2018 is as follows:

(In millions of won)

		2019	2018
Dividends	₩	684,002	1,026,003
Profit attributable to owners of the Parent Company		2,013,288	15,540,111
Dividend payout ratio		33.97%	6.60%

(c) Dividend yield ratio for the years ended December 31, 2019 and 2018 is as follows:

(In won)

		2019	2018
Dividends per share	₩	1,000	1,500
Closing stock price		94,100	60,500
Dividend yield ratio		1.06%	2.48%

27. Revenue

(1) Details of the Group's revenue for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Sale of goods	₩	26,922,416	40,388,846
Providing services		68,317	56,220
	₩	26,990,733	40,445,066

(2) Details of the Group's revenue by product and service types for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
DRAM	₩	20,292,687	32,370,936
NAND Flash		5,139,563	7,420,857
Others		1,558,483	653,273
	₩	26,990,733	40,445,066

(3) The Group's revenue information by region based on the location of selling entities for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Korea	₩	1,446,997	840,491
China		12,570,278	15,785,993
Taiwan		1,444,188	2,950,067
Asia (other than China and Taiwan)		2,301,314	4,609,601
U.S.A.		8,141,151	14,278,161
Europe		1,086,805	1,980,753
	₩	26,990,733	40,445,066

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

(In millions of won)

		2019	2018
Performance obligations satisfied at a point in time	₩	26,922,416	40,388,846
Performance obligations satisfied over time		68,317	56,220
	₩	26,990,733	40,445,066

27. Revenue, Continued

(5) Revenue recognition policies and performance obligations

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

Revenue recognition policies regarding the nature and timing of performance obligation satisfaction in the contract are as follows:

	Nature and timing of performance obligation satisfaction	Revenue recognition policies
Sale of goods	Revenue is recognized when 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 and refund liability are recognized. Refund liability is initially measured at 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 19) and right to recover products from customers is included in other current assets (See note 10).The Group reviews its estimate of expected returns at the end of each reporting period and updates the amounts of the asset and liabilities accordingly.

28. Selling and Administrative Expenses

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

(In millions of won)

		2019	2018
Selling and administrative expenses:			
Salaries	₩	516,226	564,923
Defined benefit plan		34,692	27,200
Employee benefits		141,104	115,892
Commission		460,644	369,307
Depreciation		206,429	130,229
Amortization		687,365	442,389
Freight and custody charge		40,222	27,412
Legal cost		31,679	34,032
Rental		6,933	13,301
Taxes and dues		54,525	31,785
Training		43,217	32,636
Advertising		92,792	92,025
Utilities		12,193	11,603
Supplies		99,029	103,384
Repair		29,546	24,938
Travel and transportation		16,731	15,483
Sales promotion		68,479	64,837
Sales repair		21,085	6,243
Others		34,206	28,859
		2,597,097	2,136,478
Research and development:			
Expenditure on research and development		3,188,531	2,894,954
Development cost capitalized		(332,888)	(610,954)
		2,855,643	2,284,000
	₩	5,452,740	4,420,478

29. Expenses by Nature

Nature of expenses for the years ended December 31, 2019 and 2018 is as follows:

(In millions of won)

		2019	2018
Changes in finished goods and work-in-process	₩	(523,777)	(1,473,125)
Raw materials, supplies and consumables		6,746,715	5,659,357
Employee benefit		3,411,234	3,669,809
Depreciation and others		8,493,295	6,309,070
Royalty		137,157	172,615
Commission		2,078,900	1,675,122
Utilities		1,355,547	1,131,394
Repair		1,071,976	1,023,685
Outsourcing		1,201,938	1,072,241
Others		305,030	361,148
Total[1]	₩	24,278,015	19,601,316

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

30. Finance Income and Expenses

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

(In millions of won)

		2019	2018
Finance income:			
Interest income	₩	30,062	62,478
Dividend income		429	2,136
Foreign exchange differences[1]		1,143,099	1,386,287
Gain on valuation of short-term investment assets		5,811	16,740
Gain on valuation of long-term investment assets		8,237	182,641
Gain on disposal of short-term investment assets		58,784	36,349
Gain on disposal of long-term investment assets		1,218	5,504
		1,247,640	1,691,955
Finance expenses:			
Interest expenses		238,508	94,635
Foreign exchange differences[1]		1,034,104	1,046,217
Loss on disposal of long-term investment asset		786	-
Loss on valuation of long-term investment asset		241,471	1,282
		1,514,869	1,142,134
Net finance income (expenses)	₩	(267,229)	549,821

[1] Foreign exchange differences related to fair value of long-term investment assets amounting to ₩210,519 million and ₩87,246 million are included for the years ended December 31, 2019 and 2018, respectively.

31. Other Income and Expenses

(1) Other income for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Gain on disposal of property, plant and equipment	₩	26,158	39,403
Others		62,021	73,407
	₩	88,179	112,810

(2) Other expenses for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Loss on disposal of property, plant and equipment	₩	11,531	59,738
Loss on disposal of intangible assets		7,668	5,545
Loss on disposal of trade receivables		8,564	9,031
Loss on impairment of intangible assets		71	4,483
Donation		59,522	62,041
Others		26,219	37,520
	₩	113,575	178,358

32. Income Tax Expense

(1) Income tax expense for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Current tax:			
Current tax on profits for the year	₩	603,692	5,728,798
Adjustments for the current tax liabilities attributable to prior year, but recognized in current year		(85,520)	(13,661)
		518,172	5,715,137
Deferred tax:			
Changes in net deferred tax assets		(91,837)	85,909
Income tax expense	₩	426,335	5,801,046

32. Income Tax Expense, continued

(2) The relationship between tax expense and accounting profit for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Profit before income tax	₩	2,442,726	21,341,030
Tax calculated at domestic tax rates applicable to profits in the respective countries		661,387	5,858,421
Tax effects of:			
Tax-exempt income		(36,618)	(39,732)
Non-deductible expenses		11,694	10,008
Change in unrecognized deferred tax assets		(93,041)	88,614
Tax credits		(102,755)	(173,826)
Adjustments for the current tax liabilities attributable to prior year, but recognized in current year		(85,520)	(13,661)
Others		71,188	71,222
Income tax expense	₩	426,335	5,801,046

(3) Income taxes recognized in other comprehensive income (loss) for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Remeasurements of defined benefit liabilities	₩	34,132	29,182
Gain on valuation of derivatives		(4,837)	-
	₩	29,295	29,182

33. 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, 2019 and 2018 are as follows:

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

		2019	2018
Profit attributable to ordinary shareholders of the Parent Company	₩	2,013,288	15,540,111
Weighted average number of outstanding ordinary shares[1]		684,001,795	698,278,083
Basic earnings per share (in won)	₩	2,943	22,255

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

(In shares)

	2019	2018
Outstanding ordinary shares	728,002,365	728,002,365
Acquisition of treasury shares	(44,000,570)	(29,724,282)
Weighted average number of outstanding ordinary shares	684,001,795	698,278,083

33. Earnings per Share, continued

(2) Diluted earnings per share for the years ended December 31, 2019 and 2018 are as follows:

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

		2019	2018
Profit attributable to ordinary shareholders of the Parent Company	₩	2,013,288	15,540,111
Weighted average number of diluted outstanding ordinary shares[1]		684,089,944	698,364,251
Diluted earnings per share (in won)	₩	2,943	22,252

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

(In shares)

	2019	2018
Weighted average number of outstanding ordinary shares	684,001,795	698,278,083
Stock options	88,149	86,168
Weighted average number of diluted outstanding ordinary shares	684,089,944	698,364,251

34. Transactions with Related Parties and Others

(1) Details of related parties as of December 31, 2019 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), WooYoung Farm Co., Ltd.
Joint ventures	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, 2019 and 2018 are as follows:

(In millions of won)

		2019			
	Company	Operating revenue and others	Operating expense and others	Asset acquisition	Dividend income
Associate	SK China Company Limited	₩ 15	10,954	-	-
Joint ventures	HITECH Semiconductor (Wuxi) Co., Ltd.	4,362	656,911	1,616	14,458
	Hystars Semiconductor (Wuxi) Co., Ltd.	238	-	-	-
Other related parties	SK Telecom Co., Ltd.[1]	167,878	242,559	10,699	-
	SK Holdings Co., Ltd.[2]	25,912	265,496	259,280	-
	ESSENCORE Limited	708,497	-	-	-
	SK Engineering & Construction Co., Ltd.	60,886	1,249	1,851,230	-
	SK Energy Co., Ltd.	62,220	73,717	-	-
	SK Networks Co., Ltd.	12,704	12,698	-	-
	SKC solmics Co., Ltd.	676	82,814	1,067	-
	Chungcheong energy service Co., Ltd.	215	27,215	-	-
	SK Materials Co., Ltd.	4,118	79,000	-	-
	SK Siltron Co., Ltd.	32,411	397,327	-	-
	SK Airgas Co., Ltd.	106	72,675	-	-
	Others	163,648	484,678	68,445	-
		₩ 1,243,886	2,407,293	2,192,337	14,458

[1] Operating expense and others include dividend payments of ₩219,200 million.
[2] For the year ended December 31, 2019, royalty paid for the use of the SK brand amounted to ₩82,629 million.

34. Transactions with Related Parties and Others, Continued

(2) Significant transactions for the years ended December 31, 2019 and 2018 are as follows, Continued:

(In millions of won)

		2018			
	Company	Operating revenue and others	Operating expense and others	Asset acquisition	Dividend income
Associate	SK China Company Limited	₩ -	9,699	-	-
Joint ventures	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	-	-
	SK Airgas Co., Ltd.	2	37,610	259	-
	Others	459	321,325	68,205	-
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 amounts represent the transactions prior to the date of acquisition of Happynarae Co., Ltd.

34. Transactions with Related Parties and Others, Continued

(3) The balances of significant transactions as of December 31, 2019 and 2018 are as follows:

(In millions of won)

	2019			
	Company		Trade receivables and others	Other payables and others
Associate	SK China Company Limited	₩	1	10,883
Joint ventures	HITECH Semiconductor (Wuxi) Co., Ltd.		357	395,529
	Hystars Semiconductor (Wuxi) Co., Ltd.		-	-
Other related parties	SK Telecom Co., Ltd.		9,334	7,342
	SK Holdings Co., Ltd.		3,668	151,940
	ESSENCORE Limited		37,823	-
	SK Engineering & Construction Co., Ltd.		6,012	855,621
	SK Energy Co., Ltd.		3,207	24,203
	SK Networks Co., Ltd.		897	7,243
	SKC solmics Co., Ltd.		55	17,463
	Chungcheong energy service Co., Ltd.		13	3,599
	SK Materials Co., Ltd.		360	7,681
	SK Siltron Co., Ltd.[1]		99,203	36,395
	SK Airgas Co., Ltd.		43	277,059
	Others		20,486	102,535
		₩	181,459	1,897,493

[1] Trade receivable and others include ₩96,216 million advance paid for the purchase of wafers (See note 35-(9)).

(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.		156,023	37,070
	SK Airgas Co., Ltd.		4	24,027
	Others		14,914	96,928
		₩	267,436	1,215,094

34. Transactions with Related Parties and Others, Continued

(4) Key management compensation

The Group considers registered directors who have authority and responsibility for planning, directing and controlling the activities of the Group as key management. The compensation paid to key management for employee services for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

Details		2019	2018
Salaries	₩	3,849	2,999
Defined benefit plan related expenses		406	351
Share-based payment		954	51
	₩	5,209	3,401

(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, 2019 and 2018 are as follows. These entities are not related parties according to K-IFRS No. 1024, '*Related Party Disclosures*'.

(In millions of won)

	2019					
	Company		Operating revenue and others	Operating expense and others	Asset acquisition	Dividend income
Companies in the Conglomerate	SK Chemicals Co., Ltd.	₩	8,676	1,507	-	-
	SK Bioscience Co., Ltd.		4,216	281	-	-
	AnTS Co., Ltd.		9	8,411	-	-
	Others		3,934	102	-	-
		₩	16,835	10,301	-	-

(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	-	-

34. 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, 2019 and 2018 are as follows. These entities are not related parties according to K-IFRS No. 1024, '*Related Party Disclosures*'.

(In millions of won)

	2019			
	Company		Trade receivables and others	Other payables and others
Companies in the Conglomerate	SK Chemicals Co., Ltd.	₩	886	114
	SK Bioscience Co., Ltd		177	20
	AnTS Co., Ltd.		1	942
	Others		645	-
		₩	1,709	1,076

(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

(7) The Group provides payment guarantee amounting to RMB 702 million for Hystars Semiconductor (Wuxi) Co., Ltd., a joint venture of the Group. (See note 35-(7))

(8) The Group's establishments of subsidiaries during the year ended December 31, 2019 are presented in note 1 and the Group's acquisitions and additional contributions to associates during the year ended December 31, 2019 are presented in note 11.

35. Commitments and Contingencies

(1) The details of litigations and claims of the Group as of December 31, 2019 are as follows:

(a) Lawsuit from Netlist, Inc.
Netlist, Inc. filed lawsuits against the Parent Company, and its subsidiaries, SK hynix America Inc. and SK hynix memory solutions America Inc. alleging infringement of multiple patents to the U.S. District Court for the Central District of California, on August 31, 2016 and June 14, 2017, to the U.S. International Trade Commission ("ITC") on September 1, 2016 and October 31, 2017.

Meanwhile, the lawsuit filed to the U.S. ITC on September 1, 2016 was provisionally concluded on January 16, 2018 that the Parent Company and its subsidiaries, SK hynix America Inc. and SK hynix memory solutions America Inc., did not infringe the patents of Netlist, Inc. Against the conclusion, Netlist, Inc. filed a petition on March 26, 2018. As the U.S. Federal Court of Appeals rejected Netlist, Inc.'s appeal on December 12, 2019, the ruling that the Parent Company and its subsidiaries, SK hynix America Inc. and SK hynix memory solutions America Inc., did not infringe the patent was finalized.

Regarding the lawsuit filed to the U.S. ITC on October 31, 2017, the U.S. ITC issued an initial determination on October 21, 2019, finding the Parent Company and its subsidiaries, SK hynix America Inc. and SK hynix memory solutions America Inc., violated one patent of Netlist, Inc. A decision on whether to have a rehearing the tentative decision will be made. As of December 31, 2019, the final result cannot be predicted.

Meanwhile, Netlist, Inc. filed a lawsuit against the Parent Company for infringement of one German patent to the District Court of Munich on July 11, 2017. The District Court of Munich rendered its decision finding no infringement by the Parent Company on January 31, 2019. Netlist, Inc. filed a notice of appeal against the decision to the Higher Regional Court of Munich on March 5, 2019 but withdrew the notice of appeal on June 11, 2019, thus the non-infringement decision of the District Court of Munich became the final and conclusive ruling.

(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, 2019, the lawsuits filed have not been finalized and the Group is unable to predict the outcome of these matters and therefore cannot reliably 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 investigation is ongoing. As of December 31, 2019, the Group is unable to predict the outcome of these matters and therefore cannot reliably 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 it 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.

35. Commitments and Contingencies, continued

(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 the 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 volume of water used.

(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, 2019 are as follows:

(In millions of won and millions of foreign currencies)

Category	Book value		Pledged amount			Remark
	Currency	Amount	Currency	Amount in USD	Amount in KRW	
Land and buildings	KRW	55,479	USD	53	61,587	Borrowings for equipment and others
			KRW	-	5,864	
Machinery	KRW	5,375,555	USD	6,258	7,245,003	
			KRW	-	600,000	
			USD	6,311	7,306,590	
	KRW	5,431,034	KRW	-	605,864	

35. Commitments and Contingencies, continued

(6) Financing agreements

Details of credit lines with financial institutions as of December 31, 2019 are as follows:

(In millions of won and millions of foreign currencies)

	Financial Institution	Commitment	Currency	Amount
The Parent Company	Hana Bank and others	Import finance including usance	USD	275
		Comprehensive limit contract for import and export including usance	USD	1,060
		Commitment as form of issuance for commercial paper	KRW	400,000
		Overdrafts with banks	KRW	20,000
		Accounts receivable factoring contracts which have no right to recourse	KRW	140,000
SK hynix Semiconductor (China) Ltd.	Agricultural Bank of China and others		RMB	2,300
		Import finance including usance	USD	4,447
SK hynix America Inc. and other sales entities	Citibank and others	Accounts receivable factoring contracts which have no right to recourse	USD	757
Domestic subsidiaries	Hana Bank and others	Import finance including bills bought	USD	45
		Finance secured by accounts receivables	KRW	53,820
		Agent agreement for payment of goods received	KRW	12,500

(7) Details of guarantees provided to others as of December 31, 2019 are as follows:

(In millions of U.S. dollars)	Currency	Amount	Remark
Taiwan Semiconductor Manufacturing Company, Limited.[1]	USD	60	Guarantees for supply agreement
Wuxi Xinfa Group Co., Ltd.[2]	RMB	702	Guarantees for borrowing

[1] The Group received a deposit of ₩1,000 million as collateral from ADTechnology Inc. regarding payment guarantee for Taiwan Semiconductor Manufacturing Company, Limited.
[2] The Group provides payment guarantee to Wuxi Xinfa Group Co., Ltd. for borrowings and accrued interests of Hystars Semiconductor (Wuxi) Co., Ltd., a joint venture of the Group.

(8) Capital commitments

The Group's commitments in relation to capital expenditures on property, plant and equipment as of December 31, 2019 are ₩232,387 million (as of December 31, 2018: ₩1,857,092 million).

35. Commitments and Contingencies, continued

(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 a stable supply of wafer with an advanced payment of ₩150,000 million during the year ended December 31, 2017. The advanced payment used in connection with the purchase of wafer during 2019 is ₩53,784 million, and the balance of the advance payment as of December 31, 2019 is ₩96,216 million. Meanwhile, SK Siltron Co., Ltd. has committed to providing a certain portion of its investment assets as collateral to secure the advanced payment.

(10) Investment in KIOXIA Holdings Corporation ("KIOXIA")
In regards to the Group's interests in KIOXIA through its investments in BCPE Pangea Intermediate holdings Cayman, L.P. and BCPE Pangea Cayman2 Limited, equity shares in KIOXIA 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 same periods, the Group does not have the right in appointing KIOXIA's directors and is unable to exercise significant influence over decision-making for KIOXIA's operation and management.

36. Statements of Cash Flows

(1) Reconciliations between profit for the year and net cash inflow from operating activities for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Profit for the year	₩	2,016,391	15,539,984
Adjustment			
Income tax expense		426,335	5,801,046
Defined benefit plan		220,999	179,503
Depreciation		7,511,794	5,904,156
Depreciation of investment property		37	84
Amortization		795,169	524,095
Depreciation of right-of-use assets		246,396	-
Share-based compensation expenses		1,738	1,163
Loss on disposal of property, plant and equipment		11,531	59,738
Loss on disposal of intangible assets		7,668	5,545
Loss on impairment of intangible assets		71	4,483
Loss on valuation of long-term investment asset		241,471	1,282
Impairment loss on associate investment		1,695	1,695
Interest expense		238,508	94,635
Loss on foreign currency translation		241,358	181,210
Loss on disposal of trade receivables		8,564	9,031
Gain on equity method investments, net		(24,328)	(14,702)
Gain on disposal of property, plant and equipment		(26,158)	(39,403)
Gain on disposal of short-term investment assets		(58,784)	(36,349)
Gain on valuation of short-term investment assets		(5,811)	(16,740)
Gain on disposal of long-term investment assets		(1,218)	(5,504)
Gain on valuation of long-term investment assets		(8,237)	(182,461)
Interest income		(30,062)	(62,478)
Gain on foreign currency translation		(263,012)	(126,094)
Others, net		99	(1,984)
Changes in operating assets and liabilities			
Decrease (increase) in trade receivables		2,214,776	(547,255)
Decrease in loans and other receivables		41,676	38,102
Increase in inventories		(851,735)	(1,782,384)
Decrease (increase) in other assets		114,792	(98,632)
Increase (decrease) in trade payables		(278,529)	58,773
Decrease in other payables		(16,623)	(16,161)
Increase (decrease) in other non-trade payables		(645,164)	542,437
Decrease in provisions		(42,787)	(25,183)
Increase in other liabilities		17,605	118,986
Payment of defined benefit liabilities		(4,120)	(8,862)
Contributions to plan assets		(279,751)	(276,739)
Cash generated from operating activities	₩	11,822,354	25,825,017

36. Statements of Cash Flows, Continued

(2) Details of significant financing and investing transactions, except for reclassifications between long-term and short-term balances, without inflows and outflows of cash for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Increase in other payables related to acquisition of property, plant and equipment	₩	-	954,918
Transfer of investment property to property, plant and equipment		1,105	984

(3) Changes in liabilities arising from financing activities during the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Beginning balance		5,281,937	4,171,270
Adjustments on initial application of K-IFRS No.1116[1]		1,123,422	-
Beginning balance after adjustments	₩	6,405,359	4,171,270
Cash flows from financing activities			
Proceeds from borrowings		9,833,882	3,125,721
Repayments of borrowings		(4,585,425)	(2,078,522)
Payments of lease liabilities		(323,953)	-
Increase of lease liabilities		280,009	-
Foreign currency differences		90,513	61,857
Present value discount (interest expense)		27,576	1,611
Interest paid		(3,625)	-
Ending balance	₩	11,724,336	5,281,937

[1] Lease liabilities are recognized upon adoption of K-IFRS No. 1116 as of January 1, 2019.

37. Share-based payment

(1) The Parent Company accounts for share-based payment in which the Parent Company has a choice of either cash-settled payment or equity-settled payment in accordance with its substance. The details of share options as of December 31, 2019 are as follows:

(In shares)

	Total numbers of share option granted	Exercised	Forfeited or Cancelled	Outstanding at December 31, 2019
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
6th	8,171	-	-	8,171
7th	61,487	-	-	61,487
8th	61,487	-	-	61,487
9th	61,487	-	-	61,487
	506,402	-	-	506,402

	Grant date	Service Period for Vesting	Exercisable Period		Exercise price
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 1, 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
6th	Feb 28, 2019	February 28, 2019 - February 28, 2021	March 1, 2021 - February 29, 2024		73,430
7th	March 22, 2019	March 22, 2019 - March 22, 2021	March 23, 2021 - March 22, 2024		71,560
8th	March 22, 2019	March 22, 2019 - March 22, 2022	March 23, 2022 - March 22, 2025		77,290
9th	March 22, 2019	March 22, 2019 - March 22, 2023	March 23, 2023 - March 22, 2026		83,470

(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	6th	7th	8th	9th
Expected volatility	23.23%	23.23%	23.23%	22.50%	25.30%	25.60%	26.20%	26.20%	26.20%
Estimated fair value of share options	₩ 10,026	9,613	9,296	16,687	18,362	16,505	17,744	16,888	16,093
Dividend yield ratio	1.20%	1.20%	1.20%	0.78%	1.23%	2.04%	1.98%	1.98%	1.98%
Risk free rate	1.86%	1.95%	2.07%	2.38%	2.46%	1.89%	1.82%	1.88%	1.91%

(3) The compensation expense for the year ended December 31, 2019 was ₩1,738 million (2018: ₩1,163 million).

Independent Auditors' Report

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) surement 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.

/s/ KPMG Samjong Accounting Corp.

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.

(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.

(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)

			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 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]	₩	1,154,324	978,910	2,688,749	94,536	4,916,519
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		1,858,641	1,096	13,747	-	1,873,484
Financial guarantee contract		4	-	-	-	4
	₩	7,802,055	990,779	2,734,356	118,905	11,646,095

(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)

		2018				
	Carrying amounts		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 Guarnatee	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

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