



TSMC Global Ltd.

US\$1,100,000,000 1.250% Notes due 2026

US\$900,000,000 1.750% Notes due 2028

US\$1,500,000,000 2.250% Notes due 2031

Unconditionally and Irrevocably Guaranteed by
Taiwan Semiconductor Manufacturing Company Limited

TSMC Global Ltd., the Issuer, is offering US\$1,100,000,000 in aggregate principal amount of its 1.250% notes due 2026, which we refer to as the 2026 Notes, US\$900,000,000 in aggregate principal amount of its 1.750% notes due 2028, which we refer to as the 2028 Notes, and US\$1,500,000,000 in aggregate principal amount of its 2.250% notes due 2031, which we refer to as the 2031 Notes and, together with the 2026 Notes and the 2028 Notes, the Notes. Interest on the Notes will accrue from April 23, 2021 and be payable semi-annually in arrears on April 23 and October 23 of each year, beginning on October 23, 2021 until redemption or maturity. The 2026 Notes will mature on April 23, 2026, the 2028 Notes will mature on April 23, 2028, and the 2031 Notes will mature on April 23, 2031.

The Issuer may, at its option, redeem the Notes, of either series, at any time, in whole or in part, at the redemption prices set forth under “Description of the Notes and the Guarantees—Optional Redemption”. The Issuer may also redeem the Notes, of either series, in whole but not in part, upon the occurrence of certain events related to tax law.

The Notes will be issued only in registered form in denominations of US\$200,000 and integral multiples of US\$1,000 in excess thereof.

The Notes will constitute senior unsecured obligations of the Issuer and will rank at least equally with all other present and future senior unsecured obligations of the Issuer, except as may be required by mandatory provisions of law.

Taiwan Semiconductor Manufacturing Company Limited, or the Guarantor, will fully, unconditionally and irrevocably guarantee the full and prompt payment of all amounts payable by the Issuer in respect of each series of the Notes pursuant to the guarantees, which we refer to as the Guarantees. The Guarantees include, without limitation, guarantees of the redemption amount owing in the event the Issuer exercises its redemption rights. The Guarantees will constitute senior unsecured obligations of the Guarantor and will rank at least equally with all other present and future senior unsecured obligations of the Guarantor, except as may be required by mandatory provisions of law. See “Description of the Notes and the Guarantees”.

Approval in-principle has been received for the listing and quotation of the Notes on the Singapore Exchange Securities Trading Limited (the “SGX-ST”). The SGX-ST assumes no responsibility for the correctness of any statements made, opinions expressed or reports contained in this offering circular. Approval in-principle for the listing and quotation of the Notes and admission of the Notes to the Official List of the SGX-ST are not to be taken as an indication of the merits of this offering, the Issuer, the Guarantor, the Group (as defined herein) or any of their respective associated companies or the Notes. Prior to this offering, there has been no market anywhere for the Notes.

The Notes are expected to be rated “Aa3” by Moody’s Investors Service and “AA-” by Standard & Poor’s Rating Services, a division of the McGraw-Hill Companies, Inc. Such ratings do not constitute a recommendation to buy, sell or hold the Notes and may be subject to revision or withdrawal at any time by such rating organizations.

Investing in the Notes involves risks. See “Risk Factors” beginning on page 12 of this offering circular.

Issue Price for the 2026 Notes: 99.759%

Issue Price for the 2028 Notes: 99.751%

Issue Price for the 2031 Notes: 99.831%

plus accrued interest, if any, from April 23, 2021

The Notes are expected to be delivered in book-entry form only through the facilities of The Depository Trust Company for the accounts of its participants, including Euroclear Bank NV/SA and Clearstream Banking S.A. on or about April 23, 2021.

The Notes and the Guarantees have not been and will not be registered under the U.S. Securities Act of 1933, as amended (the “Securities Act”), the securities laws of any state of the United States or the securities laws of any other jurisdiction. The Issuer has not been and will not be registered as an “investment company” under the U.S. Investment Company Act of 1940, as amended (the “Investment Company Act”), in reliance on the exception provided by Section 3(c)(7) thereof. Accordingly, the Notes may be offered and sold only (1) in the United States and to U.S. persons (as defined in Regulation S under the Securities Act), each of whom is reasonably believed to be both (A) a qualified institutional buyer (“Qualified Institutional Buyer”) (as defined in Rule 144A under the Securities Act) and (B) a qualified purchaser (“Qualified Purchaser”) (as defined in Section 2(a)(51) of the Investment Company Act and related rules), purchasing for its own account (or the account of one or more Qualified Institutional Buyers, each of whom is also a Qualified Purchaser over which account it exercises sole investment discretion), in reliance on the exemption from the registration requirements of the Securities Act provided by Rule 144A thereof; or (2) to persons that are not in the United States and are not acting for the account or benefit of U.S. persons, in offshore transactions in accordance with Regulation S under the Securities Act, and in each case, in accordance with any other applicable laws, regulations and directives. Prospective purchasers are hereby notified that the seller of the Notes may be relying on the exemption from the provisions of Section 5 of the Securities Act provided by Rule 144A thereunder. The Issuer will likely be a “covered fund” as defined in Section 13 of the Bank Holding Company Act of 1956, as amended (together with the rules, regulations and published guidance thereunder, as amended (the “Volcker Rule”). The Notes and the Guarantees may constitute an “ownership interest” within the meaning of the Volcker Rule. See “Risk Factors—Risks Relating to the Notes and Guarantees”.

Each purchaser of the Notes will be deemed, by its acceptance of such Notes, to have made certain representations and agreements intended to restrict transfers of the Notes as described under “Transfer Restrictions”. No holder or beneficial owner of the Notes may transfer the Notes except to a transferee who can make the same deemed representations and agreements as set forth in the “Transfer Restrictions” on behalf of itself and each account for which it is purchasing. Any transfer in breach of the transfer restrictions set forth in “Transfer Restrictions” will be null and void *ab initio*, and will not operate to transfer any rights to the transferee. **The Notes are not transferable except in accordance with the restrictions described under “Plan of Distribution—Selling Restrictions” and “Transfer Restrictions”.**

Sole Global Coordinator and Joint Bookrunner

Goldman Sachs International

Other Joint Bookrunners

J.P. Morgan

Morgan Stanley

Citigroup

This offering circular is dated April 20, 2021.

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NOTICE TO INVESTORS

You should rely only on the information contained in this offering circular. Neither the Issuer, the Guarantor nor the Initial Purchasers (as defined in “Plan of Distribution”) have authorized anyone to provide you with information that is different than or make any representation other than as contained in this offering circular in connection with the offering of the Notes. If anyone provides you with different or inconsistent information, you should not rely on it.

You should assume the information in this offering circular is accurate only as of the date of this offering circular. The business, financial condition, results of operations and prospects of the Issuer or the Guarantor may have changed since that date. Neither the delivery of this offering circular nor any sale of the Notes made in connection with this offering circular will, under any circumstances, constitute a representation or create any implication that the information in this offering circular is correct as of any date subsequent to the date of this offering circular or that there have been no changes in the affairs of the Issuer or the Guarantor since the date of this offering circular. Statements contained in this offering circular as to the contents of any contract or other documents referred to in this offering circular may not set forth all of the terms and conditions of such contracts or other documents.

In making an investment decision, prospective investors must rely on their own examination of the Issuer and the Guarantor and the terms of the Notes, including the merits and risks involved. Neither the Issuer, the Guarantor nor the Initial Purchasers are 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. This offering circular should not be considered as a recommendation or constituting an invitation or offer by the Issuer or the Guarantor that any recipient of this offering circular should purchase the Notes. You should not construe the contents of this offering circular as legal, business, accounting or tax advice. You should consult your own attorney, business advisor and tax advisor for legal, business and tax advice regarding an investment in the Notes.

The Issuer and the Guarantor have furnished the information contained in this offering circular. No representation, undertaking or warranty, express or implied, is made by the Initial Purchasers or the Trustee or any of their respective affiliates or advisers 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 the Trustee or any of their respective affiliates or advisers. Neither the Initial Purchasers nor the Trustee assumes any responsibility for the accuracy or completeness of any of the information contained in this offering circular or any other information (financial, legal or otherwise) provided by the Issuer or the Guarantor in connection with the issue of the Notes or their distribution. Each person receiving this offering circular acknowledges that such person has not relied on the Initial Purchasers or the Trustee or any of their respective affiliates or advisers in connection with such person’s investigation of the accuracy of such information or such person’s investment decisions.

This offering circular may only be used where it is legal to sell the Notes. None of the Issuer, the Guarantor or the Initial Purchasers are making an offer to sell the Notes in any jurisdiction where the offer or sale is not permitted. This offering circular may not be used for, or in connection with, any offer to, or solicitation by, anyone in any jurisdiction in which it is unlawful to make such an offer 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 must inform themselves about and observe these relevant restrictions. No action is being taken in any jurisdiction to permit an offering to the general public of the Notes or the distribution of this offering circular in any jurisdiction where action would be required for those purposes.

This offering circular is confidential. This offering circular has been prepared by the Issuer and the Guarantor solely for use in connection with the proposed offering of the Notes described in this offering circular. This offering circular is personal to each prospective investor and does not constitute an offer to any other person or to the public generally to subscribe for, or otherwise acquire, the Notes. Distribution of this offering circular to any person other than the prospective investor and any person retained to advise such prospective investor with respect to its purchase is unauthorized and any disclosure of any of its contents, without the prior written consent of the Issuer and the Guarantor, is prohibited. Each prospective investor, by accepting delivery of this offering circular, agrees to the foregoing.

IN CONNECTION WITH THIS OFFERING, GOLDMAN SACHS INTERNATIONAL (THE “STABILIZATION MANAGER”) (OR PERSONS ACTING ON ITS BEHALF) 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 ITS BEHALF) WILL UNDERTAKE STABILIZATION ACTION. ANY STABILIZATION ACTION MAY BEGIN ON OR AFTER THE DATE ON WHICH ADEQUATE PUBLIC DISCLOSURE OF THE FINAL TERMS OF THE OFFER OF THE NOTES IS MADE AND, IF BEGUN, MAY BE ENDED AT ANY TIME, BUT MUST END NO LATER THAN THE EARLIER OF 30 CALENDAR DAYS AFTER THE ISSUE DATE OF THE NOTES AND 60 CALENDAR DAYS AFTER THE DATE OF ALLOTMENT OF THE NOTES.

PROHIBITION OF SALES TO EEA RETAIL INVESTORS: The Notes are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the European Economic Area (“EEA”). For these purposes, a retail investor means a person who is one (or more) of: (i) a retail client as defined in point (11) of Article 4(1) of Directive 2014/65/EU (as amended, “MiFID II”); or (ii) a customer within the meaning of Directive (EU) 2016/97 (as amended, the “Insurance Distribution Directive”), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II. Consequently no key information document required by Regulation (EU) No 1286/2014 (as amended, the “PRIIPs Regulation”) for offering or selling the Notes or otherwise making them available to retail investors in the EEA has been prepared and therefore offering or selling the Notes or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation.

PROHIBITION OF SALES TO UK RETAIL INVESTORS: The Notes are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the United Kingdom (“UK”). For these purposes, a retail investor means a person who is one (or more) of: (i) a retail client, as defined in point (8) of Article 2 of Regulation (EU) No 2017/565 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018 (the “EUWA”); or (ii) a customer within the meaning of the provisions of the Financial Services and Markets Act 2000 (as amended, the “FSMA”) and any rules or regulations made under the FSMA to implement Directive (EU) 2016/97, where that customer would not qualify as a professional client, as defined in point (8) of Article 2(1) of Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the EUWA. Consequently, no key information document required by Regulation (EU) No 1286/2014 as it forms part of domestic law by virtue of the EUWA (the “UK PRIIPs Regulation”) for offering or selling the Notes or otherwise making them available to retail investors in the UK has been prepared and, therefore, offering or selling the Notes or otherwise making them available to any retail investor in the UK may be unlawful under the UK PRIIPs Regulation.

Singapore SFA Product Classification: In connection with Section 309B of the Securities and Futures Act (Chapter 289) of Singapore, as modified or amended from time to time (the “SFA”), and the Securities and Futures (Capital Markets Products) Regulations 2018 of Singapore (the “CMP Regulations 2018”), the Issuer has determined, and hereby notifies all persons (including relevant persons (as defined in Section 309A(1) of the SFA)), that the Notes are “prescribed capital markets products” (as defined in the CMP Regulations 2018) 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).

The Issuer has not been and will not be registered as an “investment company” under the Investment Company Act, in reliance on the exception set forth in Section 3(c)(7) of the Investment Company Act, which excludes from the definition of an investment company any issuer whose outstanding securities are held only by persons in the United States or that are U.S. persons, each of whom is a Qualified Purchaser (as defined in Section 2(a)(51) of the Investment Company Act and related rules). Each purchaser and transferee of the Notes in making its purchase or in accepting transfer will be deemed to have made certain representations, warranties and agreements as set forth under “Transfer Restrictions” in this offering circular. In addition, each purchaser and transferee of the Notes will agree that, other than in compliance with the purchase and transfer restrictions described under “Transfer Restrictions”, it will not offer, sell, pledge or otherwise transfer the Notes. Any transfer in breach of the transfer restriction set forth in “Transfer Restrictions” will be null and void *ab initio*, and will not operate to transfer any rights to any transferee. As a prospective purchaser, you should be

aware that you may be required to bear the financial risks of this investment for an indefinite period of time. See “Plan of Distribution” and “Transfer Restrictions”.

CERTAIN VOLCKER RULE CONSIDERATIONS: The Issuer has not been and will not be registered as an “investment company” under the Investment Company Act, in reliance on the exception provided by Section 3(c)(7) thereof. Consequently, the Issuer will likely be a “covered fund” for purposes of the “Volcker Rule”. See “Risk Factors—Risks Relating to the Notes and Guarantees” and “Transfer Restrictions”.

In connection with this offering, the Initial Purchasers and their respective affiliates may effect transactions with a view to supporting the market price of the Notes at a higher level than that which might otherwise prevail. However, there is no obligation on the Initial Purchasers to effect such stabilizing transactions, and such stabilizing, if commenced, may be discontinued at any time. For a description of these activities, see “Plan of Distribution”.

NOTICE TO PROSPECTIVE INVESTORS IN THE UNITED STATES

The Notes and the Guarantees have not been and will not be registered under the Securities Act, the securities laws of any state of the United States or the securities laws of any other jurisdiction. The Issuer has not been and will not be registered as an “investment company” under the Investment Company Act, in reliance on the exception set forth in Section 3(c)(7) thereof. Accordingly, the Notes can only be offered and sold (i) within the United States and to U.S. persons, each of whom the seller reasonably believes to be both a Qualified Institutional Buyer and a Qualified Purchaser, purchasing for its own account (or for the account of one or more Qualified Institutional Buyers, each of whom is also a Qualified Purchaser over which account it exercises sole investment discretion), in reliance on the exemption from the registration requirements of the Securities Act provided by Rule 144A thereof, or (ii) to persons that are not in the United States and are not acting for the account or benefit of U.S. persons, in offshore transactions in accordance with Regulation S under the Securities Act. Each Initial Purchaser has acknowledged and agreed that, except as permitted by the preceding sentence, it will not offer or sell the Notes (i) as part of its distribution at any time within the United States or to, or for the account or benefit of, U.S. persons or (ii) otherwise until 40 days after the later of the commencement of this offering and the closing of this offering, within the United States or to, or for the account or benefit of, U.S. persons. Each Initial Purchaser has also agreed that it will send to each dealer to which it sells the Notes during the distribution compliance period a confirmation or other notice setting forth the restrictions on offers and sales of the Notes within the United States or to, or for the account or benefit of, U.S. persons. Terms used in this paragraph but not otherwise defined have the meanings given to them by Regulation S.

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

To the extent any Initial Purchaser makes any offers or sales of the Notes in the United States, or to nationals or residents of the United States, it will do so only through one or more registered broker-dealers in compliance with applicable securities laws and regulations, as well as with applicable laws of various states.

Each purchaser of the Notes will be deemed to have made acknowledgments, representations and agreements as described under “Transfer Restrictions”.

NOTICE TO PROSPECTIVE INVESTORS IN THE UNITED KINGDOM

This offering circular is directed solely at persons who are “qualified investors” within the meaning of Article 2 of Regulation (EU) 2017/1129 as it forms part of domestic law by virtue of the EUWA, who are also (i) investment professionals, as such term is defined in Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended, the “Financial Promotion Order”), (ii) persons falling within Article 49(2)(a) to (d) (“high net worth companies, unincorporated associations, etc.”) of the Financial Promotion Order, or (iii) outside the United Kingdom (all such

persons together being referred to as “relevant persons”). This offering circular must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this offering circular relates is available only to relevant persons and will be engaged in only with relevant persons. Any person who is not a relevant person should not act or rely on this offering circular or any of its contents.

NOTICE TO PROSPECTIVE INVESTORS IN THE EEA

This offering circular has been prepared on the basis that any offer of the Notes in any Member State of the EEA (each, a “Relevant State”) will be made pursuant to an exemption under Regulation EU 2017/1129 (as amended, the “Prospectus Regulation”) from the requirement to publish a prospectus for offers of the Notes. This offering circular is not a prospectus for the purposes of the Prospectus Regulation.

ENFORCEABILITY OF CIVIL LIABILITIES

The Guarantor is a corporation with limited liability organized under the laws of the R.O.C. Most of the Guarantor’s directors and officers and certain other persons named in this offering circular reside in the R.O.C., and a significant portion of the assets of the directors and officers and certain other persons named in this offering circular and a significant portion of the assets of the Guarantor are located in the R.O.C. 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 Guarantor in U.S. courts judgments predicated upon the civil liability provisions of U.S. federal securities laws or the securities laws of any state within the United States (“blue sky” laws). There is doubt as to the enforceability in the R.O.C., 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. Any final judgment obtained against the Guarantor in any court other than the courts of the R.O.C. in respect of any legal suit or proceeding arising out of or relating to the Notes or the Guarantees will be enforced by the courts of the R.O.C. without further review of the merits only if the courts of the R.O.C. where enforcement is sought is satisfied that:

- the court rendering the judgment had jurisdiction over the subject matter according to the laws of the R.O.C.;
- the judgment and the court proceedings resulting in such judgment were not contrary to the public order or good morals of the R.O.C.;
- if the judgment was a default judgment rendered against the Guarantor or such persons, (i) the Guarantor or such persons were duly served within a reasonable period of time within the jurisdiction of such court in accordance with the laws and regulations of such jurisdiction, or (ii) process was served on the Guarantor or such persons with judicial assistance of the R.O.C.; and
- judgments of the courts of the R.O.C. are recognized in the jurisdiction of the court rendering the judgment on a reciprocal basis.

A party seeking to enforce a foreign judgment in the R.O.C. would, except under limited circumstances, be required to obtain a foreign exchange approval from the Central Bank of the Republic of China (Taiwan) (“CBC”), for the remittance out of the R.O.C. of any amounts recovered in respect of such judgment denominated in a currency other than the NT dollar.

The Issuer has been advised by Harney Westwood & Riegels, its B.V.I. legal advisors, that the courts of the B.V.I. would recognize as a valid judgment, a final and conclusive judgment *in personam* obtained in U.S. courts against the Issuer under which a sum of money is payable (other than a sum of money payable in respect of multiple damages, taxes or other charges of a like nature or in respect of a fine or other penalty) and would give a judgment based thereon provided that (a) such courts had proper jurisdiction over the parties subject to such judgment, (b) such courts did not contravene the rules of natural justice of the B.V.I., (c) such judgment was not obtained by fraud, (d) the enforcement of the judgment would not be contrary to the public policy of the B.V.I., (e) no new admissible evidence relevant to the action is submitted prior to the rendering of the judgment by the courts of the B.V.I., and (f) there is due compliance with the correct procedures under the laws of the B.V.I.

AVAILABLE INFORMATION

To permit compliance with Rule 144A under the Securities Act in connection with sales of the Notes and the Guarantees, the Guarantor will be required under the terms of the Notes and the Indenture (as defined in this offering circular) to furnish, upon the request of any holder of a beneficial interest in a Note, such information as is specified in paragraph (d)(4) of Rule 144A, to such holder or beneficial owner or to a prospective purchaser of the Notes designated by such holder or beneficial owner who is also a Qualified Institutional Buyer within the meaning of Rule 144A, to the extent required to permit compliance by such holder or beneficial owner with Rule 144A in connection with the resale of the Notes or beneficial interest therein in reliance on Rule 144A unless, at the time of such request, the Guarantor is subject to the reporting requirements of Section 13 or 15(d) of the U.S. Securities Exchange Act of 1934, as amended (the “Exchange Act”), or is exempt from the registration requirements of Section 12(g) of the Exchange Act pursuant to Rule 12g3-2(b) under the Exchange Act. As of the date of this offering circular, the Guarantor is subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act. In accordance with the Notes and the Indenture, the Trustee (as defined in this offering circular) will also make available for inspection by holders of the Notes or, in certain cases, arrange for the mailing to such holders, certain documents or communications received from the Issuer or the Guarantor, as the case may be. See “Description of the Notes and the Guarantees”.

CERTAIN DEFINED TERMS AND CONVENTIONS

All references to the “Issuer” and “TSMC Global” in this offering circular are to TSMC Global Ltd. All references to “we”, “us”, “our”, “Company”, “Group” or “TSMC” in this offering circular are to Taiwan Semiconductor Manufacturing Company Limited and its consolidated subsidiaries, unless the context otherwise requires. All references to the “Guarantor” in this offering circular are to Taiwan Semiconductor Manufacturing Company Limited, unless the context otherwise requires.

All references to “R.O.C.” and “Taiwan” are references to the Republic of China, and all references to the “Government” refer to the government of the R.O.C., unless the context otherwise requires. All references to “U.S.” are references to the United States of America. All references to “B.V.I.” are references to the British Virgin Islands. All references to “China” and “P.R.C.” are references to the People’s Republic of China.

All references to “2026 Notes” in this offering circular are to the US\$1,100,000,000 in aggregate principal amount of the Issuer’s 1.250% notes due 2026. All references to “2028 Notes” in this offering circular are to the US\$900,000,000 in aggregate principal amount of the Issuer’s 1.750% notes due 2028. All references to “2031 Notes” in this offering circular are to the US\$1,500,000,000 in aggregate principal amount of the Issuer’s 2.250% notes due 2031. All references to “Notes” in this offering circular are references to “2026 Notes”, “2028 Notes” and “2031 Notes”, collectively.

All references to the “Guarantees” in this offering circular are to the Guarantor’s full, unconditional and irrevocable guarantee of all amounts payable by the Issuer in respect of each series of Notes. All references to the “Guaranteed Amounts” in this offering circular are to Guarantor’s obligation to pay all amounts payable by the Issuer in respect of the Notes pursuant to the Guarantees.

All references to the “Securities Act” in this offering circular are to the U.S. Securities Act of 1933, as amended. All references to the “Investment Company Act” in this offering circular are to the U.S. Investment Company Act of 1940, as amended.

All references to “Moody’s” in this offering circular are to Moody’s Investors Services. All references to “S&P” are to Standard & Poor’s Rating Services, a division of the McGraw-Hill Companies, Inc.

All references to “NT”, “NT\$” and “NT dollar” in this offering circular are to the lawful currency of the R.O.C., and all references to “U.S. dollar” or “US\$” are to the lawful currency of the United States of America. This offering circular contains translations of certain NT dollar amounts into U.S. dollars at specified rates solely for the convenience of the reader. Translations for financial data derived from our audited consolidated financial statements as of and for the year ended December 31, 2020 were made at the rate of NT\$28.08 to US\$1.00, the exchange rate set forth in the statistical release of the Federal Reserve Board on December 31, 2020. On April 16, 2021, the exchange rate was NT\$28.34 to US\$1.00.

PRESENTATION OF FINANCIAL AND OTHER INFORMATION

The selected consolidated statements of profit or loss and other comprehensive income data and other consolidated financial data for the years ended December 31, 2018, 2019 and 2020, and the selected consolidated statements of financial position data as of December 31, 2019 and 2020, set forth in this offering circular, are derived from our audited consolidated financial statements included herein, and should be read in conjunction with, and are qualified in their entirety by reference to, these consolidated financial statements, including the notes thereto, which have been prepared in accordance with International Financial Reporting Standards (IFRS), International Accounting Standards (IAS), IFRIC Interpretations (IFRIC) and SIC Interpretations (SIC) issued by the International Accounting Standards Board (IASB) (collectively, "IFRSs"). The selected consolidated statements of profit or loss and other comprehensive income data and other consolidated financial data for the years ended December 31, 2016 and 2017 and the selected consolidated statements of financial position data as of December 31, 2016, 2017 and 2018 set forth in this offering circular are derived from our audited consolidated financial statements not included herein, which have been prepared in accordance with IFRSs.

All financial information, operational data, descriptions and other information in this offering circular regarding activities, business operations, market shares, financial condition and results of operations of the Company are, unless otherwise indicated or required by context, presented on a consolidated basis.

Any discrepancies in the tables between the sums of the amounts listed and the totals in this offering circular are due to rounding.

SUMMARY

The following summary highlights information contained elsewhere in this offering circular and is qualified in its entirety by the more detailed information and the financial statements appearing elsewhere in this offering circular. This summary does not contain all of the information that you should consider before investing in the Notes. You should read the entire offering circular carefully, including "Risk Factors" and the financial statements contained in this offering circular.

The Company

We believe we are currently the world's largest dedicated foundry in the semiconductor industry. We were founded in 1987 as a joint venture among the R.O.C. government and other private investors and were incorporated in the R.O.C. as a company limited by shares on February 21, 1987. Our common shares have been listed on the Taiwan Stock Exchange since September 5, 1994, and our American Depository Shares ("ADS") have been listed on the New York Stock Exchange since October 8, 1997.

As a foundry, we manufacture semiconductors using our manufacturing processes for our customers based on proprietary integrated circuit designs provided by them. We offer a comprehensive range of wafer fabrication processes, including processes to manufacture complementary metal oxide silicon ("CMOS") logic, mixed-signal, radio frequency ("RF"), embedded memory, bipolar complementary metal oxide silicon ("BiCMOS", which uses CMOS transistors in conjunction with bipolar junction transistor) mixed-signal and other semiconductors. We produced 24 percent of the world semiconductor excluding memory output value in 2020, as compared to 21 percent in the previous year. We also offer design, mask making, TSMC 3DFabric™ advanced 3D chip stacking and packaging, and testing services.

We count among our customers many of the world's leading semiconductor companies, ranging from fabless semiconductor companies, system companies to integrated device manufacturers, including, but not limited to, Advanced Micro Devices, Inc., Broadcom Limited, Intel Corporation, MediaTek Inc., NVIDIA Corporation, NXP Semiconductors N.V., OmniVision Technology Inc., Qualcomm Inc., STMicroelectronics N.V., and Xilinx Inc.

We currently operate one 150mm wafer fab, six 200mm wafer fabs, five 300mm wafer fabs, and four advanced backend fabs. Our corporate headquarters and seven of our fabs are located in the Hsinchu Science Park, two fabs are located in the Central Taiwan Science Park, four fabs are located in the Southern Taiwan Science Park, one fab is located in the United States, one fab is located in Shanghai, and one fab is located in Nanjing. We manufacture semiconductors on silicon wafers based on proprietary circuitry designs provided by our customers. Two key factors that characterize a foundry's manufacturing capabilities are output capacity and fabrication process technologies. Since our establishment, we have possessed the largest capacity among the world's dedicated foundries. We also believe that we are the technology leader among the dedicated foundries in terms of our net revenue of advanced semiconductors with a resolution of 16-nanometer and below, and are one of the leaders in the semiconductor manufacturing industry generally. In 2020, our 7-nanometer technology, in its third year of volume production, shipped over one billion good dies for our customers. Our 7-nanometer Plus technology also entered its second year of volume production using Extreme Ultraviolet (EUV) lithography technology, while our 6-nanometer technology, which provides a clear migration path for next wave 7-nanometer products, entered volume production in 2020 as well. In addition, our 5-nanometer technology successfully entered volume production in 2020. We are continuing to progress the development of 3-nanometer technology.

For the year of 2019 and 2020, our production capacity (in 12-inch equivalent wafers) was approximately 12.3 million and 13.0 million wafers, respectively.

Our capital expenditures in 2018, 2019 and 2020 were NT\$315,582 million, NT\$460,422 million and NT\$507,239 million (US\$17,235 million, translated from a weighted average exchange rate of NT\$29.43 to US\$1.00), respectively. Our capital expenditures in 2021 are expected to be approximately US\$30 billion, which, depending on market conditions, may be adjusted later.

Our principal executive office is located at No. 8, Li-Hsin Road 6, Hsinchu Science Park, Hsinchu, Taiwan, Republic of China. Our telephone number at that office is (886-3) 563-6688. Our website is www.tsmc.com. Information contained on our website is not incorporated herein by reference and does not constitute part of this offering circular. The U.S. Securities and Exchange Commission (the "SEC") maintains a website at www.sec.gov that contains reports, proxy and information statements, and other information regarding issuers, including the Guarantor, that file electronically with the SEC.

The Issuer

TSMC Global Ltd., a B.V.I. business company with limited liability, or the Issuer, is a wholly-owned subsidiary of TSMC, established primarily as an investment holding vehicle. The Issuer had total assets of US\$17,005 million and total equity of US\$13,604 million as of December 31, 2020, which consisted primarily of cash and cash equivalents and financial assets at fair value through other comprehensive income, mainly including corporate bonds and agency bonds/agency mortgage-backed securities.

THE OFFERING

The following is only a summary description of the Notes, which are more fully described in “Description of the Notes and the Guarantees”. The “Description of the Notes and the Guarantees” prevails to the extent of any inconsistency with the summary description set out in this section. Terms used and not otherwise defined in this summary have the meaning given to them in “Description of the Notes and the Guarantees”.

Issuer	TSMC Global Ltd.
Guarantor	Taiwan Semiconductor Manufacturing Company Limited
Offering	The US\$1,100,000,000 1.250% notes due 2026 (the “2026 Notes”), US\$900,000,000 1.750% notes due 2028 (the “2028 Notes”) and the US\$1,500,000,000 2.250% notes due 2031 (the “2031 Notes”, together with the 2026 Notes and the 2028 Notes, the “Notes”) may be offered and sold (a) to a person who is both (i) a Qualified Institutional Buyer (as defined in Rule 144A under the Securities Act (“Rule 144A”)) and (ii) a Qualified Purchaser (as defined in Section 2(a)(51) of the Investment Company Act and related rules), in each case, purchasing for its own account or the account of a Qualified Institutional Buyer who is also a Qualified Purchaser as to which the purchaser exercises sole investment discretion, in reliance on the exemption from the registration requirements of the Securities Act provided by Rule 144A; or (b) to a non-U.S. person (as defined in the Securities Act) in offshore transactions in reliance on Regulation S, and in each case, in accordance with any other applicable laws, regulations and directives.
Maturity	In the case of the 2026 Notes, April 23, 2026. In the case of the 2028 Notes, April 23, 2028. In the case of the 2031 Notes, April 23, 2031.
Ranking	The Notes will constitute senior unsecured obligations of the Issuer and will (a) at all times rank <i>pari passu</i> and without any preference or priority among themselves; (b) rank at least equally with all other present and future senior unsecured obligations of the Issuer, except as may be required by mandatory provisions of law, (c) be senior in right of payment to all future subordinated obligations of the Issuer and (d) be effectively subordinated to secured obligations of the Issuer, to the extent of the assets serving as security therefor.
Guarantees	The Guarantor will fully, unconditionally and irrevocably guarantee (the “Guarantees”) to each holder of a 2026 Note, each holder of a 2028

Note and each holder of a 2031 Note the full and prompt payment of the principal of, and premium (if any) and interest on, such Notes (including any Additional Amounts payable in respect thereof) when and as the same shall become due and payable as provided in such Notes. See “Description of the Notes and the Guarantees”.

The Guarantees will constitute senior unsecured obligations of the Guarantor and will (a) rank at least equally with all other present and future senior unsecured obligations of the Guarantor, except as may be required by mandatory provisions of law, (b) be senior in right of payment to all future subordinated unsecured obligations of the Guarantor and (c) be effectively subordinated to secured obligations of the Guarantor, to the extent of the assets serving as security therefor.

Offering Price	99.759% of the principal amount of the 2026 Notes, 99.751% of the principal amount of the 2028 Notes and 99.831% of the principal amount of the 2031 Notes, plus, in each case, accrued interest, if any, from April 23, 2021 (the “Issue Date”).
Size of Offering	The aggregate principal amount of the 2026 Notes to be issued in this offering is US\$1,100,000,000, the aggregate principal amount of the 2028 Notes to be issued in this offering is US\$900,000,000 and the aggregate principal amount of the 2031 Notes to be issued in this offering is US\$1,500,000,000.
Denomination	The Notes will be issued in minimum denominations of US\$200,000 and integral multiples of US\$1,000 in excess thereof.
Interest	The 2026 Notes will bear interest at the rate of 1.250% per annum, the 2028 Notes will bear interest at the rate of 1.750% per annum and the 2031 Notes will bear interest at the rate of 2.250% per annum. Interest on the Notes will be payable semi-annually in arrears on April 23 and October 23 of each year, beginning on October 23, 2021.
Additional Amounts	All payments by the Issuer in respect of the Notes of any series and by the Guarantor in respect of the Guarantees (or, in each case, their paying agents) will be made without withholding or deduction for, or on account of, Taxes imposed or levied by or on behalf of a Relevant Jurisdiction (as defined below) unless such withholding or deduction is required by law or by regulation. In such event, the Issuer or the Guarantor, as applicable, will pay Additional Amounts (subject to certain exceptions) in

respect of Taxes as will result in the payment of amounts otherwise receivable absent any withholding or deduction on account of such Taxes.

Optional Redemption

The Issuer may, at its option, redeem the Notes, of either series, at any time, in whole or in part, prior to the Applicable Par Call Date, at a redemption price equal to the greater of (i) 100% of the aggregate principal amount of the Notes to be redeemed and (ii) the sum, as determined by the Independent Investment Banker (as defined in "Description of the Notes and the Guarantees") based on the Reference Treasury Dealer Quotations (as defined in "Description of the Notes and the Guarantees"), of the present values of the Remaining Scheduled Payments (as defined in "Description of the Notes and the Guarantees"), discounted to the redemption date on a semi-annual basis (assuming a 360-day year consisting of twelve 30-day months) using a discount rate equal to the Treasury Rate (as defined in "Description of the Notes and the Guarantees") plus 10 basis points, in the case of the 2026 Notes, 10 basis points, in the case of the 2028 Notes and 15 basis points, in the case of the 2031 Notes, plus, in the case of each of clause (i) or (ii), accrued and unpaid interest thereon to, but not including, the redemption date for such Notes.

The Issuer may, at its option, redeem the Notes, of either series, at any time, in whole or in part, on or after the Applicable Par Call Date, at a redemption price equal to 100% of the aggregate principal amount of the Notes to be redeemed, plus accrued and unpaid interest thereon to, but not including, the redemption date for such Notes.

"Applicable Par Call Date" means, with respect to the (i) 2026 Notes, March 23, 2026, (ii) 2028 Notes, February 23, 2028, and (iii) 2031 Notes, January 23, 2031.

Tax Redemption

At any time, the Issuer may redeem the Notes, of either series, in whole but not in part, at a redemption price equal to 100% of their principal amount plus accrued but unpaid interest, if any, to, but not including, the date fixed for redemption if the Issuer or the Guarantor, as applicable, has or will become obliged to pay Additional Amounts in respect of any Taxes in respect of any payments under such Notes or the relevant Guarantee. The Issuer will give not less than 10 days' nor more than 60 days' notice to holders of the Notes of the relevant series of any such redemption.

Form of the Notes Each series of the Notes sold in offshore transactions in reliance on Regulation S will be represented by one or more global Notes (the “Regulation S Global Notes”) issued to the Depository Trust Company (“DTC”) and registered in the name of Cede & Co. as nominee of DTC, and held in New York, New York for the accounts of Euroclear Bank SA/NV (“Euroclear”) and Clearstream Banking S.A. (“Clearstream”). Each series of the Notes sold in reliance on Rule 144A will be represented by one or more global Notes (the “Rule 144A Global Notes”) and, together with the Regulation S Global Notes, the “Global Notes”) issued to DTC and registered in the name of a nominee of DTC. Euroclear, Clearstream or DTC, as the case may be, will credit the account of each of its participants with the principal amount of the Notes being purchased by or through such participants. Interests in the Global Notes will be shown on, and transfers thereof will be effected only through, records maintained by DTC and its direct and indirect participants, including Euroclear and Clearstream. Except in the limited circumstances described in this offering circular, certificates in respect of the Notes will not be issued in exchange for interests in the Global Notes.

The Global Notes will each bear a legend, and such Global Notes, or any interest therein, may not be transferred except in compliance with the transfer restrictions set forth in such legend. In addition, no interest in the Rule 144A Global Notes may be transferred to a person that takes delivery thereof through the Regulation S Global Notes unless the transferor provides a transfer agent with a written certification regarding compliance with certain transfer restrictions.

2026 Notes	<table border="0"> <tr> <td style="border-bottom: 1px solid black; padding-bottom: 2px;">Rule 144A</td> <td style="border-bottom: 1px solid black; padding-bottom: 2px;">Regulation S</td> </tr> <tr> <td>CUSIP 872882 AH8</td> <td>CUSIP G91139 AF5</td> </tr> <tr> <td>ISIN US872882AH89</td> <td>ISIN USG91139AF57</td> </tr> </table>	Rule 144A	Regulation S	CUSIP 872882 AH8	CUSIP G91139 AF5	ISIN US872882AH89	ISIN USG91139AF57
Rule 144A	Regulation S						
CUSIP 872882 AH8	CUSIP G91139 AF5						
ISIN US872882AH89	ISIN USG91139AF57						
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Rule 144A	Regulation S						
CUSIP 872882 AJ4	CUSIP G91139 AG3						
ISIN US872882AJ46	ISIN USG91139AG31						
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Rule 144A	Regulation S						
CUSIP 872882 AK1	CUSIP G91139 AH1						
ISIN US872882AK19	ISIN USG91139AH14						

Trustee Citicorp International Limited will act as the trustee (the “Trustee”) under the indenture governing the Notes, dated as of April 3, 2013,

as amended and supplemented by a supplemental indenture dated as of September 28, 2020 (the "Indenture").

Paying Agent, Transfer Agent and Registrar Citibank, N.A., London Branch.

Governing Law The Notes, the Guarantees and the Indenture will be governed by New York law.

Listings/Applications Approval in-principle has been received 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 will be traded on the SGX-ST in a minimum board lot size of US\$200,000.

Use of Proceeds The Guarantor and the Issuer intend to use the net proceeds from this offering for general corporate purposes.

SUMMARY FINANCIAL INFORMATION AND OTHER DATA

The Company

The summary consolidated statements of profit or loss and other comprehensive income data and other consolidated financial data for the years ended December 31, 2018, 2019 and 2020, and the summary consolidated statements of financial position data as of December 31, 2019 and 2020, set forth below, are derived from our audited consolidated financial statements included herein, and should be read in conjunction with, and are qualified in their entirety by reference to, these consolidated financial statements, including the notes thereto, which have been prepared in accordance with IFRSs. The summary consolidated statements of financial position data as of December 31, 2018 set forth in this offering circular are derived from our audited consolidated financial statements not included herein, which have been prepared in accordance with IFRSs.

	Year ended December 31,			
	2018	2019	2020	
	NT\$	NT\$	NT\$	US\$
	(in millions, except for earnings per share and per ADS)			
Consolidated Statements of Profit or Loss and Other Comprehensive Income Data:				
Net revenue	1,031,474	1,069,985	1,339,255	47,694
Cost of revenue	(533,488)	(577,286)	(628,109)	(22,368)
Gross profit before realized (unrealized) gross profit on sales to associates	497,986	492,699	711,146	25,326
Realized (unrealized) gross profit on sales to associates	(112)	3	(16)	(1)
Gross profit	497,874	492,702	711,130	25,325
Operating expenses	(112,149)	(119,505)	(145,056)	(5,165)
Other operating income and expenses, net	(2,101)	(496)	710	25
Income from operations	383,624	372,701	566,784	20,185
Non-operating income and expenses, net	13,919	17,161	17,962	639
Income before income tax	397,543	389,862	584,746	20,824
Income tax expense	(34,437)	(35,835)	(73,738)	(2,626)
Net income	363,106	354,027	511,008	18,198
Other comprehensive income (loss) for the year, net of income tax	9,837	(11,824)	(30,322)	(1,080)
Total comprehensive income for the year	372,943	342,203	480,686	17,118
Net income attributable to shareholders of the parent	363,053	353,948	510,744	18,189
Net income (loss) attributable to non-controlling interests	53	79	264	9
Total comprehensive income attributable to shareholders of the parent	372,887	342,125	480,422	17,109
Total comprehensive income (loss) attributable to non-controlling interests	56	78	264	9
Basic/Diluted earnings per share	14.00	13.65	19.70	0.70
Basic/Diluted earnings per ADS equivalent	70.01	68.25	98.48	3.51
Basic/Diluted weighted average shares outstanding	25,930	25,930	25,930	25,930

	As of December 31,			
	2018	2019	2020	
	NT\$	NT\$	NT\$	US\$
	(in millions, except for cash dividend per common share)			
Consolidated Statements of Financial Position Data:				
Current assets	951,680	822,614	1,092,185	38,896
Property, plant and equipment	1,072,050	1,352,377	1,555,589	55,398
Right-of-use assets ⁽¹⁾	—	17,233	27,729	988

	As of December 31,			
	2018	2019	2020	
	NT\$	NT\$	NT\$	US\$
	(in millions, except for cash dividend per common share)			
Intangible assets	17,002	20,653	25,768	918
Deferred income tax assets	16,806	17,928	25,958	924
Total assets	2,090,031	2,264,725	2,760,601	98,312
Current liabilities	356,837	598,364	631,899	22,504
Guarantee deposits	3,353	177	265	10
Long-term bonds payable	56,900	25,100	254,105	9,049
Total liabilities	428,926	650,338	924,837	32,936
Capital stock	259,304	259,304	259,304	9,234
Equity attributable to shareholders of the parent	1,660,429	1,613,706	1,834,811	65,342
Non-controlling interests	676	681	953	34
Cash dividend paid per common share ⁽²⁾	8.0	10.0	10.0	0.4

	Year ended December 31,			
	2018	2019	2020	
	NT\$	NT\$	NT\$	US\$
	(in millions, except for percentages and operating data)			
Other Consolidated Financial Data:				
Gross margin	48.3%	46.0%	53.1%	53.1%
Operating margin	37.2%	34.8%	42.3%	42.3%
Net margin	35.2%	33.1%	38.2%	38.2%
Capital expenditures	315,582	460,422	507,239	18,064
Depreciation and amortization	292,546	286,884	331,725	11,814
Cash generated by operating activities	573,954	615,139	822,667	29,297
Cash used in investing activities	(314,269)	(458,802)	(505,782)	(18,012)
Cash used in financing activities	(245,124)	(269,639)	(88,615)	(3,156)
Effect of exchange rate changes and others	9,862	(9,114)	(23,498)	(837)
Net increase (decrease) in cash	24,423	(122,416)	204,772	7,292

Operating Data:

Wafer (12-inch equivalent) shipment ⁽³⁾	10,752	10,068	12,398	12,398
Billing utilization rate ⁽⁴⁾	87%	81%	94%	94%

- (1) Starting from 2019, we applied the guidance of IFRS 16 “Leases” (“IFRS 16”) and recognized right-of-use assets for all leases except for low-value asset leases and short-term leases. See note 4 to our 2019 consolidated financial statements for further information regarding the initial application of IFRS 16.
- (2) Prior to 2019, “Cash dividend paid per common share” was approved at our annual shareholders’ meeting. In response to amendments to the Company Act in Taiwan, our shareholders approved amendments to our Articles of Incorporation at the annual shareholders’ meeting held on June 5, 2019, authorizing our Board of Directors to distribute cash dividends on a quarterly basis. “Cash dividend paid per common share” in 2019 included cash dividend of NT\$8.0 for 2018 and cash dividend of NT\$2.0 for the first quarter of 2019. “Cash dividend paid per common share” in 2020 included cash dividend of NT\$7.5 for the second to fourth quarters of 2019 and cash dividend of NT\$2.5 for the first quarter of 2020. Please see “Management’s Discussion And Analysis Of Financial Condition And Results Of Operations—Dividends and Dividend Policy” for a further discussion. The numbers are rounded to one decimal point.
- (3) In thousands.
- (4) “Billing utilization rate” is equal to annual wafer shipment divided by annual capacity. Annual capacity includes wafers committed by Vanguard International Semiconductor Corporation (“VIS”) and Systems on Silicon Manufacturing Company Pte. Ltd. (“SSMC”). Please see “Related Party Transactions”.

The Issuer

The summary balance sheet data of the Issuer set forth below as of December 31, 2020 has been derived from the Issuer's financial statements which have been prepared and presented in accordance with IFRSs.

	As of December 31, 2020
	(in US\$ millions)
Balance Sheet Data	
Working capital ⁽¹⁾	16,344
Long-term investments	237
Total assets	17,005
Total liabilities	3,401
Shareholders' equity	13,604

(1) Working capital equals total current assets minus total current liabilities.

Recent Developments

Unaudited Financial Results for the First Quarter of 2021

On April 15, 2021, we announced our unaudited financial results for the first quarter ended March 31, 2021. The unaudited financial results set forth below for the first quarter ended March 31, 2021 have been prepared and presented in accordance with IFRSs endorsed and issued into effect by the R.O.C. Financial Supervisory Commission (collectively, "Taiwan-IFRSs").

	1Q21	4Q20	1Q20	1Q21 over 4Q20	1Q21 over 1Q20
	(In NT\$ billions unless otherwise noted)				
Selected Items from Statements of Comprehensive Income:					
Net revenue (US\$ billions) ⁽¹⁾	12.92	12.68	10.31	+1.9%	+25.4%
Net revenue	362.41	361.53	310.60	+0.2%	+16.7%
Gross margin	52.4%	54.0%	51.8%	-1.6ppts	+0.6ppt
Operating expenses	(39.11)	(38.32)	(32.33)	+2.1%	+21.0%
Operating margin	41.5%	43.5%	41.4%	-2.0ppts	+0.1ppt
Non-operating items	4.52	3.99	3.63	+13.5%	+24.9%
Net income attributable to shareholders of the parent company	139.69	142.77	116.99	-2.2%	+19.4%
Net profit margin	38.6%	39.5%	37.7%	-0.9ppt	+0.9ppt
Earnings per share (NT dollar)	5.39	5.51	4.51	-2.2%	+19.4%

(1) Translated from a weighted average exchange rate of NT\$28.05, NT\$28.52 and NT\$30.14 to US\$1.00 in 1Q21, 4Q20 and 1Q20, respectively.

	1Q21		4Q20		1Q20	
	Amount	%	Amount	%	Amount	%
	(In NT\$ billions)					
Selected Items from Balance Sheets:						
Cash & Marketable Securities	796.72	27.3%	791.48	28.7%	561.55	24.0%
Accounts Receivable	167.48	5.7%	146.04	5.3%	146.42	6.2%
Inventories	154.57	5.3%	137.35	5.0%	78.28	3.3%
Long-term Investments	29.13	1.0%	27.73	1.0%	31.03	1.3%
Net PP&E	1,658.55	56.8%	1,555.59	56.3%	1,438.22	61.4%
Total Assets	2,919.13	100.0%	2,760.71	100.0%	2,343.30	100.0%
Current Liabilities	661.65	22.7%	617.15	22.4%	589.47	25.1%
Long-term Interest-bearing Debts	279.47	9.6%	256.07	9.3%	46.48	2.0%
Total Liabilities	978.13	33.5%	910.09	33.0%	666.27	28.4%
Total Shareholders' Equity	1,941.00	66.5%	1,850.62	67.0%	1,677.03	71.6%

	1Q21	4Q20	1Q20
	(In NT\$ billions)		
Selected Items from Cash Flow Statements:			
Beginning Balance	660.17	604.20	455.40
Cash from operating activities	227.82	259.13	203.03
Capital expenditures	(248.03)	(88.68)	(192.56)
Cash dividends	(64.83)	(64.83)	(64.83)
Short-term loans	52.07	(67.35)	20.35
Bonds payable	18.50	30.50	2.40
Investments and others	19.03	(12.80)	6.99
Ending balance	664.73	660.17	430.78

Our unaudited financial results for the three months ended March 31, 2021, may not be indicative of our results for the full year or future quarterly periods.

Intention to Build and Operate an Advanced Semiconductor Fab in the U.S.

On May 15, 2020, we announced our intention to build and operate an advanced semiconductor fab in the U.S. with the mutual understanding and commitment of support from the U.S. federal government and the State of Arizona. In November 2020, we established TSMC Arizona, a wholly-owned subsidiary primarily engaged in the manufacture and sale of integrated circuits. TSMC Arizona plans to spend approximately US\$12 billion from 2021 to 2029 to build and operate an advanced semiconductor manufacturing facility in the Phoenix area, creating 1,900 high-tech professional jobs directly.

Under the terms of the development agreement entered into between TSMC Arizona and the City of Phoenix, the City of Phoenix commits approximately US\$205 million toward various public infrastructure projects in the area of the proposed manufacturing facility, conditioned on TSMC Arizona achieving a minimum project scale with defined spending and job-creation thresholds. TSMC Arizona targets to commence commercial production in 2024.

Offering of NT Dollar-Denominated Unsecured Corporate Bonds in the R.O.C.

During March 2021, we offered several NT dollar-denominated unsecured corporate bonds in the R.O.C. to fund our expansion of capacities, details of which are set forth in the table below. For information on corporate bonds payable as of December 31, 2020, please refer to note 19 and note 31 to our 2020 consolidated financial statements included herein.

<u>Offering date</u>	<u>Offering size (NT\$ billion)</u>	<u>Interest rate (%)</u>	<u>Term (years)</u>
March 30, 2021	4.8	0.50	5
	11.4	0.55	7
	4.9	0.60	10

RISK FACTORS

You should carefully consider the risks described below in addition to all other information contained in this offering circular before making an investment decision. The occurrence or realization of the events underlying these risks may have a material and adverse effect on the Company and the trading price of the Notes, and you could lose part or all of your investment.

Risks Relating to Our Business

Any global systemic political, economic and financial crisis (as well as the indirect effects flowing therefrom) could negatively affect our business, results of operations, and financial condition.

In recent times, several major systemic political, economic and financial crises negatively affected global business, banking and financial sectors, including the semiconductor industry and markets. Since 2018, there have been political and trade tensions among a number of the world's major economies. These tensions have resulted in the implementation of tariff, non-tariff trade barriers and sanctions, including the use of export control restrictions and sanctions against certain countries and individual companies. These trade barriers and other measures have been particularly impactful to the semiconductor industry and related markets. Prolonged or increased use of trade barriers and such measures may result in a decrease in the growth of the global economy and the semiconductor industry, and could cause turmoil in global markets that often result in declines in electronic products sales from which we generate our income through our products and services. Also, any increase in the use of export control restrictions and sanctions to target certain countries and entities, any expansion of the extraterritorial jurisdiction of export control laws, or complete or partial ban on semiconductor products sales to certain entities could impact not only our ability to continue supplying products to those customers, but also our customers' demand for our products, and could even lead to changes in semiconductor supply chains. In May 2020 and again in August 2020, the U.S. tightened its export control measures against Huawei Technology Co. Ltd. and its affiliates (collectively, "Huawei"), including an expanded license requirement for providing Huawei with items subject to the U.S. export control jurisdiction. To comply with relevant laws and regulations, we have discontinued shipment of products to Huawei since September 15, 2020. On the other hand, measures adopted by an affected country to counteract the impact of another country's actions or regulations could lead to significant legal liability to multinational corporations, including our own. For example, in January 2021, China adopted a blocking statute that, among other matters, entitles Chinese entities incurring damages from a multinational's compliance with foreign laws to seek civil remedies. As of the date of this offering circular, our current results of operations have not been materially affected by the expanded export control regulations or the novel rules or measures adopted to counteract them. Nevertheless, depending on future developments in the global trade tensions, such regulations, rules, or measures may have an adverse impact on our business and operations, and we may incur significant legal liability and financial losses as a result.

Any future systemic political, economic or financial crisis or market volatility, including but not limited to, interest rate fluctuation, inflation or deflation and changes in economic, fiscal and monetary policies in major economies, could cause revenue or profits for the semiconductor industry as a whole to decline dramatically, and if the economic conditions or financial conditions of our customers were to deteriorate, the demand for our products and services may decrease and additional accounting related allowances may be required, which could reduce our operating income and net income. Further, in times of market instability, sufficient external financing may not be available to us on a timely basis, on commercially reasonable terms to us, or at all. If sufficient external financing is not available when we need such financing to meet our capital requirements, we may be forced to curtail our expansion, modify plans or delay the deployment of new or expanded services until we obtain such financing. In conclusion, any future global systemic crisis, including further escalation of trade tensions as described above could materially and adversely affect our results of operations.

Our global manufacturing, design and sales activities subject us to risks associated with political, economic, financial or other conditions or developments in various jurisdictions, including in particular the R.O.C., as well as in international trade, which could negatively affect our business and financial status and therefore the market value of your investment.

The majority of our principal executive officers and our principal production facilities are located in the R.O.C., and the majority of our net revenue is derived from our operations in the R.O.C. In addition,

we have operations worldwide and a significant percentage of our revenue comes from sales to locations outside the R.O.C. Operating in the R.O.C. and overseas exposes us to changes in laws, rules, regulations and the enforcements of such laws, rules and regulations in certain key areas that would have a material impact on our operations, such as intellectual property, labor, antitrust, export control, import restrictions, and trade barriers or disputes, as well as the general political, economic, financial and social conditions, outbreak of war or hostilities, terrorism, security risks, social unrest, protests, strikes, health conditions and possible disruptions in transportation networks, in the various jurisdictions in which we operate, which could result in an adverse effect on our business operations in such jurisdictions and our results of operations as well as the market price and the liquidity of the Notes. Any major change in economic, fiscal and/or trade policies in the U.S. from which we derive a substantial portion of our revenue or in another major jurisdiction could severely affect our business, financial condition and results of operations. For example, recent political and trade tensions among major economies have resulted in and could escalate trade barriers, including higher tariffs on certain products and other protectionist measures that could reduce overall consumer demand, increase our manufacturing costs and make our pricing less competitive. If and to the extent certain countries adopt further protectionist measures such as import and export controls, our ability to offer our products and services in some markets or source key materials and key production equipment may be limited, which may have adverse effects directly and indirectly on our sales.

Any law or government policy that encourages our customers to relocate their manufacturing capacity or supply chain to their own countries or require their respective contractors, subcontractors and relevant agents to do so could also impair our ability to sustain our current level of productivity and manufacturing efficiency. An important aspect of our business operation is an ecosystem of interconnected semiconductor fabs, employees and suppliers in the R.O.C. that provides us with significant operational synergies, flexibility and efficiencies. For example, we are able to temporarily reassign thousands of our engineers and other relevant personnel from one manufacturing site to another that are in close proximity to each other, to refine specific designs and adapt manufacturing processes in a timely manner. These advantages permit us to operate our manufacturing fabs efficiently and resolve any technical or commercial difficulties quickly to maintain our competitive edge. If these advantages are impaired or lost as a result of government policy or otherwise, we may not be able to sustain our current ability to supply our customers with goods and services at the current level of cost, quality, quantity and delivery schedule to which our customers have been accustomed.

In addition, the financial markets have viewed certain past developments in relations between the R.O.C. and the P.R.C. as occasions to depress general market prices of the securities of R.O.C. companies, including our own. Also, the R.O.C. government has not lifted some trade and investment restrictions imposed on R.O.C. companies on the amount and types of certain investments that can be made in the P.R.C. Our plans, investment applications and/or any relevant regulatory approvals to establish or possibly expand operations in the P.R.C. may be delayed, interrupted, suspended or cancelled due to unforeseeable social and political factors in the R.O.C. or the P.R.C.

Decreases in demand and average selling prices for products that contain semiconductors may adversely affect demand for our products and may result in a decrease in our revenue and earnings.

A vast majority of our revenue is derived from customers who use our products in smartphones, high performance computing, internet of things, automotive electronics, and digital consumer electronics. Any deterioration in or a slowdown in the growth of such end markets resulting in a substantial decrease in the demand for overall global semiconductor foundry services, including our products and services, could adversely affect our revenue. Further, semiconductor manufacturing facilities require substantial investment to construct and are largely fixed cost assets once they are in operation. Because we own most of our manufacturing capacities, a significant portion of our operating costs is fixed. In general, these costs do not decline when customer demand or our capacity utilization rates drop, and thus declines in customer demand, among other factors, may significantly decrease our margins. Conversely, as product demand rises and factory utilization increases, the fixed costs are spread over increased output, which can improve our margins. In addition, the historical and current trend of declining average selling prices (or “ASP”) of end use applications places downward pressure on the prices of the components that go into such applications. If the ASP of end use applications continues decreasing, the pricing pressure on components produced by us may lead to a reduction of our revenue, margin and earnings.

Since we are dependent on the highly cyclical semiconductor and electronics industries, which have experienced significant and sometimes prolonged periods of downturns and overcapacity, our revenue, earnings and margins may fluctuate significantly.

The electronics industries and semiconductor market are cyclical and subject to significant and often rapid fluctuations in product demand, which could impact our semiconductor foundry business. Variations in order levels from our customers may result in volatility in our revenue and earnings. From time to time, the electronics and semiconductor industries have experienced significant and occasionally prolonged periods of downturns and overcapacity. Because we are, and will continue to be, dependent on the requirements of electronics and semiconductor companies for our services, periods of downturns and overcapacity in the general electronics and semiconductor industries could lead to reduced demand for overall semiconductor foundry services, including our services. If we cannot take appropriate actions such as reducing our costs to sufficiently offset declines in demand, our revenue, margin and earnings will likely suffer during periods of downturns and overcapacity.

If we are unable to remain a technological leader in the semiconductor industry, unable to timely respond to fast-changing semiconductor market dynamics, or unable to maintain our edge in product quality, we may become less competitive.

The semiconductor industry and its technologies are constantly changing. We compete by developing process technologies using increasingly advanced nodes and on manufacturing products with more functions. We also compete by developing new derivative technologies. If we do not anticipate these changes in technologies and rapidly develop new and innovative technologies, or our competitors unforeseeably gain sudden access to additional technologies, we may not be able to provide foundry services on competitive terms. In addition, our customers have significantly decreased the time in which their products or services are launched into the market. If we are unable to meet these shorter product time-to-market, we risk losing these customers. These factors have also been intensified by the shift of the global technology market to consumer driven products, such as smartphones, and increasing competition and concentration of customers (all further discussed among these risk factors). Also, the uncertainty and instability inherent in advanced technologies also impose challenges for achieving expected product quality and product yield. If we fail to maintain quality, it may result in loss of revenue and additional cost, as well as loss of business or customer trust. For example, in January 2019, we discovered yield problems in 12-nanometer and 16-nanometer wafers caused by a batch of photoresist, which resulted in delayed delivery of products and had a negative effect on our gross margin and operating margin in the first quarter of 2019. To reduce future risks of such incidences, we have since strengthened inline wafer inspection and tightened control of incoming material to deal with the increasing complexity of leading-edge technologies. If we are unable to innovate new technologies that meet the demand of our customers or overcome the above factors, we may become less competitive and our revenue may decline significantly.

In light of the rise of new foundry service providers worldwide, if we are unable to compete effectively in the highly competitive foundry segment of the semiconductor industry, we may lose customers and our profit margin and earnings may decrease.

The markets for our foundry services are highly competitive. We compete with other foundry service providers, as well as a number of integrated device manufacturers. Some of these companies may have access to more advanced technologies than us. Other companies may have greater financial and other resources than us, such as the possibility of receiving direct or indirect government subsidies, economic stimulus funds, or other incentives that may be unavailable to us. For example, Chinese companies are expected to be key players for new semiconductor fab development and fab equipment spending in part due to various incentives provided by the Chinese government. Furthermore, our competitors may, from time to time, also decide to undertake aggressive pricing initiatives in one or several technology nodes. These competitive activities may decrease our customer base or our ASP, or both. If we are unable to compete effectively with these new and aggressive competitors on technology, manufacturing capacity, product quality and customer satisfaction, we risk losing customers to these new contenders.

If we are unable to manage our capacity and production facilities effectively, our competitiveness may be weakened.

We perform long-term market demand forecasts for our products and services to manage our overall capacity. Based on our market demand forecasts, we have continued to add capacity to meet

market needs for our products and services. Currently, our capacity expansion plans include installing and increasing production capacity, mainly for 5-nanometer and 3-nanometer nodes, expanding our production facilities in the Southern Taiwan Science Park and building a 300mm wafer fab in Arizona.

Implementing these capacity expansion plans will increase our costs, and the increases may be substantial. For example, we would need to build new facilities, purchase additional equipment, and hire and train personnel to operate the new equipment. If we do not increase our net revenue accordingly, our financial performance may be adversely affected by these increased costs. See “Business—Capacity Management and Technology Upgrade Plans” for a further discussion.

In addition, market conditions are dynamic and our market demand forecasts may change significantly at any time. During periods of decreased demand, certain manufacturing lines or tools in some of our manufacturing facilities may be suspended or shut down temporarily. However, if subsequent demand increases rapidly over a short period of time, we may not be able to restore the capacity in a timely manner to take advantage of the upturn. In such circumstances, our financial performance and competitiveness may be adversely affected.

Having one or more large customers that account for a significant percentage of our revenue may render us vulnerable to the loss of or significant curtailment of purchases by such customers that could in turn adversely affect our results of operations. Similarly, the increasing consolidation of our customers may further increase our revenue concentration.

Over the years, our customer profile and the nature of our customers’ business have changed dramatically. While we generate revenue from hundreds of customers worldwide, our ten largest customers in 2018, 2019 and 2020 accounted for approximately 68%, 71% and 74% of our net revenue in the respective year. Our largest customer in 2018, 2019 and 2020 accounted for 22%, 23% and 25% of our net revenue in the respective year. Our second largest customer for each particular year accounted for less than 10% of our net revenue in 2018, and 14% and 12% of our net revenue in 2019 and 2020, respectively. A more concentrated customer base will subject our revenue to seasonal demand fluctuations from our large customers, and cause different seasonal patterns of our business. This customer concentration results in part from the changing dynamics of the electronics industry with the structural shift to mobile devices and applications and software that provide the content for such devices. There are only a limited number of customers who are successfully exploiting this new business model paradigm. Also, we have seen the changes of nature in our customers’ business models in response to this new business model paradigm. For example, there is a growing trend toward the system companies developing their own designs and working directly with semiconductor foundries which makes their products and services more marketable in a changing consumer market. Also, since the global semiconductor industry is becoming increasingly competitive, some of our customers have engaged in industry consolidations in order to remain competitive. Such consolidations have taken the form of mergers and acquisitions. If more of our major customers consolidate, this will further decrease the overall number of our customer pool. In addition, regulatory restrictions such as export control directed at our major customers could impact our ability to supply products to those customers, reduce those customers’ demand for our products and services and impact their business operations. The loss of, or significant curtailment of purchases by, one or more of our top customers, including curtailments due to increased competitive pressures, industry consolidation, changes in applicable regulatory restrictions, product designs, manufacturing sourcing policies or practices of these customers, or the timing of customer or distributor inventory adjustments, or changes in our major customers’ business models may adversely affect our results of operations and financial condition.

If our information technology systems or those of our service providers with whom we share our confidential information succumb to cyberattacks by third parties worldwide, our business and operations may be severely interrupted or even shut down, and our results of operations, financial condition, prospects and reputation may also be materially and adversely affected.

Even though we have established a comprehensive internet and computing security network, we cannot guarantee that our computing systems which control or maintain vital corporate functions, such as our manufacturing operations and enterprise accounting, would be completely immune to crippling cyberattacks by any third party attempting to gain unauthorized access to our internal network systems, to sabotage our operations and goodwill or otherwise. In the event of a serious cyberattack,

our systems may lose important corporate data or our production lines may be shut down pending the resolution of such attack. While we seek to continuously review and assess our cybersecurity policies and procedures to ensure their adequacy and effectiveness, we cannot guarantee that we will not be susceptible to new and emerging risks and attacks in the evolving landscape of cybersecurity threats. Hackers behind these cyberattacks may also attempt to steal our trade secrets and other sensitive information, such as proprietary information of our customers and other stakeholders and personal information of our employees.

Malicious hackers may also try to introduce computer viruses, corrupted software or ransomware into our network systems to disrupt our operations, blackmail us to regain control of our computing systems, or spy on us for sensitive information. These attacks may result in us having to pay damages for our delayed or disrupted orders or incur significant expenses in implementing remedial and improvement measures to enhance our cybersecurity network, and may also expose us to significant legal liabilities arising from or related to legal proceedings or regulatory investigations associated with, among other things, leakage of employee, customer or third-party information which we have an obligation to keep confidential.

In the past, we experienced and may in the future be subject to attack by malicious software contained in the equipment we purchase and install. We have implemented and continually update rigorous cybersecurity measures to prevent and minimize harm caused by such attacks. These measures include advanced virus scanning tools to prevent a fab from installing virus-infected tools, strengthening firewall and network controls to prevent computer viruses from spreading among tools and fabs, and the installation of anti-virus and advanced malware detection solutions across our computer devices. In addition, we have deployed secure PCs and laptops, developed a public cloud security policy, introduced new technology for data protection, and improved email phishing detection. We also established an integrated and automatic security operation platform, and we regularly perform employee awareness testing and conduct external security risk assessments. While these ongoing enhancements further improve our cybersecurity defense solutions, there can be no assurance that we are immune to cyberattacks.

In addition, we employ certain third-party service providers for us and our affiliates worldwide with whom we need to share highly sensitive and confidential information to enable them to provide the relevant services. Despite that we require the third-party service providers to comply with the confidentiality and/or internet security requirements in our service agreements with them, there is no assurance that each of them will strictly fulfill such obligations, or at all. The on-site network systems of and the off-site cloud computing networks such as servers maintained by such service providers and/or its contractors are also subject to risks associated with cyberattacks. If we or our service providers are not able to timely resolve the respective technical difficulties caused by such cyberattacks, or ensure the integrity and availability of our data (and data belonging to our customers and other third parties) or control of our or our service providers' computing systems, our commitments to our customers and other stakeholders may be materially impaired and our results of operations, financial condition, prospects and reputation may also be materially and adversely affected as a result.

We may not be able to implement our planned growth and development or maintain our leading position if we are unable to recruit and retain key executives, managers and skilled technical and service personnel.

We rely on the continued services and contributions of our management team, skilled technical and professional personnel. Our business could suffer from the inability to fulfill personnel needs with high quality professionals in a timely fashion caused by the loss of personnel, illegal talent poaching, or related changes in market demand for our products and services. Since there is fierce competition for talent recruitment, we cannot ensure timely fulfillment of our personnel demand.

We may be unable to obtain in a timely manner and at a reasonable cost equipment that is necessary for us to remain competitive.

Our operations and ongoing expansion plans depend on our ability to obtain an appropriate amount of equipment and related services from a limited number of suppliers in a market that is characterized from time to time by limited supply and long delivery cycles. During such times, supplier-specific or industry-wide lead times for delivery can be as long as six months or more. To better

manage our supply chain, we have implemented various business models and risk management contingencies with suppliers to shorten the procurement lead time. Further, growing complexities especially in advanced lithographic technologies may delay the timely availability of the equipment and parts needed to exploit time sensitive business opportunities and also increase the market price for such equipment and parts. Additionally, ongoing trade tensions or protectionist measures could result in increased prices for, or even unavailability of, key equipment, including as a result of necessary export licenses being delayed or denied, additional export control measures, and other tariff or non-tariff barriers. If we are unable to obtain equipment in a timely manner to fulfill our customers' demand on technology and production capacity, or at a reasonable cost, our financial condition and results of operations could be negatively impacted.

Our revenue and profitability may decline if we are unable to obtain adequate supplies of raw materials in a timely manner and at commercially reasonable prices.

Our production operations require that we obtain adequate supplies of raw materials, such as silicon wafers, gases, chemicals, and photoresist, on a timely basis and at commercially reasonable prices. In the past, shortages in the supply of some materials, whether by specific vendors or by the semiconductor industry generally, have resulted in occasional industry-wide price adjustments and delivery delays. Moreover, major natural disasters, trade barriers and political or economic turmoil occurring within the country of origin of such raw materials may also significantly disrupt the availability of such raw materials or increase their prices. Also, since we procure some of our raw materials from sole-sourced suppliers, there is a risk that our need for such raw materials may not be met or that back-up supplies may not be readily available. In addition, recent trade tensions could result in increased prices or even unavailability of raw materials due to tariffs, export control or other non-tariff barriers. Our revenue and earnings could decline if we are unable to obtain adequate supplies of the necessary raw materials in a timely manner or if there are significant increases in the costs of raw materials.

Any inability to obtain, preserve, enforce, defend and protect our technologies, intellectual property rights and third-party licenses could harm our competitive position.

Our ability to compete successfully and to achieve future growth depends in part on the continued strength of our intellectual property portfolio. While we actively enforce and protect our intellectual property rights, there can be no assurance that our efforts will be adequate to prevent the misappropriation or improper use of our proprietary technologies, software, trade secrets or know-how. Also, we cannot assure you that, as our business or business models expand into new areas, we will be able to develop independently the technologies, patents, software, trade secrets or know-how necessary to conduct our business or that we can do so without unknowingly infringing the intellectual property rights of others. As a result, we may have to rely on, to a certain degree, licensed technologies and patent licenses from others. To the extent that we rely on licenses from others, there can be no assurance that we will be able to obtain any or all of the necessary licenses in the future on terms we consider reasonable or at all. The lack of necessary licenses could expose us to claims for damages and/or injunctions from third parties, as well as claims for indemnification by our customers in instances where we have contractually agreed to indemnify our customers against damages resulting from infringement claims.

We have received, from time to time, communications from third parties, including non-practicing entities and semiconductor companies, asserting that our technologies, our manufacturing processes, or the design IPs of the semiconductors made by us or the use of those semiconductors by our customers may infringe their patents or other intellectual property rights. Because of the nature of the industry, our market position, and the expansion of our manufacturing operations outside of Taiwan, we may receive an increased number of such communications in the future. The assertions made and lawsuits initiated by litigious, well-funded, non-practicing entities are particularly aggressive in their monetary demand and in seeking court-issued injunctions. Such lawsuits and assertions may increase our cost of doing business and may potentially be extremely disruptive if these asserting entities succeed in blocking the trade of products made and services offered by us. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Legal Proceedings" for a further discussion. Also, with the expansion of our manufacturing operations into certain non-R.O.C jurisdictions, we have faced increased challenges in managing risks of intellectual property misappropriation. Despite our efforts to adopt robust measures to mitigate the risk of intellectual

property misappropriation in such new jurisdictions, we cannot guarantee that the protection measures we adopted will be sufficient to prevent us from potential infringements by others, or at all.

If we fail to obtain or maintain certain technologies or intellectual property licenses or fail to prevent our intellectual property from being misappropriated and, if litigation relating to alleged intellectual property matters occurs, it could: (i) prevent us from manufacturing particular products or selling particular services or applying particular technologies; and (ii) reduce our ability to compete effectively against entities benefiting from our misappropriated intellectual property, which could reduce our opportunities to generate revenue.

Our operational results could also be materially and adversely affected by disruptive events, such as earthquakes and droughts, in the locations in which we, our customers or our suppliers operate or by industrial accidents, fires or explosions.

The frequency and severity of disruptive events, including damaging earthquakes, other natural disasters and severe weather has been increasing, in part due to climate change or systemic regional geological changes. We have manufacturing and other operations in locations subject to natural disasters, such as flooding, earthquakes, tsunamis, typhoons, and droughts that may cause interruptions or shortages in the supply of utilities, such as water and electricity, which in turn could disrupt operations. For example, in 2020 and 2021, Taiwan has faced one of the worst droughts in decades. Government restrictions on supply and usage of water by industrial companies such as us in response to such severe weather events could also disrupt our operations. In addition, our suppliers and customers also have operations in such locations. For example, most of our production facilities, as well as those of many of our suppliers and customers and upstream providers of complementary semiconductor manufacturing services, are located in Taiwan and Japan, areas susceptible to earthquakes, tsunamis, flooding, typhoons, and droughts from time to time that may cause shortages in electricity or water, or interruptions to our operations.

Thus, if one or more natural disasters that result in a prolonged disruption to our operations or those of our customers or suppliers, or if any of our fabs or vendor facilities were to be damaged or cease operations as a result of an explosion or fire, it could reduce our manufacturing capacity and cause the loss of important customers, and thereby have an adverse and material impact on our operational and financial performance.

The COVID-19 pandemic could materially adversely affect our business and results of operations.

The ongoing COVID-19 pandemic may materially adversely affect our business and results of operations in several ways, including but not limited to: (i) interruption of the operations of our supply chains for equipment, parts and materials in terms of manufacturing, logistics, and manpower arrangements for tool installation; (ii) significant fluctuation in our customers' demands for certain products, leading to uncertainties for our capacity planning and also for meeting customers' demand, which may harm our business with our customers and subject us to risks of legal disputes; and (iii) potential production delays for our products due to forced factory or office closures or partial operation.

We have implemented various measures to address the abovementioned risks, including but not limited to, health management of our employees, management of production inventory, supply chain risk management, and capacity management for demand changes. As of the date of this offering circular, our current business and results of operations have not been materially affected by the pandemic, partially due to such trends as work-from-home and distance learning emerged to help accelerate the digital transformation. However, there is no certainty that the measures we have taken will be sufficient to mitigate the risks posed by COVID-19, and our ability to perform critical functions and to meet customers' needs could be materially adversely affected.

Our operation may be interrupted, and our expansion may be limited, by power or other utility shortages.

We have occasionally suffered power outages or surges in Taiwan caused by difficulties encountered by our electricity supplier, the Taiwan Power Company, or other power consumers on the

same power grid. Some of these have resulted in interruptions to our operations. Such shortages or interruptions in electricity supply could further be exacerbated by changes in the energy policy of the government which intends to make Taiwan a nuclear-free country by 2025. If we are unable to secure reliable and uninterrupted supply of electricity to power our manufacturing fabs within Taiwan, our ability to fill customers' orders would be severely jeopardized.

In addition, severe weather events, such as droughts, and any measures taken by governments in response to such severe weather events, may materially affect our operations. For further information, see “—Our operational results could also be materially and adversely affected by disruptive events, such as earthquakes and droughts, in the locations in which we, our customers or our suppliers operate or by industrial accidents, fires or explosions.”

If such events were to occur over prolonged periods of time, our operations and financial performance may be materially adversely affected.

Future expansions of our operations in the R.O.C. could be limited by shortages in water and electricity, and the limited availability of commercial-use land.

Adverse fluctuations in exchange rates could decrease our operating margin and/or revenue.

Substantially all of our sales are denominated in U.S. dollars and over half of our capital expenditures are denominated in currencies other than the NT dollar, primarily in U.S. dollars, Euros and Japanese yen. As a result, any significant fluctuations to our disadvantage in the exchange rate of the NT dollar against such currencies, in particular a weakening of the U.S. dollar against the NT dollar, would have an adverse impact on our revenue and operating profit as expressed in NT dollars. For example, every 1% depreciation of the U.S. dollar against the NT dollar would result in an approximately 0.4 percentage point decrease in our operating margin based on our 2020 results.

Conversely, if the U.S. dollar appreciates significantly versus other major currencies, the demand for the products and services of our customers and for our goods and services will likely decrease, which will negatively affect our revenue. Please see “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Market Risks” for a further discussion.

Our failure to comply with applicable laws and regulations material to our operations such as export control, environmental and climate related laws and regulations, or the inability to timely obtain requisite approvals necessary for the conduct of our business, such as fab land and construction approvals, could harm our business and operational results or subject us to potential significant legal liability.

Because we engage in manufacturing activities in multiple jurisdictions and conduct business with our customers located worldwide, such activities are subject to a myriad of governmental regulations. For example, the manufacturing, assembling and testing of our products require the use of metals, chemicals, and materials that are subject to environmental, climate-related, health and safety, and humanitarian conflict-free sourcing laws, regulations and guidelines issued worldwide. Our failure to comply with any such laws or regulations, as amended from time to time, and our failure to comply with any information and document sharing requests from the relevant authorities in a timely manner could result in:

- significant penalties and legal liabilities, such as the denial of import or export permits or third party private lawsuits, criminal or administrative proceedings;
- the temporary or permanent suspension of production of the affected products;
- unfavorable alterations in our manufacturing, fabrication and assembly and test processes;
- challenges from our customers that place us at a significant competitive disadvantage, such as loss of actual or potential sales contracts in case we are unable to satisfy the applicable legal standard or customer requirement;
- restrictions on our operations or sales;
- loss of tax benefits, including termination of current tax incentives, disqualification of tax credit application and repayment of the tax benefits that we are not entitled to; and
- damages to our goodwill and reputation.

Complying with applicable laws and regulations, such as environmental and climate related laws and regulations, could also require us, among other things, to do the following: (a) purchase, use or install remedial equipment; (b) implement remedial programs such as climate change mitigation programs; (c) modify our product designs and manufacturing processes, or incur other significant expenses such as obtaining substitute raw materials or chemicals that may cost more or be less available for our operations.

Our inability to timely obtain approvals necessary for the conduct of our business could impair our operational and financial results. For example, if we are unable to timely obtain environmental related approvals needed to undertake the development and construction of a new fab or expansion project, then such inability may delay, limit, or increase the cost of our expansion plans that could also in turn adversely affect our business and operational results. In light of increased public interest in environmental issues, our operations and expansion plans may be adversely affected or delayed responding to public concern and social environmental pressures even if we comply with all applicable laws and regulations.

For further details, please see our compliance record with Taiwan and international environmental and climate related laws and regulations as well as our business continuity management of climate change policy in “Business—Environmental and Climate Related Laws and Regulations”.

Any adverse results of potential antitrust proceedings that we may be subject to could harm our business and operational results or subject us to potential significant legal liability.

We are subject to antitrust laws and regulations in multiple jurisdictions, and from time to time receive related inquiries from enforcement agencies. For example, on September 28, 2017, we were contacted by the European Commission, which asked us for information and documents concerning alleged anti-competitive practices in relation to semiconductor sales. We cooperated with the European Commission to provide the requested information and documents. The European Commission subsequently decided to close the investigation in May 2020. Any adverse results of potential antitrust proceedings could harm our business and distract our management, and thereby have a material adverse effect on our results of operations or prospects, and subject us to potential significant legal liability.

Any impairment charges may have a material adverse effect on our net income.

Under IFRSs, we are required to evaluate our tangible assets, right-of-use assets and intangible assets for impairment whenever triggering events or changes in circumstances indicate that the asset may be impaired. If certain criteria are met, we are required to record an impairment charge. We are not able to estimate the extent or timing of any impairment charge for future years. Any impairment charge required may have a material adverse effect on our net income.

The determination of an impairment charge at any given time is mainly based on the projected results of operations over several years subsequent to that time. Consequently, an impairment charge is more likely to occur during a period when our operating results are otherwise already depressed. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Policies, Judgments and Key Sources of Estimation and Uncertainty” for a discussion of how we assess if an impairment charge is required and, if so, how the amount is determined.

Any failure to achieve and maintain effective internal controls could have a material adverse effect on our business and results of operations.

Effective internal controls are necessary for us to provide reasonable assurance with respect to our financial reports and to effectively prevent fraud. If we cannot provide reasonable assurance with respect to our financial reports and effectively prevent fraud and corruption, our reputation and results of operations could be harmed.

We are required to comply with various R.O.C. and U.S. laws and regulations on internal controls. But internal controls may not prevent or detect misstatements because of their inherent limitations, including the possibility of human error, the circumvention or overriding of controls, fraud or corruption.

Therefore, even effective internal controls can provide only reasonable assurance with respect to the preparation and fair presentation of financial statements. If we fail to maintain the adequacy of our internal controls, our business and operating results could be harmed, we could fail to meet our reporting obligations, and there could be a material adverse effect on the market price of the Notes.

Any amendments to existing tax regulations or the implementation of any new tax laws in the R.O.C., the United States, or other jurisdictions in which we operate our business may have an adverse effect on our net income.

While we are subject to tax laws and regulations in various jurisdictions in which we operate or conduct business, our principal operations are in the R.O.C. and we are exposed primarily to taxes levied by the R.O.C. government. Any unfavorable changes of tax laws and regulations in this jurisdiction could increase our effective tax rate and have an adverse effect on our operating results. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Taxation” for further discussion of significant tax regulation changes.

This offering circular includes selected unaudited financial results.

This offering circular includes selected unaudited financial results for the three months period ended March 31, 2021. The information set forth under “Summary—Recent Developments—Unaudited Financial Results for the First Quarter of 2021” have been prepared by, and are the responsibility of, management. Our independent auditor has not issued a review report based on their reviews with respect to the financial data included herein. Upon completion of our auditors’ review of the results for the three months period ended March 31, 2021, it is possible that significant changes to the information may be necessary. Such unaudited financial results may not reflect all of our material financial information, and we therefore caution you not to place undue reliance on them.

Risks Relating to the Notes and the Guarantees

The Notes and the Guarantees are unsecured obligations and the ability of the holders of the Notes to receive payments under the Notes and the Guarantees may be compromised under certain circumstances.

The Notes and the Guarantees will not be secured by any of the Issuer’s assets or any of our assets. As a result, the Notes and the Guarantees will be effectively subordinated to any future secured indebtedness incurred by the Issuer, the Guarantor or the Guarantor’s other subsidiaries, if any, with respect to the assets that secure such indebtedness. If the Issuer, the Guarantor or the Guarantor’s other subsidiaries were unable to repay any of their respective secured indebtedness, resulting in an event of default, or acceleration of the secured debt, the holders of such debt could proceed against the assets securing that debt and use the proceeds to pay down the secured indebtedness. Only after such secured indebtedness has been paid in full will any proceeds from the sale of secured assets be available to pay the obligations of the Notes. The same is true in the event of, among other things, bankruptcy, insolvency, liquidation, dissolution or reorganization of the Issuer or us. If any of these events occurs, the Issuer’s and the Guarantor’s assets may not be sufficient to fulfill their obligations under the Notes and the Guarantees to pay amounts due on any of the Notes.

Furthermore, the Notes and the Guarantees will be structurally subordinated to all indebtedness and other obligations of the subsidiaries of the Guarantor other than those of the Issuer. The Notes and Guarantees are exclusively the obligations of the Issuer and us. Our subsidiaries are separate legal entities that have no obligation to pay any amounts due under the Notes or the Guarantees nor any obligation to make any funds available to do so. Except to the extent we are a creditor with recognized claims against our subsidiaries, all of the creditors of that subsidiary, including trade creditors, will generally be entitled to be paid in full from the assets of such subsidiary before any of those assets are made available for distribution to the Guarantor, in the event of, among other things, bankruptcy, liquidation, rehabilitation or other winding-up proceedings of a subsidiary of the Guarantor.

The Guarantor may not be able to convert NT dollars to foreign currency to perform its guarantee obligations in a timely manner or at all.

The Guarantor is neither required to obtain prior approval from CBC for providing the Guarantees nor to register the Guarantees as medium- or long-term foreign debt with CBC. At the time the

performance of the Guarantees is sought, a foreign exchange approval by CBC will be required to convert NT dollars to foreign currencies.

Under the R.O.C. Foreign Exchange Control Statute and its relevant regulations, the Guarantor may remit to and from the R.O.C. foreign currency of up to US\$50 million (or its equivalent) in each calendar year without foreign exchange approval. This limit applies to remittances involving a conversion between NT dollars and U.S. dollars or other foreign currencies.

If the Guarantor is required to perform its obligations under the relevant Guarantees following the occurrence of an event of default with respect to the relevant series of the Notes, and the Guarantor does not have sufficient foreign currency to make the payment in full after using up the remainder of its US\$50 million quota, the Guarantor will have to apply for a foreign exchange approval from CBC prior to converting NT dollars to other foreign currencies. In such case, the Guarantor may not be able to perform its obligations under the relevant Guarantee by paying foreign currencies in a timely manner or at all if the application for foreign exchange approval is delayed or rejected by CBC.

The limited covenants in the Indenture for the Notes and the terms of the Notes do not provide protection against some types of important corporate events and may not protect your investment.

The terms of the Indenture and the Notes do not:

- require us to maintain any financial ratios or specific levels of net worth, revenues, income, cash flow or liquidity and, accordingly, do not protect holders of the Notes in the event that we experience significant adverse changes in our financial condition or results of operations;
- limit the Issuer's, the Guarantor's or our subsidiaries' ability to incur senior unsecured indebtedness, which could structurally rank senior to the Notes as may be required by mandatory provisions of law;
- limit the Issuer's, the Guarantor's or our subsidiaries' ability to incur secured indebtedness that would effectively rank senior to the Notes to the extent of the value of the assets securing the indebtedness, or to engage in sale/leaseback transactions;
- limit the Issuer's, the Guarantor's or our subsidiaries' ability to incur indebtedness that is equal in right of payment to the Notes;
- restrict the Issuer's or our subsidiaries' ability to issue securities or otherwise incur indebtedness that would be senior to our equity interests in our subsidiaries and therefore would be structurally senior to the Notes;
- restrict the Issuer's, the Guarantor's or our subsidiaries' ability to repurchase or prepay our securities;
- restrict the Issuer's, the Guarantor's or our subsidiaries' ability to make investments or to repurchase or pay dividends or make other payments in respect of our common stock or other securities ranking junior to the Notes;
- restrict the Issuer's, the Guarantor's or our subsidiaries' ability to enter into highly leveraged transactions; or
- require us to repurchase the Notes in the event of a change in control.

As a result of the foregoing, when evaluating the terms of the Notes, you should be aware that the terms of the Indenture and the Notes do not restrict our ability to engage in, or to otherwise be a party to, a variety of corporate transactions, circumstances and events, such as certain acquisitions, refinancings or recapitalizations that could substantially and adversely affect our capital structure and the value of the Notes. For these reasons, you should not consider the covenants in the Indenture as a significant factor in evaluating whether to invest in the Notes.

There is no existing market for the Notes and, therefore, the Notes may have limited liquidity.

The Notes constitute a new issue of securities for which there is no existing market. Although approval in-principle has been received for the listing and quotation of the Notes on the SGX-ST, we

cannot assure you that we will obtain or be able to maintain a listing on the SGX-ST, or that, if listed, a liquid trading market will develop. 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, would be by the Initial Purchasers or their respective affiliates on their own behalf and may be discontinued at any time without notice in their sole discretion. For more information regarding the Initial Purchasers' planned market-making activities, see "Plan of Distribution".

There can be no assurance 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 market price and liquidity 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 offering price depending on many factors, including:

- prevailing interest rates;
- the Company's results of operations, financial condition and future prospects;
- political and economic developments in and affecting the R.O.C.;
- the market conditions for similar securities; and
- the condition and stability of the financial markets in the R.O.C. and Singapore.

The Volcker Rule may negatively affect the liquidity and the value of the Notes.

The definition of "covered fund" in the Volcker Rule includes, among other things, any entity that would be an investment company under the Investment Company Act but for the exception provided under Section 3(c)(1) or 3(c)(7) thereunder. Because the Issuer has not been and will not be registered as an "investment company" under the Investment Company Act, in reliance on the exception set forth in Section 3(c)(7) thereof, the Issuer will likely be considered a "covered fund" for purposes of the Volcker Rule in the absence of an exclusion from the definition of "covered fund". Accordingly, "banking entities" (as defined under the Volcker Rule, which include affiliates of a U.S. banking organization as well as affiliates of a foreign banking organization that has a branch or agency office in the U.S., regardless of where such affiliates are located) that are subject to the Volcker Rule may be prohibited under the Volcker Rule from, among other things, acquiring or retaining an "ownership interest" in the Issuer as a "covered fund", absent any applicable exclusion from the definition of "covered fund" or exemption under the Volcker Rule. Depending on market conditions, this could negatively affect the liquidity and market value of the Notes.

In addition, an "ownership interest" is broadly defined under the Volcker Rule to include an equity, partnership or other similar interest, and may arise through a holder's exposure to the profits and losses of the "covered fund", as well as through certain rights of the holder to participate in the selection or removal of an investment advisor, investment manager, or general partner, trustee, or member of the board of directors of the "covered fund".

On June 25, 2020, the relevant federal regulatory agencies responsible for implementing the Volcker Rule released a final rule to amend certain parts of the Volcker Rule's covered fund-related restrictions. The changes are intended to improve and streamline certain aspects of the "covered funds" portion of the Volcker Rule, including by, among other aspects, making modifications to certain existing exclusions from the definition of "covered fund", creating certain new exclusions from the definition of "covered fund", and making certain clarifications to the definition of "ownership interest". Such clarifications include an exclusion from the definition of "ownership interest" for any "senior loan or senior debt interest" that meets certain conditions. The final rule became effective on October 1, 2020.

The Volcker Rule may restrict or discourage the acquisition of the Notes by "banking entities" and may adversely affect the liquidity of the Notes. Each purchaser of the Notes must make its own determination as to whether it is a "banking entity" subject to the Volcker Rule and, if applicable, the potential impact of the Volcker Rule on its ability to purchase or retain any such Notes (including conducting their own analysis, in consultation with their own counsel, to determine whether the Notes

constitute “ownership interests” for the purposes of the Volcker Rule). Investors in the Notes are responsible for analyzing their own regulatory position and should consult their own counsel as to the potential consequences of the Volcker Rule before making an investment decision. None of the Issuer, the Guarantors, the Initial Purchasers, the Trustee, other parties involved in the offering of the Notes nor any of their respective affiliates makes any representation to any prospective investor or purchaser of the Notes regarding the treatment of the Issuer under the Volcker Rule, or to such investor’s investment in the Notes on the Issue Date or at any time in the future.

The ratings assigned to the Notes may be lowered or withdrawn in the future.

The Notes are expected to be rated “Aa3” by Moody’s and “AA-” by S&P. The rating of the Notes has been based primarily on the Guarantees to be issued by the Guarantor with respect to the Notes. Pursuant to the Guarantees, the Guarantor will fully, unconditionally and irrevocably guarantee all amounts payable by the Issuer in respect of each series of the Notes, or the Guaranteed Amounts. The payment of the Guaranteed Amounts will, therefore, depend on the Guarantor performing its obligations under the Guarantees, and the likelihood of payment of the Guaranteed Amounts will depend on the creditworthiness of the Guarantor. Consequently, investors are relying not only on the creditworthiness of the Issuer but also on the creditworthiness of the Guarantor to perform its obligations under the Guarantees. Any significant deterioration of the financial condition, or the insolvency, of the Guarantor could adversely affect the likelihood of investors receiving scheduled payments of principal and interest on the Notes under the Guarantees and could result in a downgrade or withdrawal of the rating of the Notes.

A rating is not a recommendation to buy, sell or hold the Notes and may be subject to revision, suspension or withdrawal at any time. There can be no assurance that a rating will remain for any given period of time or that a rating will not be lowered, suspended or withdrawn by the relevant rating agencies if in its judgment circumstances in the future so warrant. Neither the Issuer nor the Guarantor has an obligation to inform the holders of the Notes of any downgrade, suspension or withdrawal of the rating of the Notes. A reduction, suspension or withdrawal at any time of the rating assigned to the Notes may adversely affect the market price of the Notes and a holder’s ability to dispose of the Notes.

The Notes are subject to transfer restrictions.

Transfers of the Notes are restricted, which may adversely affect the value of the Notes. The Notes and the Guarantees have not been and will not be registered under the Securities Act or any state securities laws. The Issuer has not been registered and will not be registered as an investment company under the Investment Company Act, in reliance on the exception set forth in Section 3(c)(7) thereof. The Notes and the Indenture contain provisions that restrict certain transfers of the Notes to prevent the Notes from being offered, sold or otherwise transferred within the United States, unless the Notes are being offered and sold only to persons in the United States or that are U.S. persons, each of whom is both a Qualified Institutional Buyer and a Qualified Purchaser. Each purchaser or transferee of the Notes will also be deemed, by its acceptance of such Notes, to have made certain representations and agreements intended to restrict transfers of the Notes as described under “Transfer Restrictions”. It is the holder’s obligation to ensure that your offers and sales of the Notes comply with applicable securities laws.

In addition, if, at any time, the Issuer or the Guarantor determines that any owner or other transferee, or any account for which such owners or transferee purchased or otherwise received the Notes, who is required to be both a Qualified Institutional Buyer and a Qualified Purchaser does not meet these requirements, the transfer to such owner will be null and void *ab initio* and the Issuer will require that the Notes be sold or transferred to a transferee acceptable to the Issuer who is able to and who does make all of the representations and agreements set forth in the “Transfer Restrictions”.

Enforcing your rights as a holder of the Notes across multiple jurisdictions may be difficult.

The Issuer is incorporated in the B.V.I. and the Guarantor is incorporated in the R.O.C. Most of the directors and executive officers of the Issuer and the Guarantor are nationals or residents of countries other than the United States, and the majority of the Guarantor’s and the Issuer’s assets are located outside the United States. Accordingly, it may be difficult to effect service of process upon the directors and officers of the Issuer and the Guarantor, including with respect to matters arising under U.S. federal securities laws or applicable state securities laws.

It may also be difficult or impossible to obtain jurisdiction against the Issuer or the Guarantor, or against the directors and officers of the Issuer or the Guarantor, in the B.V.I. or in the R.O.C. in actions predicated on the civil liability provisions of the U.S. federal securities law or otherwise. Even if you are successful in bringing an action of this kind, the laws of the B.V.I. and of the R.O.C. may render you unable to enforce a judgment against the Guarantor's and the Issuer's assets or the assets of our directors or officers. See "Enforceability of Civil Liabilities" for more information.

We have been advised by our R.O.C. and B.V.I. counsels that (i) there is doubt as to the enforceability, in original actions in the R.O.C. or the B.V.I. courts, of liabilities based on the U.S. federal securities laws or the securities or "blue sky" laws of any state within the U.S. and (ii) judgments of U.S. courts obtained in actions based on the civil liability provisions of the U.S. federal securities laws or any such state securities or blue sky laws will be enforced by the courts of the R.O.C. without further review of the merits only if the courts of the R.O.C. where the enforcement is sought is satisfied with certain requirements under the R.O.C. laws. See "Enforceability of Civil Liabilities". As a result of all of the above, your rights under the Notes may thus be subject to the laws of several jurisdictions, and you may not be able to effectively enforce your rights in multiple legal, bankruptcy and other similar proceedings. Moreover, such multi-jurisdictional proceedings are typically complex and costly and often result in substantial uncertainty and delay.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING INFORMATION

This offering circular includes statements that are, or may be deemed to be, “forward-looking statements” within the meaning of U.S. securities laws. The terms “anticipates”, “could”, “expects”, “may”, “should”, “will” and other similar expressions identify forward-looking statements. These statements appear in a number of places throughout this offering circular and include statements regarding our intentions, beliefs or current expectations concerning, among other things, our results of operations, financial condition, liquidity, prospects, growth, strategies and the industries in which we operate.

By their nature, forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future. Forward-looking statements are not guarantees of future performance and our actual results of operations, financial condition and liquidity, and the development of the industries in which we operate may differ materially from those made in or suggested by the forward-looking statements contained in this offering circular. Important factors that could cause those differences include, but are not limited to:

- general local and global economic conditions;
- the political stability of our local region;
- outlook of the major and emerging end markets for our products, such as smartphones, high performance computing, internet of things (“IoT”), automotive electronics and digital consumer electronics;
- the volatility of the semiconductor and electronics industry;
- our ability to develop new technologies successfully and remain a technological leader;
- the increased competition from other companies and our ability to retain and increase our market share;
- overcapacity in the semiconductor industry;
- our reliance on certain major customers;
- the reliability of our information technology systems and resilience to any cyberattacks;
- our ability to maintain control over expansion and facility modifications;
- our ability to generate growth and profitability;
- our ability to hire and retain qualified personnel;
- our ability to acquire required equipment and supplies necessary to meet business needs;
- our ability to protect our technologies, intellectual property rights and third-party licenses;
- disruptive events, such as earthquakes or droughts;
- the COVID-19 pandemic; and
- fluctuations in foreign currency rates, in particular, any material appreciation of the NT dollar against the U.S. dollar, and our ability to manage such risks.

Forward-looking statements include, but are not limited to, statements regarding our strategy and future plans, future business condition and financial results, our capital expenditure plans, our capacity management plans, expectations as to the commercial production using 3-nanometer and more advanced technologies, technological upgrades, investment in research and development, future market demand, future regulatory or other developments in our industry, business expansion plans or new investments as well as business acquisitions and financing plans. Please see “Risk Factors” for a further discussion of certain factors that may cause actual results to differ materially from those indicated by our forward-looking statements.

USE OF PROCEEDS

The aggregate net proceeds from the offering of the Notes are estimated to be approximately US\$3,484,823,000, after deducting underwriting commissions and other expenses related to the offering. The Guarantor and the Issuer intend to use the net proceeds from this offering for general corporate purposes.

THE ISSUER

TSMC Global Ltd., a B.V.I. business company with limited liability, is a wholly-owned subsidiary of TSMC, established primarily as an investment holding vehicle. The Issuer had total assets of US\$17,005 million and total equity of US\$13,604 million as of December 31, 2020, which consisted primarily of cash and cash equivalents and financial assets at fair value through other comprehensive income, mainly including corporate bonds and agency bonds/agency mortgage-backed securities.

CAPITALIZATION

The following table sets forth the Company's consolidated cash and cash equivalents and capitalization (defined as the sum of long-term debt (excluding current portion) and shareholders' equity) as of December 31, 2020 and as adjusted to give effect to the issuance of the Notes. You should read the information set forth below in conjunction with "Summary—Summary Financial Information and Other Data", "Use of Proceeds", "Selected Financial Information and Operating Data", "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the Company's consolidated financial statements and related notes included in this offering circular.

	As of December 31, 2020		
	Actual	As Adjusted	As Adjusted ⁽¹⁾
	NT\$	NT\$	US\$
		(in millions)	
Cash and cash equivalents	660,171	758,025	26,995
Marketable securities⁽²⁾	131,306	131,306	4,676
Long-term debt (net of current portion)			
Bonds payables ⁽³⁾	254,105	254,105	9,049
2026 Notes offered hereby	—	30,745	1,095
2028 Notes offered hereby	—	25,153	896
2031 Notes offered hereby	—	41,956	1,494
Total long-term debt	254,105	351,959	12,534
Shareholders' equity			
Common shares, NT\$10 par value; 28,050,000,000 shares authorized, 25,930,380,458 issued and outstanding	259,304	259,304	9,234
Capital surplus	56,347	56,347	2,007
Retained earnings	1,573,840	1,573,840	56,048
Foreign currency translation reserve	(57,002)	(57,002)	(2,030)
Unrealized gain (loss) on financial assets at fair value through other comprehensive income	2,322	2,322	83
Minority interest in subsidiaries	953	953	34
Total shareholders' equity	1,835,764	1,835,764	65,376
Total capitalization⁽⁴⁾	2,089,869	2,187,723	77,910

- (1) Translated at a rate of NT\$28.08 to US\$1.00, the exchange rate set forth in the statistical release of the U.S. Federal Reserve Board on December 31, 2020.
- (2) Marketable securities refers to current portion of marketable financial assets.
- (3) During March 2021, we offered several NT dollar-denominated unsecured corporate bonds in the R.O.C. to fund our expansion of capacities. Please see "Summary—Summary Financial Information and Other Data—Recent Developments—Offering of NT Dollar-Denominated Unsecured Corporate Bonds in the R.O.C." and "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Cash Requirements" for details.
- (4) Total capitalization consists of long-term debt plus shareholders' equity. Total capitalization does not include cash and cash equivalents.

SELECTED FINANCIAL INFORMATION AND OPERATING DATA

The Company

The selected consolidated statements of profit or loss and other comprehensive income data and other consolidated financial data for the years ended December 31, 2018, 2019 and 2020, and the selected consolidated statements of financial position data as of December 31, 2019 and 2020, set forth below, are derived from our audited consolidated financial statements included herein, and should be read in conjunction with, and are qualified in their entirety by reference to, these consolidated financial statements, including the notes thereto, which have been prepared in accordance with IFRSs. The selected consolidated statements of profit or loss and other comprehensive income data and other consolidated financial data for the years ended December 31, 2016 and 2017 and the selected consolidated statements of financial position data as of December 31, 2016, 2017 and 2018 set forth below are derived from our audited consolidated financial statements not included herein, which have been prepared in accordance with IFRSs.

	Year ended December 31,					
	2016	2017	2018	2019	2020	
	NT\$	NT\$	NT\$	NT\$	NT\$	US\$
	(in millions, except for earnings per share and per ADS)					
Consolidated Statements of Profit or Loss and Other Comprehensive Income Data:						
Net revenue	947,938	977,447	1,031,474	1,069,985	1,339,255	47,694
Cost of revenue	(473,077)	(482,616)	(533,488)	(577,286)	(628,109)	(22,368)
Gross profit before realized (unrealized) gross profit on sales to associates	474,861	494,831	497,986	492,699	711,146	25,326
Realized (unrealized) gross profit on sales to associates	(29)	(5)	(112)	3	(16)	(1)
Gross profit	474,832	494,826	497,874	492,702	711,130	25,325
Operating expenses	(96,904)	(107,902)	(112,149)	(119,505)	(145,056)	(5,165)
Other operating income and expenses, net	30	(1,365)	(2,101)	(496)	710	25
Income from operations	377,958	385,559	383,624	372,701	566,784	20,185
Non-operating income and expenses, net	7,964	10,603	13,919	17,161	17,962	639
Income before income tax	385,922	396,162	397,543	389,862	584,746	20,824
Income tax expense	(54,125)	(51,123)	(34,437)	(35,835)	(73,738)	(2,626)
Net income	331,797	345,039	363,106	354,027	511,008	18,198
Other comprehensive income (loss) for the year, net of income tax	(11,067)	(28,822)	9,837	(11,824)	(30,322)	(1,080)
Total comprehensive income for the year	320,730	316,217	372,943	342,203	480,686	17,118
Net income attributable to shareholders of the parent	331,714	344,998	363,053	353,948	510,744	18,189
Net income (loss) attributable to non-controlling interests	83	41	53	79	264	9
Total comprehensive income attributable to shareholders of the parent	320,653	316,182	372,887	342,125	480,422	17,109
Total comprehensive income (loss) attributable to non-controlling interests	77	35	56	78	264	9
Basic/Diluted earnings per share	12.79	13.30	14.00	13.65	19.70	0.70
Basic/Diluted earnings per ADS equivalent	63.96	66.52	70.01	68.25	98.48	3.51
Basic/Diluted weighted average shares outstanding	25,930	25,930	25,930	25,930	25,930	25,930

	As of December 31,					US\$
	2016	2017	2018	2019	2020	
	NT\$	NT\$	NT\$	NT\$	NT\$	
(in millions, except for cash dividend per common share)						
Consolidated Statements of Financial Position Data:						
Current assets	817,729	857,203	951,680	822,614	1,092,185	38,896
Property, plant and equipment	997,778	1,062,543	1,072,050	1,352,377	1,555,589	55,398
Right-of-use assets ⁽¹⁾	—	—	—	17,233	27,729	988
Intangible assets	14,615	14,175	17,002	20,653	25,768	918
Deferred income tax assets	8,271	12,106	16,806	17,928	25,958	924
Total assets	1,886,297	1,991,732	2,090,031	2,264,725	2,760,601	98,312
Current liabilities	348,286	386,890	356,837	598,364	631,899	22,504
Guarantee deposits	14,670	7,587	3,353	177	265	10
Long-term bonds payable	153,094	91,800	56,900	25,100	254,105	9,049
Total liabilities	526,451	497,285	428,926	650,338	924,837	32,936
Capital stock	259,304	259,304	259,304	259,304	259,304	9,234
Equity attributable to shareholders of the parent	1,359,051	1,493,747	1,660,429	1,613,706	1,834,811	65,342
Non-controlling interests	795	700	676	681	953	34
Cash dividend paid per common share ⁽²⁾	6.0	7.0	8.0	10.0	10.0	0.4

	Year ended December 31,					US\$
	2016	2017	2018	2019	2020	
	NT\$	NT\$	NT\$	NT\$	NT\$	
(in millions, except for percentages and operating data)						
Other Consolidated Financial Data:						
Gross margin	50.1%	50.6%	48.3%	46.0%	53.1%	53.1%
Operating margin	39.9%	39.4%	37.2%	34.8%	42.3%	42.3%
Net margin	35.0%	35.3%	35.2%	33.1%	38.2%	38.2%
Capital expenditures	328,045	330,588	315,582	460,422	507,239	18,064
Depreciation and amortization	223,828	260,143	292,546	286,884	331,725	11,814
Cash generated by operating activities	539,835	585,318	573,954	615,139	822,667	29,297
Cash used in investing activities	(395,440)	(336,165)	(314,269)	(458,802)	(505,782)	(18,012)
Cash used in financing activities	(157,800)	(215,697)	(245,124)	(269,639)	(88,615)	(3,156)
Effect of exchange rate changes and others	(8,030)	(21,318)	9,862	(9,114)	(23,498)	(837)
Net increase (decrease) in cash	(21,435)	12,138	24,423	(122,416)	204,772	7,292
Operating Data:						
Wafer (12-inch equivalent) shipment ⁽³⁾	9,606	10,449	10,752	10,068	12,398	12,398
Billing utilization rate ⁽⁴⁾	92%	91%	87%	81%	94%	94%

- (1) Starting from 2019, we applied the guidance of IFRS 16 “Leases” (“IFRS 16”) and recognized right-of-use assets for all leases except for low-value asset leases and short-term leases. See note 4 to our 2019 consolidated financial statements for further information regarding the initial application of IFRS 16.
- (2) Prior to 2019, “Cash dividend paid per common share” was approved at our annual shareholders’ meeting. In response to amendments to the Company Act in Taiwan, our shareholders approved amendments to our Articles of Incorporation at the annual shareholders’ meeting held on June 5, 2019, authorizing our Board of Directors to distribute cash dividends on a quarterly basis. “Cash dividend paid per common share” in 2019 included cash dividend of NT\$8.0 for 2018 and cash dividend of NT\$2.0 for the first quarter of 2019. “Cash dividend paid per common share” in 2020 included cash dividend of NT\$7.5 for the second to fourth quarters of 2019 and cash dividend of NT\$2.5 for the first quarter of 2020. Please see “Management’s Discussion And Analysis Of Financial Condition And Results Of Operations—Dividends and Dividend Policy” for a further discussion. The numbers are rounded to one decimal point.
- (3) In thousands.
- (4) “Billing utilization rate” is equal to annual wafer shipment divided by annual capacity. Annual capacity includes wafers committed by Vanguard International Semiconductor Corporation (“VIS”) and Systems on Silicon Manufacturing Company Pte. Ltd. (“SSMC”). Please see “Related Party Transactions”.

The Issuer

The summary balance sheet data of the Issuer set forth below as of December 31, 2020 has been derived from the Issuer's financial statements which have been prepared and presented in accordance with IFRSs.

	As of December 31, 2020
	(in US\$ millions)
Balance Sheet Data	
Working capital ⁽¹⁾	16,344
Long-term investments	237
Total assets	17,005
Total liabilities	3,401
Shareholders' equity	13,604

(1) Working capital equals total current assets minus total current liabilities

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

Our audited consolidated financial statements for the years ended December 31, 2018, 2019 and 2020 have been prepared in accordance with IFRSs. The following discussion should be read in conjunction with the consolidated financial statements and notes thereto, which are included elsewhere in this offering circular. Unless otherwise stated, all financial information below for the years ended December 31, 2018, 2019 and 2020 is presented on a consolidated basis. The following discussion contains forward-looking statements that reflect our current views with respect to future events and financial performance. Our actual results may differ from those anticipated in the forward-looking statements as a result of various factors, including those set forth under "Risk Factors" and elsewhere in this offering circular. Please also see "Cautionary Statement Regarding Forward-Looking Information".

The following discussion covers items for and a comparison between the fiscal years ended December 31, 2020 and 2019. For the discussion covering items for the fiscal year ended December 31, 2018 and a comparison between the fiscal years ended December 31, 2019 and 2018, please refer to "Item 5" of our annual report on Form 20-F for the fiscal year ended December 31, 2019 filed with the U.S. Securities and Exchange Commission (the "SEC").

Overview

We manufacture a variety of semiconductors based on designs provided by our customers. Our business model is commonly called a "dedicated semiconductor foundry". As the leader of the foundry segment, our net revenue and net income attributable to shareholders of the parent were NT\$1,069,985 million and NT\$353,948 million in 2019 and NT\$1,339,255 million (US\$47,694 million) and NT\$510,744 million (US\$18,189 million) in 2020, respectively. Our net revenue in 2020 increased by 25.2% compared to 2019, mainly attributed to the introduction of 5-nanometer products, the growing demand for 7-nanometer and 16-nanometer products, partially offset by the appreciation of the NT dollar against the U.S. dollar on a weighted average basis from 2019 to 2020.

The principal source of our revenue is wafer fabrication, which accounted for approximately 88% of our net revenue in 2020. The rest of our net revenue was mainly derived from packaging and testing services, mask making, design, and royalty income. Factors that significantly impact our revenue include:

- worldwide demand and capacity supply for semiconductor products;
- pricing;
- production capacity;
- technology development; and
- fluctuation in foreign currency exchange rates.

While the above factors are significant factors, four of which are elaborated as follows:

Pricing. We establish pricing levels for specific periods of time with our customers, some of which are subject to adjustment during the course of that period to take into account market conditions and other factors. We believe that customers find value in our flexible manufacturing capabilities, focus on customer service and timely delivery of high yield products, and this value is reflected in our pricing. Our pricing enables us to continue to invest significantly in research and development to deliver ever-improving products to our customers.

Production Capacity. We currently own and operate our semiconductor manufacturing facilities. For the year of 2019 and 2020, our production capacity (in 12-inch equivalent wafers) was approximately 12.3 million and 13.0 million wafers, respectively.

Technology Development. Our operation utilizes a variety of process technologies, ranging from mature process technologies of 0.25 micron or above circuit resolutions to advanced process technologies of 5-nanometer circuit resolutions. The table below presents a breakdown of wafer revenue by circuit resolution for the years ended December 31, 2018, 2019 and 2020.

Resolution	Year ended December 31,		
	2018	2019	2020
	Percentage of total wafer revenue ⁽¹⁾	Percentage of total wafer revenue ⁽¹⁾	Percentage of total wafer revenue ⁽¹⁾
5-nanometer	—	—	8%
7-nanometer	9%	27%	33%
10-nanometer	11%	3%	—
16-nanometer	21%	20%	17%
20-nanometer	2%	1%	1%
28-nanometer	20%	16%	13%
40/45-nanometer	11%	10%	9%
65-nanometer	8%	8%	5%
90-nanometer	4%	3%	2%
0.11/0.13 micron	2%	2%	3%
0.15/0.18 micron	9%	8%	7%
≥0.25 micron	3%	2%	2%
Total	100%	100%	100%

(1) The figure represents wafer revenue from a certain technology as a percentage of the total wafer revenue.

In 2020, the 5-nanometer revenue represented 8% of total wafer revenue. The 7-nanometer and 16-nanometer revenues represented 33% and 17% of our total wafer revenue in 2020, respectively. Advanced technologies (16-nanometer and below) accounted for 58% of total wafer revenue, up from 50% in 2019.

In 2019, the 7-nanometer revenue reached 27% of total wafer revenue. The 10-nanometer revenue was 3% and the 16-nanometer revenue represented 20% of total wafer revenue. Advanced technologies (16-nanometer and below) accounted for 50% of total wafer revenue, up from 41% in 2018.

Foreign Currency Exchange Rates. Substantially all of our sales are denominated in U.S. dollars while we publish our financial statements in NT dollars. As a result, fluctuations in exchange rates of the NT dollar against the U.S. dollar would have a significant impact on our reported revenue. The NT dollar appreciation in 2020 had an unfavorable effect on our revenue, with weighted average exchange rates of the NT dollar per U.S. dollar appreciating from NT\$30.90 in 2019 to NT\$29.43 in 2020.

Critical Accounting Policies, Judgments and Key Sources of Estimation and Uncertainty

Summarized below are our accounting policies that we believe are important to the portrayal of our financial results and also involve the need for management to make estimates about the effect of matters that are uncertain in nature. Actual results may differ from these estimates, judgments and assumptions. Certain accounting policies are particularly critical because of their significance to our reported financial results and the possibility that future events may differ significantly from the conditions and assumptions underlying the estimates used and judgments made by us in preparing our financial statements. We have considered the economic implications of COVID-19 on critical accounting estimates and will continue evaluating the impact on our financial position and financial performance as a result of the pandemic. The following discussion should be read in conjunction with the consolidated financial statements and related notes, which are included in this offering circular.

Critical Accounting Policies and Judgments

Revenue Recognition. We recognize revenue when performance obligations are satisfied. Our performance obligations are satisfied when customers obtain control of the promised goods, which is generally when the goods are delivered to our customers' specified locations.

Commencement of Depreciation Related to Property, Plant and Equipment Classified as Equipment under Installation and Construction in Progress (EUI/CIP). Commencement of depreciation related to EUI/CIP involves determining when the assets are available for their intended

use. The criteria we use to determine whether EUI/CIP are available for their intended use involves subjective judgments and assumptions about the conditions necessary for the assets to be capable of operating in the intended manner.

Judgments on Lease Terms. In determining a lease term, we consider all facts and circumstances that create an economic incentive to exercise or not to exercise an option, including any expected changes in facts and circumstances from the commencement date until the exercise date of the option. Main factors considered include contractual terms and conditions covered by the optional periods, and the importance of the underlying asset to the lessee's operations, etc. The lease term is reassessed if a significant change in circumstances that are within our control occurs. See note 4 to our 2019 consolidated financial statements for further information regarding the initial application of IFRS 16.

Critical Accounting Policies and Key Sources of Estimation and Uncertainty

Estimation of Sales Returns and Allowances. Sales returns and other allowances is estimated and recorded based on historical experience and in consideration of different contractual terms. The amount is deducted from revenue in the same period the related revenue is recorded. We periodically review the reasonableness of the estimates. However, because of the inherent nature of estimates, actual returns and allowances could be different from our estimates. If the actual returns are greater than our estimated amount, we could be required to record an additional liability, which would have a negative impact on our recorded revenue and gross margin. For further information, please see note 24 to our 2020 consolidated financial statements included herein.

Inventory Valuation. Inventories are stated at the lower of cost or net realizable value for finished goods, work-in-progress, raw materials, supplies and spare parts. Inventory write-downs are made on an item-by-item basis, except where it may be appropriate to group similar or related items.

A significant amount of our manufacturing costs is fixed because our extensive manufacturing facilities (which provide us large production capacity) require substantial investment to construct and are largely fixed-cost assets once they become operational. When the capacity utilization increases, the fixed manufacturing costs are spread over a larger amount of output, which would lower the inventory cost per unit.

We evaluate our ending inventory based on standard cost under normal capacity utilization, and reduce the carrying value of our inventory when the actual capacity utilization is higher than normal capacity utilization. No adjustment is made to the carrying value of inventory when the actual capacity utilization is at or lower than normal capacity utilization. Normal capacity utilization is established based on historic loadings compared to total available capacity in our wafer manufacturing fabs.

We also evaluate our ending inventory and reduce the carrying value of inventory for normal waste, obsolescence and unmarketable items by an amount that is the difference between the cost of the inventory and the net realizable value. The net realizable value of the inventory is determined mainly based on assumptions of future demand within a specific time horizon, which is generally 180 days or less.

Impairment of Tangible Assets, Right-of-Use Assets and Intangible Assets Other than Goodwill. We assess the impairment of tangible assets (property, plant and equipment), right-of-use assets and intangible assets other than goodwill whenever triggering events or changes in circumstances indicate that the asset may be impaired and the carrying value may not be recoverable.

Indicators we consider important which could trigger an impairment review include, but are not limited to, the following:

- significant underperformance relative to historical or projected future operating results;
- significant changes in the manner of our use of the acquired assets or our overall business strategy; and
- significant unfavorable industry or economic trends.

When we determine that the carrying value of tangible assets, right-of-use assets and intangible assets may not be recoverable based upon the existence of one or more of the above indicators of impairment, we measure any impairment for tangible assets, right-of-use assets and intangible assets based on projected future cash flow. If the tangible assets, right-of-use assets or intangible assets are determined to be impaired, we recognize an impairment loss through a charge to our operating results to the extent the recoverable amount, measured at the present value of discounted cash flows attributable to the assets, is less than their carrying value. Such cash flow analysis includes assumptions about expected future economic and market conditions, the applicable discount rate, and the future revenue generation from the use or disposition of the assets. We also perform a periodic review to identify assets that are no longer used and are not expected to be used in future periods and record an impairment charge to the extent that the carrying amount of the tangible assets, right-of-use assets and intangible assets exceeds the recoverable amount. If the recoverable amount subsequently increases, the impairment loss previously recognized will be reversed to the extent of the increase in the recoverable amount, provided that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognized for the asset in prior years.

In the process of evaluating the potential impairment of tangible assets, right-of-use assets and intangible assets other than goodwill, we are required to review for impairment groups of assets related to the lowest level of identifiable independent cash flows. We determine the independent cash flows that can be related to specific asset groups. In addition, we determine the remaining useful lives of assets and the expected future revenue and expenses associated with the assets. Any change in these estimates based on changed economic conditions or business strategies could result in significant impairment charges or reversal in future periods. Our projection for future cash flow is generally lower during periods of reduced earnings. As a result, an impairment charge is more likely to occur during a period when our operating results are already otherwise depressed.

In 2019, we recognized a reversal of impairment loss of NT\$301 million due to redeployment of certain idle machinery and equipment. No impairment loss was recorded in 2020. As of December 31, 2019 and 2020, net tangible assets, right-of-use assets and intangible assets amounted to NT\$1,384,569 million and NT\$1,603,649 million (US\$57,110 million), respectively.

Realization of Deferred Income Tax Assets. When we have temporary differences in the amount of tax expenses recorded for tax purposes and financial reporting purposes, we may be able to reduce the amount of tax that we would otherwise be required to pay in future periods. We generally recognize deferred tax assets to the extent that it is probable that sufficient taxable income will be available in the future to utilize such assets. The income tax benefit or expense is recorded when there is a net change in our total deferred tax assets and liabilities in a period. The ultimate realization of the deferred tax assets depends upon the generation of future taxable income during the periods in which the temporary differences may be utilized. Specifically, the realization of deferred income tax assets is impacted by our expected future revenue growth and profitability, tax holidays, Alternative Minimum Tax ("AMT"), the surtax imposed on unappropriated earnings and the amount of tax credits that can be utilized within the statutory period. In determining the amount of deferred tax assets, we considered past performance, the general outlook of the semiconductor industry, business conditions, future taxable income and prudent and feasible tax planning strategies.

Because the determination of the amount of deferred tax assets that can be realized is based, in part, on our forecast of future profitability, it is inherently uncertain and subjective. Changes in market conditions and our assumptions may cause the actual future profitability to differ materially from our current expectation, which may require us to increase or decrease the deferred tax assets that we have recorded. As of December 31, 2019 and 2020, deferred tax assets were NT\$17,928 million and NT\$25,958 million (US\$924 million), respectively. Deferred tax assets increased by NT\$8,030 million in 2020, mainly due to depreciation of certain fixed assets that resulted in temporary differences between the carrying value of these fixed assets and their tax basis, which may be deductible for tax purposes in the future.

Determination of Lessees' Incremental Borrowing Rates. In determining a lessee's incremental borrowing rate used in discounting lease payments, we mainly take into account the market risk-free rates, the estimated lessee's credit spreads and secured status in a similar economic environment. See note 4 to our 2019 consolidated financial statements for further information regarding the initial application of IFRS 16.

Results of Operations

The following table sets forth, for the periods indicated, certain financial data from our consolidated statements of profit or loss and other comprehensive income, expressed in each case as a percentage of net revenue:

	For the year ended December 31,		
	2018	2019	2020
Net revenue	100.0%	100.0%	100.0%
Cost of revenue	(51.7)%	(54.0)%	(46.9)%
Gross profit	48.3%	46.0%	53.1%
Operating expenses			
Research and development	(8.3)%	(8.6)%	(8.2)%
General and administrative	(2.0)%	(2.0)%	(2.1)%
Marketing	(0.6)%	(0.6)%	(0.5)%
Total operating expenses	(10.9)%	(11.2)%	(10.8)%
Other operating income and expenses, net	(0.2)%	0.0%	0.0%
Income from operations	37.2%	34.8%	42.3%
Income before income tax	38.5%	36.4%	43.7%
Income tax expense	(3.3)%	(3.3)%	(5.5)%
Net income	35.2%	33.1%	38.2%
Other comprehensive income (loss) for the year, net of income tax	1.0%	(1.1)%	(2.3)%
Total comprehensive income for the year	36.2%	32.0%	35.9%
Net income attributable to shareholders of the parent	35.2%	33.1%	38.1%
Net income attributable to non-controlling interests	0.0%	0.0%	0.1%

Year Ended December 31, 2020 Compared to Year Ended December 31, 2019

Net Revenue and Gross Margin

	For the year ended December 31,					
	2018	2019	% Change in NT\$ from 2018	2020		% Change in NT\$ from 2019
	NT\$	NT\$		NT\$	US\$	
	(in millions, except percentages)					
Net revenue	1,031,474	1,069,985	3.7%	1,339,255	47,694	25.2%
Cost of revenue	(533,488)	(577,286)	8.2%	(628,109)	(22,368)	8.8%
Gross profit before realized (unrealized) gross profit on sales to associates	497,986	492,699	(1.1)%	711,146	25,326	44.3%
Realized (unrealized) gross profit on sales to associates	(112)	3	—	(16)	(1)	(633.3)%
Gross profit	497,874	492,702	(1.0)%	711,130	25,325	44.3%
Gross margin percentage	48.3%	46.0%	—	53.1%	53.1%	—

Net Revenue

Our net revenue in 2020 increased by 25.2% from 2019, which was mainly attributed to an 8.2% increase in ASP due to higher advanced technology revenue weighting and a 23.1% increase in wafer shipments, partially offset by a 4.7% appreciation of the NT dollar against the U.S. dollar. We shipped approximately 12.4 million 12-inch equivalent wafers in 2020 compared to 10.1 million in 2019. Meanwhile, newly commercialized 5-nanometer accounted for 8% of our total wafer revenue in 2020.

Gross Margin

Our gross margin fluctuates with the level of capacity utilization, price changes, cost improvement, product mix and exchange rate, among other factors. Furthermore, our gross margin would be negatively impacted in the year when a new technology is introduced.

In 2020, our gross margin increased to 53.1% of net revenue from 46.0% in 2019, mainly attributed to higher capacity utilization and continuing cost improvement, partially offset by an unfavorable exchange rate. We commenced volume production and shipment of 5-nanometer products in 2020, and our gross margin in 2020 was diluted by about 1-2 percentage points from 5-nanometer products.

Operating Expenses

	For the year ended December 31,					
	2018	2019	% Change in NT\$ from 2018	2020		% Change in NT\$ from 2019
	NT\$	NT\$		NT\$	US\$	
	(in millions, except percentages)					
Research and development	85,895	91,419	6.4%	109,486	3,899	19.8%
General and administrative	20,266	21,737	7.3%	28,457	1,013	30.9%
Marketing	5,988	6,349	6.0%	7,113	253	12.0%
Total operating expenses	<u>112,149</u>	<u>119,505</u>	6.6%	<u>145,056</u>	<u>5,165</u>	21.4%
Percentage of net revenue	10.9%	11.2%	—	10.8%	10.8%	—
Other operating income and expenses, net	(2,101)	(496)	76.4%	710	25	—
Income from operations	<u>383,624</u>	<u>372,701</u>	(2.8)%	<u>566,784</u>	<u>20,185</u>	52.1%
Operating Margin	37.2%	34.8%	—	42.3%	42.3%	—

Operating expenses increased by NT\$25,551 million in 2020, or 21.4%, from NT\$119,505 million in 2019.

Research and Development Expenses

We remain strongly committed to being the leader in advanced process technologies development. We believe that continuing investment in process technologies is essential for us to remain competitive in the markets we serve.

Research and development expenditures increased by NT\$18,067 million in 2020, or 19.8%, from NT\$91,419 million in 2019. The increases in 2020 were mainly attributed to a higher level of research activities for 2-nanometer and 3-nanometer process technologies, as we continued to advance to smaller processing nodes, partially offset by a lower level of research activities for 5 nanometer and 7-nanometer compared to 2019.

General and Administrative and Marketing Expenses

General and administrative and marketing expenses in 2020 increased by NT\$7,484 million, or 27%, from 2019, mainly reflecting one-time expenses to facilitate the expansion of our production base in Hsinchu, donations for COVID-19, and higher employee profit sharing expenses due to higher net income.

Other Operating Income and Expenses

Net other operating income and expenses in 2020 increased by NT\$1,206 million from 2019 to a net gain of NT\$710 million, mainly due to the disposal gain on property, plant and equipment of NT\$189 million, compared to the disposal losses on property, plant and equipment of NT\$950 million in 2019.

Non-Operating Income and Expenses

	For the year ended December 31,					
	2018	2019	% Change in NT\$ from 2018	2020		% Change in NT\$ from 2019
	NT\$	NT\$		NT\$	US\$	
	(in millions, except percentages)					
Share of profits of associates	3,091	2,861	(7.4)%	3,562	127	24.5%
Interest income	14,695	16,190	10.2%	9,018	321	(44.3)%
Other income	158	417	163.9%	661	23	58.5%
Foreign exchange gain (loss), net	2,438	2,095	(14.1)%	(3,303)	(118)	(257.7)%
Finance costs	(3,052)	(3,251)	6.5%	(2,082)	(74)	(36.0)%
Other gains and losses, net	(3,411)	(1,151)	66.3%	10,106	360	—
Net non-operating income	<u>13,919</u>	<u>17,161</u>	23.3%	<u>17,962</u>	<u>639</u>	4.7%

Net non-operating income in 2020 increased by NT\$801 million, or 4.7%, from NT\$17,161 million in 2019, mainly due to a gain on financial instruments at fair value through profit or loss of NT\$8,245 million compared to a loss on financial instruments at fair value through profit or loss of NT\$2,361 million in 2019 and lower finance costs of NT\$1,169 million compared to 2019. The increases were partially offset by lower interest income of NT\$7,172 million compared to 2019 and a foreign exchange loss of NT\$3,303 million due to the NT dollar's appreciation against the U.S. dollar compared to a foreign exchange gain of NT\$2,095 million in 2019.

Income Tax Expense

	For the year ended December 31,					
	2018	2019	% Change in NT\$ from 2018	2020		% Change in NT\$ from 2019
	NT\$	NT\$		NT\$	US\$	
	(in millions, except percentages)					
Income tax expense	(34,437)	(35,835)	4.1%	(73,738)	(2,626)	105.8%
Net income	<u>363,106</u>	<u>354,027</u>	(2.5)%	<u>511,008</u>	<u>18,198</u>	44.3%
Net income attributable to shareholders of the parent	<u>363,053</u>	<u>353,948</u>	(2.5)%	<u>510,744</u>	<u>18,189</u>	44.3%
Net margin attributable to shareholders of the parent	35.2%	33.1%	—	38.1%	38.1%	—

Income tax expenses increased by NT\$37,903 million in 2020, or 105.8%, from 2019. The increase was mainly attributed to higher corporate income tax due to higher taxable income. In addition, higher surtax imposed on unappropriated earnings was resulted from higher 2020 undistributed earnings.

Liquidity and Capital Resources

Our sources of liquidity include cash flow from operations, cash and cash equivalents, and current portion of marketable securities. Issuance of corporate bonds, such as the Notes, is another source of funds as well.

Our primary source of liquidity is cash flow from operations. Cash flow from operations for 2020 was NT\$822,667 million (US\$29,297 million), an increase of NT\$207,528 million from 2019.

Our cash, cash equivalents and current portion of marketable securities increased to NT\$791,477 million (US\$28,186 million) as of December 31, 2020 from NT\$583,449 million as of December 31, 2019. The current portion of marketable securities primarily consisted of fixed income securities. In 2020, we issued NT dollar-denominated corporate bonds of NT\$120,000 million (US\$4,274 million) and US dollar-denominated corporate bonds of US\$4,000 million. For further information, please refer to note 19 and note 31 to our 2020 consolidated financial statements.

We believe that our cash generated from operations, cash and cash equivalents, current portion of marketable securities, and ability to access capital markets will be sufficient to fund our working capital needs, capital expenditures, debt repayments, dividend payments and other business requirements associated with existing operations over the next 12 months.

	For the year ended December 31,			
	2018	2019	2020	
	NT\$	NT\$ (in millions)	NT\$	US\$
Net cash generated by operating activities	573,954	615,139	822,667	29,297
Net cash used in investing activities	(314,269)	(458,802)	(505,782)	(18,012)
Net cash used in financing activities	(245,124)	(269,639)	(88,615)	(3,156)
Effect of exchange rate changes on cash and cash equivalents	9,862	(9,114)	(23,498)	(837)
Net increase (decrease) in cash and cash equivalents	24,423	(122,416)	204,772	7,292

Cash and cash equivalents increased by NT\$204,772 million in 2020, following a decrease of NT\$122,416 million in 2019.

Operating Activities

In 2020, we generated NT\$822,667 million (US\$29,297 million) net cash from operating activities, as compared to NT\$615,139 million in 2019. The net cash generated from operating activities was primarily from NT\$584,746 million in income before income tax and NT\$331,725 million in non-cash depreciation and amortization expenses, partially offset by income tax payment, change in working capital and others of NT\$93,804 million. The higher depreciation and amortization expenses in 2020 were mainly attributed to continuing investment in production capacity for advanced technologies.

In 2019, net cash generated from operating activities was primarily from NT\$389,862 million in income before income tax and NT\$286,884 million in non-cash depreciation and amortization expenses, partially offset by income tax payments, changes in working capital and others of NT\$61,607 million. The decrease in depreciation and amortization expenses in 2019 was mainly related to the increment of fully depreciated investment in production capacity for previous technologies.

Investing Activities

In 2020, net cash used in investing activities was NT\$505,782 million (US\$18,012 million), as compared to NT\$458,802 million in 2019. The primary use of cash in investing activities in 2020 was for capital expenditures of NT\$507,239 million.

In 2019, net cash used in investing activities was primarily for capital expenditures of NT\$460,422 million.

Our capital expenditures for 2020 were primarily related to:

- installing and expanding capacity, mainly for 7-nanometer and 5-nanometer nodes;
- expanding capacity for advanced packaging and mask operations;
- establishing Fab 18; and
- investing in research and development projects for new process technologies.

Our capital expenditures for 2019 were funded by operating cash flow. The capital expenditures for 2020 were funded mainly by our operating cash flow and proceeds from the issuance of corporate bonds. See “Risk Factors” section for the risks associated with the inability of raising the requisite funding for our expansion programs. Please also see “Business—Capacity Management and Technology Upgrade Plans” for a discussion of our capacity management and capital expenditure expectation and plans.

Financing Activities

In 2020, net cash used by financing activities was NT\$88,615 million (US\$3,156 million), as compared to net cash used of NT\$269,639 million in 2019. The net cash used by financing activities in

2020 was mainly for cash dividend payments, repayments of corporate bonds and short-term loans, partially offset by the proceeds from issuance of corporate bonds.

In 2019, net cash used by financing activities was mainly for cash dividend payments and repayments of corporate bonds, partially offset by the increases in short-term loans.

As of December 31, 2020, our short-term loans were NT\$88,559 million (US\$3,154 million). A majority of the short-term loans were denominated in Euros. Our aggregate long-term debt was NT\$258,673 million (US\$9,212 million), of which NT\$2,600 million (US\$93 million) was classified as current. The long-term debt was NT dollar- and U.S. dollar-denominated corporate bonds with fixed interest rates ranging from 0.36% to 2.70% and remaining maturity ranging from less than 1 year to 40 years.

Cash Requirements

The following table sets forth the maturity of our long-term debt, including relevant interest payments outstanding as of December 31, 2020:

	<u>Long-term debt</u> (in NT\$ millions)
During 2021	5,336
During 2022	7,276
During 2023	21,203
During 2024	9,984
During 2025 and thereafter	258,326

The following table sets forth information on our material contractually obligated payments (including principal and interest) for the periods indicated as of December 31, 2020:

<u>Contractual Obligations</u>	<u>Payments Due by Period</u>				
	<u>Total</u>	<u>Less than</u> <u>1 Year</u>	<u>1-3 Years</u>	<u>3-5 Years</u>	<u>More than</u> <u>5 Years</u>
	(in NT\$ millions)				
Short-Term Loans ⁽¹⁾	88,558	88,558	—	—	—
Long-Term Debt ⁽²⁾	302,125	5,336	28,479	61,158	207,152
Capital Leases ⁽³⁾	23,858	2,024	3,567	3,199	15,068
Non-Capital Leases ⁽⁴⁾	3,342	3,342	—	—	—
Capital Purchase or Other Purchase Obligations ⁽⁵⁾	526,762	515,454	11,297	11	—
Total Contractual Cash Obligations	944,645	614,714	43,343	64,368	222,220

- (1) The maximum amount and average amount of short-term loans outstanding during the year ended December 31, 2020, were NT\$178,550 million and NT\$148,349 million, respectively. See note 18 to our 2020 consolidated financial statements included herein for further information regarding interest rates and future repayment dates.
- (2) Represents corporate bonds payable and long-term bank loans. See note 19 and note 20 to 2020 our consolidated financial statements included herein for further information regarding interest rates and future repayment of long-term debts.
- (3) Capital lease obligations are described in note 6, note 16, note 31 and note 33 to our 2020 consolidated financial statements included herein.
- (4) Non-capital leases represent short-term leases and low-value asset leases. See note 16 to our 2020 consolidated financial statements included herein for further information.
- (5) Represents commitments for construction or purchase of equipment, raw material and other property or services. These commitments were not recorded on our statement of financial position as of December 31, 2020, as we had not received related goods or taken title of the property.

During 2020, we used derivative financial instruments to partially hedge the currency exchange rate risk related to non-NT dollar-denominated assets and liabilities and certain forecasted transactions, and interest rate risk related to our fixed income investments. See “—Market Risk” for a further discussion about currency exchange rate risk, interest rate risk, and derivative financial instruments we used to hedge such risks. See also note 5 to our 2020 consolidated financial statements included herein for our accounting policy of derivative financial instruments, and note 8,

note 11 and note 33 to our 2020 consolidated financial statements included herein for additional details regarding our derivative financial instruments transactions.

Generally, we do not provide letters of credit to, or guarantees for, any entity other than our consolidated subsidiaries.

A significant amount of capital is required to build, expand, and upgrade our production facilities and equipment. Our capital expenditures for 2021 are expected to be approximately US\$30 billion, which, depending on market conditions, may be adjusted later.

Taxation

Effective from 2018, the R.O.C. Income Tax Law was amended, which abolished the imputation system, raised the corporate income tax rate from 17% to 20%, and reduced the rate of surtax imposed on unappropriated earnings from 10% to 5%. Effective from 2020, the R.O.C. Statute for Industrial Innovation was amended, which extends the tax incentive by 10 years for research and development (“R&D”) expenditure. In addition, if a company uses its undistributed earnings to construct or purchase buildings, software or hardware equipment, or technology for use in production or operation, such investment amounts may be deducted from the undistributed earnings in calculation of the current year’s undistributed earnings for assessment of surtax imposed on undistributed earnings from the year 2018. Pursuant to the regulation changes on R&D tax credit and undistributed earnings, we are eligible for a 10%~15% R&D tax credit. In addition, our capital expenditures could be deducted from the undistributed earnings in calculation of surtax imposed on undistributed earnings.

The alternative minimum tax (“AMT”) imposed under the R.O.C. AMT Act is a supplemental income tax which applies if the amount of regular income tax calculated pursuant to the R.O.C. Income Tax Act and relevant laws and regulations is below the amount of basic tax prescribed under the R.O.C. AMT Act. The taxable income for calculating AMT includes most income that is exempt from income tax under various legislations, such as tax holidays. The prevailing AMT rate for business entities is 12%. As we are eligible for tax holidays, AMT is generally applicable to us.

We are eligible for five-year tax holidays for income generated from construction and capacity expansions of production facilities according to regulations under the Statute for Upgrading Industries of the R.O.C. The exemption period may begin at any time within five years, as applicable, following the completion of a construction or expansion of production facilities. The Statute for Upgrading Industries expired at the end of 2009. However, under the Grandfather Clause, we can continue to be eligible for five-year tax holidays if the relevant investment plans were approved by the R.O.C. tax authority before the expiration of the Statute. Pursuant to the Grandfather Clause, we commenced the exemption period for part of Fab 12 (Phase IV) and part of Fab 14 (Phase III to VI) in 2014, part of Fab 12 (Phase IV to V) and part of Fab 14 (Phase III to IV) in 2015, and part of Fab 15 (Phase I to IV) and part of Fab 14 (Phase III to IV) in 2018. The aggregate tax benefits of such exemption periods in 2019 and 2020 were NT\$29,440 million and NT\$47,115 million (US\$1,678 million), net of AMT effect, respectively.

Off Balance Sheet Arrangements

There are no off-balance sheet arrangements that have or are reasonably likely to have a current or future effect on our financial condition, changes in financial condition, revenue or expenses, results of operations, liquidity, capital expenditures or capital resources that are material to investors.

Recent Accounting Pronouncements

Please refer to note 4 to our 2020 consolidated financial statements included herein.

Climate Change Related Issues

The manufacturing, assembling and testing of our products require the use of chemicals and materials that are subject to environmental, climate related, health and safety laws and regulations issued worldwide as well as international accords such as the Paris Agreement. Climate change related laws or regulations currently are too indefinite for us to assess the impact on our future financial condition with any degree of reasonable certainty. For example, the Taiwan “Greenhouse Gas

Reduction and Management Act” became effective on July 1, 2015. Although certain of its relevant regulations have been promulgated since then, such as a carbon tax which is being proposed by the Taiwan government and may affect TSMC at some level financially, we expect to see more of its relevant regulations be promulgated by the regulators in the future. Also, the R.O.C. legislative authority is reviewing, at all times, various environmental issues to develop laws and regulations relating to environmental protection and climate related changes. The impact of such laws and regulations, as well as of the carbon tax, is indeterminable at the moment. Please see detailed risk factors related to the impact of climate change regulations and international accords in “Risk Factors—Risks Relating to Our Business”. Please also see our compliance record with Taiwan and international environmental and climate-related laws and regulations in “Business—Environmental and Climate-Related Laws and Regulations”.

Legal Proceedings

As is the case with many companies in the semiconductor industry, we have received from time to time communications from third parties asserting that our technologies, our manufacturing processes, or the design of the semiconductors made by us or the use of those semiconductors by our customers may infringe upon their patents or other intellectual property rights. These assertions have at times resulted in litigation by or against us and settlement payments by us. Irrespective of the validity of these claims, we could incur significant costs in the defense thereof or could suffer adverse effects on our operations. We are also subject to antitrust compliance requirements and scrutiny by governmental regulators in multiple jurisdictions. Any adverse results of such proceeding or other similar proceedings that may arise in those jurisdictions could harm our business and distract our management, and thereby have a material adverse effect on our results of operations or prospects, and subject us to potential significant legal liability.

On September 28, 2017, we were contacted by the European Commission, which asked us for information and documents concerning alleged anti-competitive practices in relation to semiconductor sales. We cooperated continuously with the European Commission to provide the requested information and documents. The European Commission subsequently decided to close the investigation in May 2020.

Other than the matter described above, we were not a party to any other material litigation as of the date of this offering circular and are not currently a party to any other material litigation.

Dividends and Dividend Policy

Except as otherwise specified in the Articles of Incorporation or under the R.O.C. laws, we will not pay dividends or make other distributions to shareholders when there are no earnings. Our profits may be distributed by way of cash dividend, stock dividend, or a combination of cash and stock. Pursuant to our Articles of Incorporation, distributions of profits shall be made preferably by way of cash dividend. In addition, the ratio for stock dividends shall not exceed 50% of the total distribution. Distribution of stock dividends is subject to approval by the R.O.C. Financial Supervisory Commission (“FSC”).

In the annual general meeting of shareholders on June 5, 2019, our shareholders approved the amendments to our Articles of Incorporation to authorize our Board of Directors to approve quarterly cash dividends after the close of each quarter. After our Board of Directors approves quarterly cash dividends, we will distribute the dividend within six months. The respective amounts and payment dates of 2020 quarterly cash dividends are demonstrated in the table below.

Period	Approved Date	Payment Date	Cash Dividends Per Share (NT\$)	Total Amount (NT\$)
First quarter of 2020	May 12, 2020	October 15, 2020	2.50	64,825,951,145
Second quarter of 2020	August 11, 2020	January 14, 2021	2.50	64,825,951,145
Third quarter of 2020	November 10, 2020	April 15, 2021	2.50	64,825,951,145
Fourth quarter of 2020	February 9, 2021	July 15, 2021	2.50	64,825,951,145

Holders of outstanding common shares on a dividend record date will be entitled to the full dividend declared without regard to any subsequent transfer of the common shares.

Holders of ADRs evidencing ADSs are also entitled to receive dividends, subject to the terms of the deposit agreement, to the same extent as the holders of common shares. Cash dividends will be paid to the depositary and, after deduction of any applicable R.O.C. taxes and except as otherwise provided in the deposit agreement, will be paid to holders. Stock dividends will be distributed to the depositary and, except as otherwise provided in the deposit agreement, will be distributed to holders by the depositary in the form of additional ADSs.

Employees

The following table sets out, as of the dates indicated, the number of our full-time employees serving in the capacities indicated.

<u>Function</u>	<u>As of December 31,</u>		
	<u>2018</u>	<u>2019</u>	<u>2020</u>
Managers	5,294	5,364	5,857
Professionals	22,285	24,416	27,767
Assistant Engineers/Clericals	4,109	4,357	4,832
Technicians	17,064	17,160	18,375
Total	<u>48,752</u>	<u>51,297</u>	<u>56,831</u>

The following table sets out, as of the dates indicated, a breakdown of the number of our full-time employees by geographic location:

<u>Location of Facility and Principal Offices</u>	<u>As of December 31,</u>		
	<u>2018</u>	<u>2019</u>	<u>2020</u>
Hsinchu Science Park, Taiwan	23,998	24,442	25,776
Southern Taiwan Science Park, Taiwan	11,157	12,771	16,114
Central Taiwan Science Park, Taiwan	6,868	7,333	7,668
Taoyuan County, Taiwan	1,482	1,475	1,661
China	3,634	3,679	3,859
North America	1,522	1,513	1,620
Europe	55	50	52
Japan	33	32	78
Korea	3	2	3
Total	<u>48,752</u>	<u>51,297</u>	<u>56,831</u>

As of December 31, 2020, our total employee population was 56,831 with an educational makeup of 4.4% Ph.Ds, 46.7% masters, 25.7% university bachelors, 9.8% college degrees and 13.3% others. Among this employee population, 59.2% were at a managerial or professional level. Continuous learning is the cornerstone of our employee development strategy. Individual development plans are tailor-made to individual development needs for each employee. Employee development is further supported and enforced by a comprehensive network of resources including on the job training, coaching, mentoring, job rotation, classroom training, e-learning and external learning opportunities.

Pursuant to our Articles of Incorporation, our employees participate in our profits sharing program by way of a bonus. Employees in the aggregate are entitled to not less than 1% of our annual profits (defined under local law), after recovering any losses incurred in prior years. Our practice has been to determine the amount of the bonus based on our operating results and industry practice in the R.O.C.

In 2019 and 2020, we distributed employees' business performance bonus of NT\$23,166 million and employees' cash profit sharing bonus of NT\$23,166 million to our employees in relation to year 2019 profits. In 2020 and 2021, we distributed employees' business performance bonus of NT\$34,753 million (US\$1,238 million) to our employees in relation to year 2020 profits. Employees' cash profit sharing bonus of NT\$34,753 million (US\$1,238 million) in relation to year 2020 profits will be distributed in July 2021.

As to employee relations, we value two-way communication and are committed to keeping our communication channels open and transparent between the management level and their subordinates. In addition, we are dedicated to providing diverse employee engagement programs, which support our goals of reinforcing close rapport with employees and maintaining harmonious labor relations.

Market Risks

We are exposed to financial market risks, primarily in currency exchange rates, interest rates and equity investment prices. A portion of these risks is hedged.

Foreign Currency Risk: Substantially all of our revenue is denominated in U.S. dollars and over one-half of our capital expenditures are denominated in currencies other than NT dollars, primarily in U.S. dollars, Euros and Japanese yen. As a result, any significant fluctuations to our disadvantage in the exchange rate of the NT dollar against such currencies, in particular a weakening of the U.S. dollar against the NT dollar, would have an adverse impact on our revenue and operating profit as expressed in NT dollars.

We use foreign currency derivatives contracts, such as currency forwards or currency swaps, to protect against currency exchange rate risks associated with non-NT dollar-denominated assets and liabilities and certain forecasted transactions. These hedges reduce, but do not entirely eliminate, the effect of foreign currency exchange rate movements on our assets and liabilities. Based on a sensitivity analysis performed on our total monetary assets and liabilities, a hypothetical adverse foreign currency exchange rate change of 10% as of December 31, 2019 and 2020, would have decreased our net income by NT\$2,137 million and NT\$898 million (US\$32 million) in 2019 and 2020, respectively, and decreased our other comprehensive income by NT\$108 million and nil in 2019 and 2020, respectively, after taking into account hedges and offsetting positions. For further information, please see note 8, note 11 and note 33 to our 2020 consolidated financial statements included herein.

Interest Rate Risks: We are exposed to interest rate risks primarily related to our investment portfolio and outstanding debt. Changes in interest rates affect the interest earned on our cash and cash equivalents and fixed income securities, the fair value of those securities, as well as the interest paid on our debt.

The objective of our investment policy is to achieve a return that will allow us to preserve principal and support liquidity requirements. The policy generally requires us to invest in securities with investment grade and limits the amount of credit exposure to any one issuer. Our cash and cash equivalents as well as fixed income investments in both fixed- and floating-rate securities carry a degree of interest rate risk. The majority of our fixed income investments are fixed-rate securities, which are classified as financial assets at fair value through other comprehensive income, and may have their fair value adversely affected due to a rise in interest rates. At the same time, if interest rates fall, cash and cash equivalents as well as floating-rate securities may generate less interest income than expected.

We have entered, and may in the future enter, into interest rate futures to partially hedge the interest rate risk on our fixed income investments. However, these hedges can offset only a small portion of the financial impact from movements in interest rates.

Based on a sensitivity analysis performed on our fixed income investments with an aggregate carrying amount of NT\$135,086 million and NT\$133,369 million (US\$4,750 million) as of December 31, 2019 and 2020, a hypothetical adverse interest rate change of 100 basis points across all maturities would have decreased our other comprehensive income by NT\$3,517 million and NT\$3,144 million (US\$112 million) in 2019 and 2020, respectively, and decreased our net income by approximately NT\$1 million and nil in 2019 and 2020, respectively, after taking into account interest rate hedges. For further information, please refer to note 9, note 10, note 11 and note 33 to our 2020 consolidated financial statements included herein.

As of December 31, 2020, we had outstanding floating- and fixed-rate debt with varying maturities for an aggregate carrying amount of NT\$347,232 million (US\$12,366 million). All of our short-term debt is floating-rate, hence a rise in interest rates may result in higher interest expense than expected. The majority of our long-term debt is fixed-rate and measured at amortized cost and as such, changes in interest rates would not affect the future cash flows and the carrying amount. For further information, please refer to note 18, note 19, note 20 and note 33 to our 2020 consolidated financial statements included herein.

Certain of our fixed income investments and short-term debt are primarily based on the London Interbank Offered Rate ("LIBOR"), which is expected to be replaced by other benchmark rates after

2021. We cannot predict the consequences and timing of these developments, or whether such a transition might cause a reduction in our interest income and/or an increase in our interest expense.

Other Market Risk: Our equity securities are subject to a wide variety of market-related risks that could substantially reduce the fair value of our holdings. We currently do not reduce our equity market exposure through hedging activities. As of December 31, 2019 and 2020, we had investments in private equity securities mostly through a number of investment funds with a carrying value of NT\$4,124 million and NT\$4,515 million (US\$161 million), respectively. Based on a sensitivity analysis performed on our equity investments as of December 31, 2019 and 2020, a hypothetical adverse price change of 10% would have decreased our other comprehensive income by approximately NT\$402 million and NT\$446 million (US\$16 million) in 2019 and 2020, respectively. The actual disposal value of these investments may be significantly different from their carrying value. For further information, please see note 33 to our 2020 consolidated financial statements included herein.

BUSINESS

Our History and Structure

Our legal and commercial name is 台灣積體電路製造股份有限公司 (Taiwan Semiconductor Manufacturing Company Limited). We believe we are currently the world's largest dedicated foundry in the semiconductor industry. We were founded in 1987 as a joint venture among the R.O.C. government and other private investors and were incorporated in the R.O.C. as a company limited by shares on February 21, 1987. Our common shares have been listed on the Taiwan Stock Exchange since September 5, 1994, and our ADSs have been listed on the New York Stock Exchange since October 8, 1997.

Our Principal Office

Our principal executive office is located at No. 8, Li-Hsin Road 6, Hsinchu Science Park, Hsinchu, Taiwan, Republic of China. Our telephone number at that office is (886-3) 563-6688. Our website is www.tsmc.com. Information contained on our website is not incorporated herein by reference and does not constitute part of this offering circular. The SEC maintains an Internet site at www.sec.gov that contains reports, proxy and information statements, and other information regarding issuers, including the Guarantor, that file electronically with the SEC.

Business Overview of the Company

As a foundry, we manufacture semiconductors using our manufacturing processes for our customers based on proprietary integrated circuit designs provided by them. We offer a comprehensive range of wafer fabrication processes, including processes to manufacture complementary metal oxide silicon ("CMOS") logic, mixed-signal, radio frequency ("RF"), embedded memory, bipolar complementary metal oxide silicon ("BiCMOS", which uses CMOS transistors in conjunction with bipolar junction transistor) mixed-signal and other semiconductors. We produced 24 percent of the world semiconductor excluding memory output value in 2020, as compared to 21 percent in the previous year. We also offer design, mask making, TSMC 3DFabric™ advanced 3D chip stacking and packaging, and testing services.

We believe that our large capacity, particularly for advanced technologies, is a major competitive advantage. Please see "—Semiconductor Manufacturing Capacity and Technology" and "—Capacity Management and Technology Upgrade Plans" for a further discussion of our capacity.

We count among our customers many of the world's leading semiconductor companies, ranging from fabless semiconductor companies, system companies to integrated device manufacturers, including, but not limited to, Advanced Micro Devices, Inc., Broadcom Limited, Intel Corporation, MediaTek Inc., NVIDIA Corporation, NXP Semiconductors N.V., OmniVision Technology Inc., Qualcomm Inc., STMicroelectronics N.V., and Xilinx Inc.

Our Semiconductor Facilities

We currently operate one 150mm wafer fab, six 200mm wafer fabs, five 300mm wafer fabs, and four advanced backend fabs. Our corporate headquarters and seven of our fabs are located in the Hsinchu Science Park, two fabs are located in the Central Taiwan Science Park, four fabs are located in the Southern Taiwan Science Park, one fab is located in the United States, one fab is located in Shanghai, and one fab is located in Nanjing. Our corporate headquarters and our seven fabs in Hsinchu occupy parcels of land of a total of approximately 814,355 square meters. We have leased these parcels from the Hsinchu Science Park Administration in Hsinchu under agreements that will be up for renewal between December 2026 and December 2040. We have leased from the Central Taiwan Science Park Administration a parcel of land of approximately 564,619 square meters for our Taichung fabs under agreements that will be up for renewal between September 2029 and December 2034. We have leased from the Southern Taiwan Science Park Administration approximately 1,820,855 square meters of land for our fabs in the Southern Taiwan Science Park under agreements that will be up for renewal between December 2024 and January 2041. We also own approximately

143,215 square meters of land located in Miaoli, Taiwan. WaferTech, LLC (“WaferTech”) owns a parcel of land of approximately 1,052,186 square meters in the State of Washington in the United States, where the WaferTech fab and related offices are located. TSMC China owns the land use rights of 369,087 square meters of land in Shanghai, where Fab 10 and related offices are located. TSMC Nanjing Company Limited (“TSMC Nanjing”) owns the land use rights of 453,401 square meters of land in Nanjing, where Fab 16 and related offices are located. TSMC Arizona is entitled to purchase approximately 5,175,739 square meters of land in the State of Arizona in the United States, where Fab 21 and related offices will be located. Other than certain equipment under leases located at testing areas, we own all of the buildings and equipment for our fabs.

Semiconductor Manufacturing Capacity and Technology

We manufacture semiconductors on silicon wafers based on proprietary circuitry designs provided by our customers. Two key factors that characterize a foundry’s manufacturing capabilities are output capacity and fabrication process technologies. Since our establishment, we have possessed the largest capacity among the world’s dedicated foundries. We also believe that we are the technology leader among the dedicated foundries in terms of our net revenue of advanced semiconductors with a resolution of 16-nanometer and below, and are one of the leaders in the semiconductor manufacturing industry generally. In 2020, our 7-nanometer technology, in its third year of volume production, shipped over one billion good dies for our customers. Our 7-nanometer Plus technology also entered its second year of volume production using Extreme Ultraviolet (EUV) lithography technology, while our 6-nanometer technology, which provides a clear migration path for next wave 7-nanometer products, entered volume production in 2020 as well. In addition, our 5-nanometer technology successfully entered volume production in 2020. We are continuing to progress the development of 3-nanometer technology.

The following table lists our wafer fabs and those of our subsidiaries in operation as of February 28, 2021, together with the year of commencement of commercial production, wafer size and the most advanced technology for volume production:

Fab⁽¹⁾	Year of commencement of commercial production	Wafer size	The most advanced technology for volume production⁽²⁾
2	1990	6-inch	450
3	1995	8-inch	150
5	1997	8-inch	150
6	2000	8-inch	110
8	1998	8-inch	110
10	2004	8-inch	150
11	1998	8-inch	150
12	2001	12-inch	7
14	2004	12-inch	16
15	2012	12-inch	7
16	2018	12-inch	16
18	2020	12-inch	5

(1) Fabs 2, 3, 5, 8 and 12 are located in Hsinchu Science Park. Fab 6, Fab 14, and Fab 18 are located in the Southern Taiwan Science Park. Fab 15 is located in Central Taiwan Science Park. Fab 11 is located in Washington State, United States. Fab 10 is located in Shanghai, China, and Fab 16 is located in Nanjing, China.

(2) In nanometers, as of December 31, 2020.

In 2020, our annual capacity (in 12-inch equivalent wafers) was approximately 13.0 million wafers, compared to approximately 12.3 million wafers in 2019. This increase was primarily from the expansion of our 5-nanometer and 7-nanometer advanced technologies.

Capacity Management and Technology Upgrade Plans

We manage our overall capacity and technology upgrade plans based on long-term market demand forecasts for our products and services. According to our current market demand forecasts, we intend to maintain the strategy of expanding manufacturing capacity and upgrading manufacturing technologies to meet both the fabrication and the technology needs of our customers.

Our capital expenditures in 2018, 2019 and 2020 were NT\$315,582 million, NT\$460,422 million and NT\$507,239 million (US\$17,235 million, translated from a weighted average exchange rate of NT\$29.43 to US\$1.00), respectively. Our capital expenditures in 2021 are expected to be approximately US\$30 billion, which, depending on market conditions, may be adjusted later. Our capital expenditures for 2018 and 2019 were funded by our operating cash flow. Our capital expenditures for 2020 were funded by our operating cash flow and proceeds from the issuance of corporate bonds. Our capital expenditures for 2021 are expected to be funded primarily by our operating cash flow and by proceeds from the issuance of corporate bonds and the Notes. In 2021, we anticipate our capital expenditures to focus primarily on the following:

- installing and expanding capacity, mainly for 5-nanometer and 3-nanometer nodes;
- expanding capacity for advanced packaging and specialty technologies;
- expanding buildings/facilities for Fab 18 and a 300mm wafer fab in Arizona, United States of America; and
- investing in research and development projects for new process technologies.

We are entering a period of higher growth as the multiyear megatrends of 5G and HPC are expected to fuel strong demand for our semiconductor technologies in the next several years. In addition, the COVID-19 pandemic also accelerates digitalization in every aspect. In order to keep up with demand, we expect to invest US\$100 billion over the next three years to increase capacity to support the manufacturing and R&D of advanced semiconductor technologies. We are working closely with our customers to address their needs in a sustainable manner.

These investment plans are preliminary and may change according to market conditions.

Markets and Customers

We categorize our net revenue mainly based on the countries where our customers are headquartered, which may be different from the countries to which we actually sell or ship our products or different from where products are actually ordered. Under this approach, the following table presents a geographic breakdown of our net revenue during the periods indicated:

Geography	Year ended December 31,					
	2018		2019		2020	
	Net Revenue	Percentage	Net Revenue	Percentage	Net Revenue	Percentage
	(NT\$ in millions, except percentages)					
North America	637,051	62%	640,335	60%	827,511	62%
China	175,794	17%	208,101	20%	233,783	17%
Asia Pacific ⁽¹⁾	89,434	9%	96,512	9%	144,448	11%
EMEA ⁽²⁾	71,069	7%	67,568	6%	70,214	5%
Japan	58,126	5%	57,469	5%	63,299	5%
Total	<u>1,031,474</u>	<u>100%</u>	<u>1,069,985</u>	<u>100%</u>	<u>1,339,255</u>	<u>100%</u>

(1) China and Japan are excluded from Asia Pacific.

(2) EMEA stands for Europe, Middle East, and Africa.

In 2020, our net revenue increased from all geographies by a total of NT\$269,270 million compared to 2019, which was mainly due to an increase in orders from North America of NT\$186,974 million, or a 29% year-over-year increase, and from Asia Pacific of NT\$47,905 million, or a 50% year-over-year increase. In 2019, our net revenue increased by NT\$38,511 million from 2018, which was mainly due to an increase in orders from China of NT\$32,307 million, or an 18% year-over-year increase, and from Asia Pacific of NT\$7,078 million, or an 8% year-over-year increase.

We provide worldwide customer support. Our office in Hsinchu and our wholly-owned subsidiaries in the United States, Canada, Japan, China, the Netherlands and South Korea are dedicated to serving our customers worldwide. Foundry services, which are both technologically and logistically intensive, involve frequent and in-depth interaction with customers. We believe that the most effective means of providing foundry services is by developing direct and close relationships with our customers. Our

customer service and technical support managers work closely with the sales force to offer integrated services to customers. To facilitate customer interaction and information access on a real-time basis, a suite of web-based applications has also been offered to provide more active interactions with customers in design, engineering and logistics.

The Semiconductor Fabrication Process

In general, the semiconductor manufacturing process begins with a thin silicon wafer on which an array of semiconductor devices is fabricated. The following processes cover assembly, packaging, and testing of the semiconductor devices. Our focus is on wafer fabrication although we also provide all other services either directly or through outsourcing arrangements.

Our Foundry Services

Range of Services. Because of our ability to provide a full array of services, we are able to accommodate customers with a variety of needs at every stage of the overall foundry process. The flexibility in input stages allows us to cater to a variety of customers with different in-house capabilities and thus to service a wider class of customers as compared to a foundry that cannot offer design or mask making services, for example.

Fabrication Processes. We manufacture semiconductors mainly using the CMOS process. The CMOS process is currently the mainstream semiconductor manufacturing process. We use the CMOS process to manufacture logic semiconductors, mixed-signal/radio frequency semiconductors, which combine analog and digital circuitry in a single semiconductor, micro-electro-mechanical-system (“MEMS”), which combines micrometer featured mechanical parts, analog and digital circuitry in a single semiconductor, and embedded memory semiconductors, which combine logic and memory in a single semiconductor, etc.

Types of Semiconductors We Manufacture. We manufacture different types of semiconductors with different specific functions by changing the number and the combinations of conducting, insulating and semiconducting layers and by defining different patterns in which such layers are applied on the wafer. At any given point in time, there are thousands of different products in various stages of fabrication at our fabs. We believe that the keys to maintaining high production quality and utilization rates are our effective management and control of the manufacturing process technologies which comes from our extensive experience as the longest existing dedicated foundry and our dedication to quality control and process improvements. Our semiconductors are used for a variety of different platforms. The principal platforms include:

Smartphone Platform: We offer leading process technologies such as 5-nanometer Fin Field-Effect Transistor (“FinFET”), 6-nanometer FinFET, 7-nanometer FinFET plus, and 7-nanometer FinFET logic process technologies, as well as comprehensive intellectual properties for premium product applications to further enhance chip performance, reduce power consumption, and decrease chip size. For mainstream product applications, we offer leading process technologies such as 6-nanometer FinFET, 12-nanometer FinFET compact plus (“12FFC+”), 12-nanometer FinFET compact (“12FFC”), 16-nanometer FinFET compact plus (“16FFC+”), 16-nanometer FinFET compact (“16FFC”), 28-nanometer high performance compact (“HPC”), 28-nanometer high performance mobile compact plus (“28HPC+”), and 22-nanometer ultra-low power (“22ULP”) logic process technologies, in addition to comprehensive intellectual properties, to satisfy customer needs for high-performance and low-power chips. Furthermore, for premium, high-end, mid-end, and entry-level product applications, we offer the most competitive, leading-edge specialty technologies to deliver specialty companion chips for customers’ logic application processors, including RF, embedded flash memory, emerging memory technologies, power management, sensors, and display chips, as well as advanced TSMC 3DFabric™ packaging technologies such as the leading integrated fan-out (“InFO”) technology.

High Performance Computing Platform: Driven by data explosion and application innovation, high performance computing has become one of the key growth drivers for our business. We provide customers, both fabless IC design companies and system companies, with leading-edge process technologies such as 5-nanometer FinFET, 6-nanometer FinFET, 7-nanometer FinFET and 12-nanometer/ 16-nanometer FinFET, as well as comprehensive intellectual properties including high-

speed interconnect intellectual properties to meet customers' product requirements for transferring and processing vast amounts of data anywhere and anytime. Based on advanced process nodes, a variety of high performance computing products have been launched, such as central processing units (CPUs), graphics processor units (GPUs), field programmable gate arrays (FPGAs), server processors, accelerator, high-speed networking chips, etc. Those products can be used in current and future 5G, AI, cloud, and data centers. We also offer multiple advanced TSMC 3DFabric™ packaging technologies, such as CoWoS®, InFO, and TSMC-SoIC®, to enable homogeneous and heterogeneous chip integration to meet customers' requirements for high performance, high compute density and efficiency, low latency and high integration. We will continue to optimize our high performance computing platform and strengthen collaboration with customers to help customers capture market growth in high performance computing markets.

IoT Platform: We provide leading, comprehensive and highly integrated ultra-low power (“ULP”) technology platforms to enable innovations for artificial intelligence (“AI”) of things (“AIoT”, AI+IoT) applications. Our industry-leading offerings, including FinFET-based 12-nanometer technology—N12e™ featuring energy efficiency with high performance that results in more computing power and AI inferencing, 22-nanometer ULP/ultra-low leakage (“ULL”), 28-nanometer ULP, 40-nanometer ULP, and 55-nanometer ULP, which have been widely adopted by various edge AI system-on-a-Chip (“SoC”) and battery-powered applications. We also extend our low V_{dd} (low operating voltage) offerings with wide-range operating voltage simulation program with integrated circuit emphasis (SPICE) models for extreme low-power applications. We also offer competitive and comprehensive specialty technologies in RF, enhanced analog devices, embedded flash memory, emerging memory, sensors, and display chips, as well as multiple TSMC 3DFabric™ advanced packaging technologies, including leading InFO technology, to support the fast-growing demand in AIoT edge computing and wireless connectivity.

Automotive Electronics Platform: Our Automotive Electronics Platform provides a comprehensive spectrum of technologies and services to support the three megatrends—safer, smarter and greener—in the automotive industry. We are also an industry leader in providing a robust automotive intellectual property ecosystem, which covers 16-nanometer FinFET first and extends to 7-nanometer FinFET and 5-nanometer FinFET, for advanced driver-assistance systems (ADAS) and advanced in-vehicle infotainment (“IVI”), the two most computationally demanding systems in the automotive industry. In addition to the advanced logic technology platform, we offer broad and competitive specialty technologies, including 28-nanometer embedded flash memory, 28-, 22- and 16-nanometer millimeter wave RF, high sensitivity CMOS Image/Lidar (light detection and ranging) sensors, and power management integrated circuit (“PMIC”) technologies. Magnetic random access memory (“MRAM”), an emerging technology, is being developed with good progress to meet automotive Grade-1 requirements. All these automotive technologies are applied to our automotive process qualification standards based on AEC-Q100 standards.

Digital Consumer Electronics (“DCE”) Platform: We provide customers with leading and comprehensive technologies to deliver AI-enabled smart devices for DCE applications, including digital TV (“DTV”), set-top box (“STB”), digital still camera, AI-embedded smart camera, and associated wireless local area network (“WLAN”), power IC, timing controller (“T-CON”) and so on. Our leading 7-nanometer FinFET compact, 16FFC/12FFC, 22ULP/22ULL and 28HPC+ technologies have been widely adopted by leading global makers for 8K/4K DTV, 4K streaming STB, digital single-lens reflex (“DSLR”) devices, and so on. We will continue to make these technologies more cost competitive through die size shrink for customers' digital intensive chip designs, and to drive lower power consumption for more cost-effective packaging.

The following table presents a breakdown of our net revenue by platform during the periods indicated.

Platform	Year ended December 31,					
	2018		2019		2020	
	Net Revenue	Percentage	Net Revenue ⁽¹⁾	Percentage	Net Revenue	Percentage
	(NT\$ in millions, except percentages)					
Smartphone	466,452	45%	523,613	49%	645,304	48%
High Performance Computing	341,910	33%	315,822	30%	439,810	33%
IoT	65,092	6%	86,343	8%	110,355	8%
Automotive	51,710	5%	47,914	4%	44,367	3%
Digital Consumer Electronics	58,470	6%	53,733	5%	54,556	4%
Others	47,840	5%	42,560	4%	44,863	4%
Total	<u>1,031,474</u>	<u>100%</u>	<u>1,069,985</u>	<u>100%</u>	<u>1,339,255</u>	<u>100%</u>

(1) Commencing in 2019, we reported our net revenue breakdown by platform, instead of by application. We believe this change better represents our results. On a comparable basis, net revenue breakdowns of 2018 by platform were provided accordingly.

Due to accelerated digital transformation caused by COVID-19, the increase in our net revenue from 2019 to 2020 mainly came from the High Performance Computing Platform of NT\$123,989 million, or a 39% year-over-year increase, and from the Smartphone Platform of NT\$121,690 million, or a 23% year-over-year increase. The increase also came from the IoT Platform of NT\$24,012 million, or a 28% year-over-year increase.

The increase in our net revenue from 2018 to 2019 mainly came from the Smartphone Platform of NT\$57,161 million, or a 12% year-over-year increase, and from the IoT Platform of NT\$21,251 million, or a 33% year-over-year increase. The increase was partially offset by a decrease from the High Performance Computing Platform of NT\$26,088 million, or an 8% year-over-year decrease.

Design and Technology Platforms. Modern integrated circuit designers need sophisticated design infrastructure to optimize productivity and cycle time. Such infrastructure includes design flow for electronic design automation (“EDA”), silicon proven building blocks such as libraries and intellectual properties, simulation and verification design kits such as process design kit (or PDK) and technology files. All of this infrastructure is built on top of the technology foundation, and each technology needs its own design infrastructure to be usable for designers. This is the concept of our technology platforms.

For years, we and our alliance partners have spent considerable effort, time and resources to build our technology platforms. We unveiled an Open Innovation Platform® (“OIP”) initiative in 2008 to further enhance our technologies offerings. More OIP deliverables were introduced over the years, as well as in 2020. In the design methodology area, we announced EDA and intellectual property readiness of 3-nanometer and 5-nanometer, as well as continuous development of solutions to enhance power, performance and area (or PPA) on existing production technology nodes, including 6-nanometer, 12-nanometer and 22-nanometer nodes based on 7-nanometer, 16-nanometer and 28-nanometer, respectively. In addition, we also announced the availability of various 3-Dimensional Integrated Circuit reference flows to support TSMC 3DFabric™ that covers a wide range of design applications.

Multi-project Wafer Program (“CyberShuttle®”). To help our customers reduce costs, we offer a dedicated multi-project wafer processing service that allows us to provide multiple customers with circuits produced with the same mask. This program reduces mask costs by a very significant amount, resulting in accelerated time-to-market for our customers. We have extended this program to all of our customers and library and intellectual property partners using our broad selection of process technologies, ranging from the latest 4-, 5-, 6-, 7-, 12-, 16-, 22-, 28-, 40-, 45-, 55-, 65- and 90-nanometer processes to 0.13-, 0.18-, 0.25-, 0.35- and 0.5-micron. This extension offers a routinely scheduled multi-project wafer run to customers on a shared-cost basis for prototyping and verification.

We developed our multi-project wafer program in response to the current SoC development methodologies, which often require the independent development, prototyping and validation of several

intellectual properties before they can be integrated onto a single device. By sharing mask costs among our customers to the extent permissible, the SoC supplier can enjoy reduced prototyping costs and greater confidence that the design will be successful.

Customer Service

We believe that our dedication to customer service has been an indispensable factor in attracting new customers, helping to ensure the satisfaction of existing customers, and building a mutually beneficial relationship with our customers. The key elements are our:

- customer-oriented culture through multi-level interaction with customers;
- ability to deliver products of consistent quality, competitive ramp-up speed and fast yield improvement;
- responsiveness to customers' issues and requirements, such as engineering change and special wafer handling requests;
- flexibility in manufacturing processes, supported by our competitive technical capability and production planning;
- dedication to help reduce customer costs through collaboration and services, such as our multi-project wafer program, which combines multiple designs on a single mask set for cost-savings; and
- availability of our online service which provides necessary information in design, engineering and logistics to ensure seamless services to our customers throughout the product life cycle.

We also conduct an annual customer satisfaction survey to assess customer satisfaction and to ensure that their needs are adequately understood and addressed. Continuous improvement plans based upon customer feedback are an integral part of this business process. We use data derived from the survey as a base to identify future focus areas. We believe that satisfaction leads to better customer relationships, which would result in more business opportunities.

Research and Development

The semiconductor industry is characterized by rapid changes in technology, frequently resulting in the introduction of new technologies to meet customers' demand and in the obsolescence of recently introduced technology and products. We believe that, in order to stay technologically ahead of our competitors and to maintain our market position in the foundry segment of the semiconductor industry, we need to maintain our position as a technology leader not only in the foundry segment but in the semiconductor industry in general. We spent NT\$85,895 million, NT\$91,419 million and NT\$109,486 million (US\$3,899 million) in 2018, 2019 and 2020, respectively, on research and development, which represented 8.3%, 8.6% and 8.2% of our net revenue, respectively. We plan to continue to invest significant amounts on research and development in 2021, with the goal of maintaining a leading position in the development of advanced process technologies. Our research and development efforts have allowed us to provide our customers access to certain advanced process technologies, such as 16-, 10-, 7- and 5-nanometer technology for volume production, prior to the implementation of those advanced process technologies by many integrated device manufacturers and our competitors. In addition, we expect to advance our process technologies further down to 3-nanometer and 2-nanometer and below in the coming years to maintain our technology leadership. We will also continue to invest in research and development for our mature technologies offerings to provide function-rich process capabilities to our customers. Our research and development efforts are divided into centralized research and development activities and research and development activities undertaken by each of our fabs. Our centralized research and development activities are principally directed toward developing new logic, SoC, derivatives and package/system-in-package (or SIP) technologies, and cost-effective 3D wafer level system integration solutions, including Integrated Fan-Out ("InFO"), Chip-on-Wafer-on-Substrate ("CoWoS[®]"), and System on Integrated Chip ("TSMC-SolC[®]") technologies. Fab-related research and development activities mostly focus on upgrading the manufacturing process technologies.

In continuing to advance our process technologies, we intend to rely primarily on our internal engineering capability, know-how and research and development efforts, including collaboration with our customers, equipment vendors and external research and development consortia.

We also continuously create inventions and in-house know-how. Since our inception, we have applied for and have been issued a substantial number of patents in the United States and other countries, the majority of which are semiconductor-related.

Competition

We compete internationally and domestically with other foundry service providers, as well as with a number of integrated device manufacturers. We compete primarily on process technologies, manufacturing excellence, customer trust and service quality, such as earlier technology readiness, better quality, faster yield improvement and shorter cycle time. The level of competition varies with the process technologies involved. For example, in more mature technologies, competitors tend to be numerous and offer specialized processes. Some companies compete with us in selected geographic regions or niche application markets. In recent years, substantial investments have been made by others to establish new foundry capacities worldwide, or to transform certain manufacturing operations of integrated device manufacturers into foundry capacities.

Equipment

The quality and technology of the equipment used in the semiconductor manufacturing process are important in that they effectively define the limits of our process technologies. Advances in process technologies cannot be brought about without commensurate advances in equipment technology. We have periodic meetings with important suppliers with respect to co-developing next-generation equipment.

The principal pieces of equipment used by us to manufacture semiconductors are scanners, cleaners and track equipment, inspection equipment, etchers, furnaces, wet stations, strippers, implanters, sputterers, chemical vapor deposition (CVD) equipment, chemical mechanism polish (CMP) equipment, testers and probers. Other than certain equipment under leases located at testing areas, we own all of the equipment used at our fabs.

In implementing our capacity management and technology advancement plans, we expect to make significant purchases of equipment required for semiconductor manufacturing. Some of the equipment is available from a limited number of vendors and/or is manufactured in relatively limited quantities, and certain equipment has only recently been developed. We believe that our relationships with our equipment suppliers are good and that we have enjoyed the advantages of being a major purchaser of semiconductor fabrication equipment. We work closely with manufacturers to provide equipment customized to our needs for certain advanced technologies.

Raw Materials

Our manufacturing processes use many raw materials, primarily silicon wafers, chemicals, gases and various types of precious metals. Although most of our raw materials are available from multiple suppliers, some materials are purchased through sole-sourced vendors. Our raw material procurement policy is to select only those vendors who have demonstrated quality control and reliability on delivery time and to maintain multiple sources for each raw material whenever possible so that a quality or delivery problem with any one vendor will not adversely affect our operations. The quality and delivery performance of each vendor is evaluated quarterly and quantity allocations are adjusted for subsequent periods based on the evaluation.

The most important raw material used in our production is silicon wafer, which is the basic raw material from which integrated circuits are made. The principal suppliers for our wafers are Formosa SUMCO Technology Corporation of Taiwan, GlobalWafers of Taiwan, Shin-Etsu Handotai of Japan, Siltronic AG of Germany, Soitec Microelectronics of Singapore, and SUMCO Corporation of Japan. Together they supplied approximately 92.6%, 91.8% and 92.6% of our total wafer needs in 2018, 2019 and 2020, respectively. We have in the past obtained, and believe we will continue to be able to obtain, a sufficient supply of wafers. In order to secure a reliable and flexible supply of high quality wafers, we have entered into long-term agreements and intend to continue to develop strategic relationships with major wafer vendors to cover our anticipated wafer needs for future years. Also, we actively address

supply chain issues and bring together fab operations, materials management, quality system and risk management teams to mitigate potential supply chain risks and enhance supply chain agility. This taskforce works with our primary suppliers to review their business continuity plans, qualify their dual-plant materials, prepare safety inventories, improve the quality of their products and manage the supply chain risks of their suppliers. Please see “Risk Factors—Risks Relating to Our Business” for a discussion of the risk related to raw materials, including the fluctuation of prices of our main raw materials.

Environmental and Climate Related Laws and Regulations

The semiconductor production process generates gaseous chemical wastes, greenhouse gases (“GHG”), liquid wastes, wastewater and other industrial wastes in various stages of the manufacturing process. We have installed in our fabs various types of pollution control equipment for the treatment of gaseous and liquid chemical wastes and wastewater, equipment for GHG emission reduction and equipment for the recycling of used chemicals and treated water. Operations at our fabs are subject to regulations and periodic monitoring by the R.O.C. Environmental Protection Administration, the U.S. Environmental Protection Agency and the State Environmental Protection Administration of China, and local environmental protection authorities in Taiwan, the U.S. and China.

We have adopted pollution control and GHG emission reduction measures to ensure compliance with environmental protection and climate related standards consistent with the practice of the semiconductor industry in Taiwan, the U.S. and China. We conduct environmental audits at least once annually to ensure that we are in compliance in all material respects with applicable environmental and climate related laws and regulations. An environmental, safety and health (“ESH”) team operates at the corporate level that is responsible for policy establishment and enforcement, coordination with ESH teams located at each manufacturing facility and for coordination and interaction with government agencies worldwide.

To fulfill our commitment to environmental sustainability in our business and operations, we have continued to explore and participate in initiatives to expand our use of renewable energy. We participated in the R.O.C. Ministry of Economic Affairs’ voluntary “green power purchasing program” between 2015 and 2017, purchasing a total of 400 GWh of clean energy, and were Taiwan’s largest purchaser of clean energy over that period. Between 2018 and 2020, we purchased an additional 2,765 GWh of renewable energy, renewable energy certificates, and carbon credits, which enabled our overseas sites to be 100% powered by clean energy. Following Taiwan’s power liberalization, we are expanding our use of renewable energy. In May 2020, we participated in Taiwan’s first group of energy wheeling transactions with 12 other companies and, as of December 31, 2020, we have entered into renewable energy purchase agreements that are expected to bring our total renewable energy capacity to 1.3 GW by 2025, thereby eliminating an estimated 2.2 million metric tons of carbon dioxide equivalent emissions per year.

Environmental, Social and Governance (ESG) Initiatives

We believe that our innovative technologies and services can help to bring positive changes and make positive contributions to the global society. We are strongly committed to pursuing a sustainable future and achieving our vision of contributing to society through a range of ESG initiatives. In 2011, we established the Corporate Social Responsibility Committee (renamed as ESG Committee in 2021) and in compliance with the vision and mission of the TSMC Corporate Social Responsibility Policy, TSMC has further connected to the international sustainability trend by establishing a CSR Executive Committee in 2019 (renamed as ESG Steering Committee in 2021), which is comprised of senior management personnel and tasked to develop our future ESG strategy. In addition, we have mapped out a blueprint for sustainable development that connects TSMC’s core advantages with United Nations’ sustainable development goals.

We currently focus our ESG efforts in the following key areas:

Green manufacturing. We aim to lead the industry in developing advanced semiconductor technologies and employing green product and process innovations to address the impacts of climate

change. We are committed to green manufacturing that implements continuous improvement projects in the areas of climate change, energy management, water management, waste management, and air pollution control.

Building a responsible supply chain. We seek to extend our operational and manufacturing standard to other related industries in the supply chain by incorporating an ESG mindset and requirements into supply chain management decision-making.

Creating a diverse and inclusive workplace. Our employees are the most valuable asset of TSMC. We are committed to building a diverse and encompassing workplace where each and every employee enjoys human rights, skill development and a safe work environment.

Talent development. We seek to inspire the next generation of talent in the semiconductor industry through educational programs and support of science, technology, engineering and mathematics-related careers.

Caring for the underprivileged. We promote positive social culture through education, particularly through our TSMC Education and Culture Foundation and the TSMC Charity Foundation.

For further information on our ESG initiatives, please see our annual Corporate Social Responsibility Reports, which are available on our CSR website at <https://csr.tsmc.com/csr/en/index.html>. The information contained on our website is not incorporated herein by reference and does not constitute part of this offering circular.

Electricity and Water

We use electricity supplied by the Taiwan Power Company in our manufacturing process in Taiwan. We have occasionally suffered power outages or surges caused by difficulties encountered by the Taiwan Power Company, which have led to interruptions in our production schedule. The semiconductor manufacturing process uses extensive amounts of electricity and fresh water. Due to changes in the energy policy of the government, the growth of manufacturers in the Hsinchu Science Park, Southern Taiwan Science Park and Central Taiwan Science Park, and the droughts that Taiwan experiences from time to time, there is concern regarding future availability of sufficient electricity and fresh water and the potential impact that insufficient electricity and water supplies may have on our semiconductor production. To help address these potential shortages, we have adopted various natural resources conservation methodologies. Please see “Risk Factors—Risks Relating to Our Business” for a discussion of the risks related to shortages in electricity and water.

Risk Management

We maintain a comprehensive enterprise risk management system to integrate the prevention and control of risk. We have also prepared emergency response, crisis management and business continuity plans to respond to natural disasters and other disruptive events such as cyberattacks or epidemic outbreaks that could interrupt the operation of our business. These plans have been developed in order to prevent or reduce the loss of personnel or damage to our facilities, equipment and machinery caused by natural disasters and other disruptive events. We also maintain insurance with respect to our facilities, equipment and inventories. The insurance for the fabs and their equipment covers, subject to some limitations, various risks, including fire, typhoons, earthquakes and other risks generally up to the respective policy limit for their replacement values and lost profits due to business interruption. In addition, we have insurance policies covering losses with respect to the construction of all our fabs. Equipment and inventories in transit are also insured. No assurance can be given, however, that insurance will fully cover any losses and our emergency response plans will be effective in preventing or reducing losses in the future.

For further information, please see detailed risk factors related to the impact of climate change regulations and international accords, and natural disasters on our operations in “Risk Factors—Risks Relating to Our Business”.

Our Subsidiaries and Affiliates

Below is a list of selected subsidiaries and affiliates of the Company.

Vanguard International Semiconductor Corporation (“VIS”). In 1994, we, the R.O.C. Ministry of Economic Affairs and other investors established VIS, then an integrated dynamic random access memory (“DRAM”) manufacturer. VIS commenced volume commercial production in 1995 and listed its shares on the Taipei Exchange (originally the R.O.C. Over-the-Counter Securities Exchange) in March 1998. In 2004, VIS completely terminated its DRAM production and became a dedicated foundry company. As of February 28, 2021, we owned approximately 28.3% of the equity interest in VIS. Please see “Related Party Transactions” for a further discussion.

WaferTech. In 1996, we entered into a joint venture called WaferTech (of which the manufacturing entity is Fab 11) with several U.S.-based investors to construct and operate a foundry in the United States. Initial trial production at WaferTech commenced in July 1998 and commercial production commenced in October 1998. As of February 28, 2021, we owned 100% of the equity interest in WaferTech.

Systems on Silicon Manufacturing Company Pte. Ltd. (“SSMC”). In March 1999, we entered into an agreement with Koninklijke Philips NV (“Philips”) and EDB Investment Pte. Ltd. to found a joint venture, SSMC, and build a fab in Singapore. The SSMC fab commenced production in December 2000. As of February 28, 2021, we owned approximately 38.8% of the equity interest in SSMC. Please see “Related Party Transactions” for a further discussion.

Global Unichip Corporation (“GUC”). In January 2003, we acquired a 52.0% equity interest in GUC, a SoC design service company that provides large scale SoC implementation services. GUC listed its shares on Taiwan Stock Exchange in November 2006. As of February 28, 2021, we owned approximately 34.8% of the equity interest in GUC. Please see “Related Party Transactions” for a further discussion.

TSMC China. In August 2003, we established TSMC China (of which the manufacturing entity is Fab 10), a wholly-owned subsidiary primarily engaged in the manufacture and sale of integrated circuits. TSMC China commenced production in late 2004.

VisEra Technologies Company, Ltd. (“VisEra Technologies”). In October 2003, we and OmniVision Technologies Inc. (“OVT”), entered into an agreement to form VisEra Technologies, a joint venture in Taiwan, for the purpose of providing back-end service for CMOS image sensor manufacturing business. In November 2015, we obtained an additional 42.7% beneficial equity interest in VisEra Technologies from OVT when OVT was acquired by a Chinese consortium. Following the above transactions, we owned approximately 86.9% of the equity interest in VisEra Technologies. To facilitate VisEra Technologies’ IPO in Taiwan, we disposed a total of 39.5 million common shares of VisEra Technologies in March 2021. After the share disposal, our ownership in VisEra was reduced to 73.4%. VisEra Technologies started to trade on the Emerging Board of Taipei Exchange in April 2021.

TSMC Global. In December 1998, we established TSMC Holding Ltd. in the B.V.I. as a company with limited liability. In 2006, TSMC Holding Ltd. was renamed to TSMC Global Ltd. TSMC Global is a wholly-owned subsidiary primarily engaged in corporate treasury investment activities.

Xintec, Inc. (“Xintec”). In January 2007, we acquired a 51.2% equity interest in Xintec, a supplier of wafer level packaging service, to support our CMOS image sensor manufacturing business. In March 2015, Xintec listed its shares on the Taipei Exchange. Subsequent to Xintec’s IPO, our shareholding in Xintec was diluted to approximately 41.2%. As of February 28, 2021, we owned approximately 41.0% of the equity interest in Xintec. Please see “Related Party Transactions” for a further discussion.

TSMC Nanjing. In May 2016, we established TSMC Nanjing (of which the manufacturing entity is Fab 16), a wholly-owned subsidiary primarily engaged in the manufacture and sale of integrated circuits. TSMC Nanjing commenced commercial production in April 2018.

TSMC Arizona. In November 2020, we established TSMC Arizona, a wholly-owned subsidiary primarily engaged in the manufacture and sale of integrated circuits. TSMC Arizona plans to spend approximately US\$12 billion from 2021 to 2029 to build and operate an advanced semiconductor manufacturing facility in the Phoenix area, creating over 1,900 high-tech professional jobs directly.

Under the terms of the development agreement entered into between TSMC Arizona and the City of Phoenix, the City of Phoenix commits approximately US\$205 million toward various public infrastructure projects in the area of the proposed manufacturing facility, conditioned on TSMC Arizona achieving a minimum project scale with defined spending and job-creation thresholds. TSMC Arizona targets to commence commercial production in 2024.

MANAGEMENT

Directors and Executive Officers

Members of our Board of Directors are elected by our shareholders. Our Board of Directors is currently composed of ten directors. Of our current ten directors, six are independent directors: Sir Peter L. Bonfield, Mr. Stan Shih, Ms. Kok-Choo Chen, Mr. Michael R. Splinter, Mr. Moshe N. Gavrielov and Mr. Yancey Hai. The chairman of the Board of Directors is elected by the directors. The chairman of the Board of Directors presides at all meetings of the Board of Directors, and also has the authority to act as our representative. The term of office for directors is three years.

Pursuant to the R.O.C. Securities and Exchange Act, effective from January 1, 2007, a public company is required to either establish an audit committee or to have supervisors. A public company's audit committee should be composed of all of its independent directors but not less than three, of which at least one member should have accounting or related financial management expertise, and the relevant provisions under the R.O.C. Securities and Exchange Act, the R.O.C. Company Act and other laws applicable to the supervisors are also applicable to the audit committee. Pursuant to the R.O.C. Securities and Exchange Act, effective from March 18, 2011, we are also required to establish a compensation committee which must be composed of qualified independent members as defined under local law. TSMC established its audit committee (the "Audit Committee") and compensation committee (the "Compensation Committee") in 2002 and 2003, respectively (several years before being legally required to do so), both of which are now composed entirely of independent directors.

Pursuant to the R.O.C. Company Act, a person may serve as our director in his personal capacity or as the representative of another legal entity. A director who serves as the representative of a legal entity may be removed or replaced at any time at the discretion of that legal entity, and the replacement director may serve the remainder of the term of office of the replaced director. For example, the National Development Fund of the R.O.C., one of our largest shareholders, has served as our director since our founding. As a corporate entity, the National Development Fund is required to appoint a representative to act on its behalf. Dr. Ming-Hsin Kung has been the representative of the National Development Fund since July 24, 2020.

The following table sets forth the name of each director and executive officer, their positions, the year in which their term expires and the number of years they have been with us as of February 28, 2021. The business address for each of our directors and executive officers is No. 8, Li Hsin Road 6, Hsinchu Science Park, Hsinchu, Taiwan, Republic of China.

<u>Name</u>	<u>Position with our company</u>	<u>Term Expires</u>	<u>Years with our company</u>
Mark Liu	Chairman	2021	28
C.C. Wei	Vice Chairman/ Chief Executive Officer	2021/ —	23
Ming-Hsin Kung	Director (Representative of the National Development Fund)	2021	1
F.C. Tseng	Director	2021	34
Sir Peter L. Bonfield	Independent Director	2021	19
Stan Shih	Independent Director	2021	21
Kok-Choo Chen	Independent Director	2021	10
Michael R. Splinter	Independent Director	2021	6
Moshe N. Gavrielov	Independent Director	2021	2
Yancey Hai	Independent Director	2021	1
Lora Ho	Senior Vice President, Europe & Asia Sales	—	22
Wei-Jen Lo	Senior Vice President, Research & Development/ Technology Development	—	17
Rick Cassidy	Senior Vice President, Corporate Strategy Office/ CEO & President of TSMC Arizona	—	24
Y.P. Chin	Senior Vice President, Operations	—	34
Y.J. Mii	Senior Vice President, Research & Development/ Technology Development	—	27
J.K. Lin	Senior Vice President, Information Technology and Materials Management & Risk Management	—	34
J.K. Wang	Senior Vice President, Corporate Planning Organization	—	34
Cliff Hou	Senior Vice President, Europe & Asia Sales	—	24
Kevin Zhang	Senior Vice President, Business Development	—	5
Sylvia Fang	Vice President, Legal and General Counsel/ Corporate Governance Officer	—	26
Connie Ma	Vice President, Human Resources	—	7
Y.L. Wang	Vice President, Operations/ Fab Operations I	—	29
Doug Yu	Vice President & TSMC Distinguished Fellow, Pathfinding for System Integration	—	27
T.S. Chang	Vice President & TSMC Fellow, Operations/ Advanced Technology and Mask Engineering	—	26
Michael Wu	Vice President, Research & Development/ Platform Development	—	25
Min Cao	Vice President, Research & Development/ Pathfinding	—	19
Marvin Liao	Vice President, Operations/ Advanced Packaging Technology and Service	—	19
Y.H. Liaw	Vice President, Operations/ Fab Operations II	—	33
Simon Jang	Vice President, Research & Development/ Advanced Tool and Module Development	—	28
Wendell Huang	Vice President, Finance and Chief Financial Officer/ Spokesperson	—	22
C.S.Yoo	Vice President, Research and Development/ More than Moore Technologies	—	33
Jun He	Vice President, Quality and Reliability	—	4
Geoffrey Yeap	Vice President, Research & Development / Platform Development	—	5
Chris Horng-Dar Lin	Vice President, Corporate Information Technology and Chief Information Officer	—	— ⁽¹⁾

(1) Dr. Chris Horng-Dar Lin was hired on January 4, 2021.

Mark Liu is the Chairman. Dr. Mark Liu was our President and Co-Chief Executive Officer from November 2013 to June 2018. Prior to that, he was our Executive Vice President and Co-Chief Operating Officer from March 2012 to November 2013, Senior Vice President of Operations from 2009 to 2012, Senior Vice President of Advanced Technology Business from 2008 to 2009. From 2005 to

2008, Dr. Liu was Senior Vice President of Operations II. He served in a number of executive positions at TSMC Fabs and the Operations organization from 1999 to 2005. From 1999 to 2000, he served as the President of Worldwide Semiconductor Manufacturing Company. Prior to joining us in 1993, from 1987 to 1993, Dr. Liu was with AT&T Bell Laboratory, Holmdel, NJ, as a research manager for the High Speed Electronics Research Laboratory, working on optical fiber communication systems. From 1983 to 1987, he was a process integration manager of CMOS technology development at Intel Corporation, Santa Clara, CA, developing silicon process technologies for Intel microprocessor. Dr. Liu is currently the Chairman of Taiwan Semiconductor Industry Association. He holds a Ph.D. in electrical engineering and computer science from University of California, Berkeley.

C.C. Wei is the Vice Chairman and Chief Executive Officer. Dr. C.C. Wei was our President and Co-Chief Executive Officer from November 2013 to June 2018. He was our Executive Vice President and Co-Chief Operating Officer from March 2012 to November 2013, Senior Vice President of Business Development from 2009 to 2012 and Senior Vice President of Mainstream Technology Business from 2008 to 2009. From 2005 to 2008, Dr. Wei was Senior Vice President of Operations I. He served in a number of executive positions at TSMC Fabs and the Operations organization from 1998 to 2005. Before joining us in 1998, he was Senior Vice President of Technology at Chartered Semiconductor Manufacturing Ltd. in Singapore and Senior Manager for Logic and SRAM technology development at STMicroelectronics N.V. in Texas. He holds a Ph.D. in electrical engineering from Yale University.

Ming-Hsin Kung, the representative of the National Development Fund, is a director. Dr. Ming-Hsin Kung is the Minister of National Development Council (“NDC”), and has been Minister without Portfolio of the Executive Yuan since 2019. He previously served as Deputy Minister of Economic Affairs from 2017 to 2019, and Deputy Minister of NDC as well as Convener of the National Development Fund (“NDF”) under Executive Yuan from 2016 to 2017, responsible for supervising policies related to industrial development, investment, talent and energy. Currently, Dr. Kung also represents the NDF to sit on the Board of Directors of Taiwan Capital Management Corp. Prior to joining the public sector, Dr. Kung was Vice President of Taiwan Institute of Economic Research from 2006 to 2016, and he had long been an advisor and consultant to Taiwan government. Dr. Kung received an M.A. in Economics from National Taiwan University, and a Ph.D. in Economics from National Chung Hsing University.

F.C. Tseng is a director. Previously Dr. F.C. Tseng served as our Vice Chairman from July 2005 to June 2018. Prior to that, he was Deputy Chief Executive Officer from August 2001 to June 2005. He is also the Chairman of TSMC China Co., Ltd. and Global Unichip Corp., and the Vice Chairman of VIS. He formerly served as an independent director, Chairman of Audit Committee and a member of Compensation Committee of Acer Inc. He also served as the President of VIS from 1996 to 1998 and our President from May 1998 to August 2001. Prior to his presidency at VIS, Dr. Tseng served as our Senior Vice President of Operations. He holds a Ph.D. in electrical engineering from National Cheng-Kung University and has been active in the semiconductor industry for over 49 years.

Sir Peter L. Bonfield is an independent director. Sir Peter L. Bonfield was the Chief Executive Officer and Chairman of the Executive Committee of British Telecommunications from January 1996 to January 2002, and the Vice President of the British Quality Foundation from its creation in 1993 until 2012. He also served as director of L.M. Ericsson in Sweden, Chairman of GlobalLogic Inc. in the U.S. and Senior Advisor to Hampton Group in London and the Chair of Council and Senior Pro-Chancellor at Loughborough University in the United Kingdom. He is currently the Chairman of the Board of Directors of NXP Semiconductor N.V. in the Netherlands, and the non-executive director of Imagination Technologies Group Ltd. (a non-public company) and of Darktrace plc, both are in the United Kingdom. He is also an Advisory Board member of the Longreach Group Ltd. in Hong Kong and a Senior Advisor to Alix Partners LLP in London. He also serves as a board mentor of Chairman Mentors International (CMI) Ltd. (a non-public company) in London and a board member of EastWest Institute in New York. He is a fellow of The Royal Academy of Engineering. He holds an honors degree in engineering from Loughborough University.

Stan Shih is an independent director. He is the co-founder and Chairman Emeritus of the Acer Group. He served as the Chairman and Chief Executive Officer of the Acer Group from 1976 to 2004. He is currently the Chairman of StanShih Foundation and CT Ambi Investment and Consulting Inc. (a non-public company), and a director of Acer Inc., Egis Technology Inc., Nan Shan Life Insurance Co.,

Ltd. (a non-listed company) and Chinese Television System Inc. (a non-listed company). Mr. Shih holds a bachelor's degree, a master's degree and an honorary Ph.D. in electrical engineering from National Chiao Tung University. He also holds an honorary doctoral degree in technology from the Hong Kong Polytechnic University, an honorary fellowship from the University of Wales and an honorary doctoral degree in international law from the Thunderbird, American Graduate School of International Management.

Kok-Choo Chen is an independent director. Ms. Chen served as the Chairman of National Performing Arts Center from 2014 to January 2017, and an advisor to the R.O.C. Executive Yuan from 2009 to 2016. She was the founder and Executive Director of Taipei Story House from 2003 to 2015. She served as our Senior Vice President and General Counsel from 1997 to 2001. Currently, Ms. Chen is the Founder and Executive Director of the Museum207 located in Taipei. Ms. Chen has over 24 years of experience working in international law firms. She had also taught law at Soochow University, National Chengchi University and National Tsing Hua University in Taiwan for over 28 years. Ms. Chen is licensed to practice law in England, Singapore and California.

Michael R. Splinter is an independent director. Mr. Splinter served as Chief Executive Officer of Applied Materials from 2003 to 2012 and as Chairman of the Board of Directors since 2009 and retired in June 2015. Prior to that, he served at Intel Corp. as Executive Vice President of Sales and Marketing from 2001 to 2003, and Executive Vice President of Technology and Manufacturing group from 1996 to 2001. Mr. Splinter currently serves as Chairman of NASDAQ, Inc., Director of Pica8, Inc. (a non-public company) in the United States, Gogoro Inc. (a non-public company) in Cayman Islands, Tigo Energy, Inc. (a non-public company) in the United States and Kioxia Holdings Corp. (a non-public company) in Japan, and General Partner of WISC Partners LP. in the United States. He also serves as Chairman of the Board of US-Taiwan Business Council. Mr. Splinter holds a master degree in electrical engineering, and an honorary Ph.D. in engineering from the University of Wisconsin Madison.

Moshe N. Gavriellov is an independent director. Mr. Gavriellov served as President and CEO of Xilinx, Inc. from January 2008 to January 2018 and as Director of Xilinx, Inc. from February 2008 to January 2018. Prior to that, he served at Cadence Design Systems, Inc. as Executive Vice President and General Manager of the Verification Division from April 2005 to November 2007, and CEO of Verisity, Ltd. from March 1998 to April 2005. He also served at a variety of executive management positions in LSI Logic Corp. for nearly 10 years, and engineering and engineering management positions in National Semiconductor Corporation and Digital Equipment Corporation. Currently, Mr. Gavriellov is the Executive Chairman of Wind River Systems, Inc. (a non-public company) in the United States, Independent Director of SiMa Technologies, Inc. (a non-public company) in the United States, and Director of Foretellig, Ltd. (a non-public company) in Israel. Mr. Gavriellov holds a bachelor degree in electrical engineering and a master degree in computer science from Technion—Israel Institute of Technology.

Yancey Hai is an independent director. Mr. Hai is the Chairman of the Board and Chair of Strategic Steering Committee of Delta Electronics, Inc. ("Delta") since June 2012. Prior to that, he served as Vice Chairman and CEO of Delta since 2004. Before joining Delta, Mr. Hai was the country manager of GE Capital Taiwan. Currently he also serves as a director of CTCL Corporation, an independent director of USI Corporation, and a director of the following of Delta's subsidiaries (which are all non-public companies): Delta Electronics Power (Dongguan) Co., Ltd., Delta Electronics (Shanghai) Co., Ltd., Delta Networks, Inc., Delta Electronics Capital Company and Cynotec Co., Ltd. Mr. Hai holds a master's degree in international business management from the University of Texas at Dallas.

Lora Ho is our Senior Vice President of Europe & Asia Sales. Prior to that, she was Senior Vice President of Finance and Europe & Asia Sales/ Chief Financial Officer/ Spokesperson from January 2019 to August 2019. She was promoted to Senior Vice President of Finance and Chief Financial Officer/ Spokesperson in August 2010 and Vice President of Finance and Chief Financial Officer/ Spokesperson in September 2003. Prior to joining us in 1999 as controller, she had served as Vice President of Finance and Chief Financial Officer at Acer Semiconductor Manufacturing Inc. since 1990. Ms. Ho holds an MBA from National Taiwan University.

Wei-Jen Lo is our Senior Vice President of Research & Development/ Technology Development. He was promoted to Senior Vice President of Research & Development in February 2014. He was Vice

President of Research & Development from February 2013 to February 2014, Vice President of Operations/ Manufacturing Technology from October 2009 to February 2013, Vice President of Advanced Technology Business from September 2009 to October 2009, Vice President of Research & Development from June 2006 to September 2009, and Vice President of Operations from July 2004 to June 2006. Prior to joining us in 2004, he was Director in charge of advanced technology development with Intel Corporation. Dr. Lo holds a Ph.D. in solid state physics & surface chemistry from University of California, Berkeley.

Rick Cassidy is our Senior Vice President, Corporate Strategy Office and CEO & President, TSMC Arizona. Prior to that, he served as Chief Executive Officer of TSMC North America from 2017 to January 2019. He was promoted to Senior Vice President in February 2014, Vice President in November 2008 and had led TSMC North America from January 2005 to 2018. He joined us in 1997 and has held various positions in TSMC North America, including Business Operations, Field Technical Support, and Business Management. He holds a B.A. degree in engineering technology from United States Military Academy at West Point.

Y.P. Chin is our Senior Vice President of Operations. Prior to that, he was Senior Vice President of Operations/ Product Development from November 2016 to April 2020. He was promoted to Senior Vice President in November 2016. He was Vice President of Operations from October 2009 to November 2016, Vice President of Advanced Technology Business from March 2008 to October 2009. Prior to that, he was Senior Director of Operations II from June 2006 to March 2008 and Senior Director of Product Engineering & Services from 2000 to 2006. He joined us in 1987 and has held various positions in product and engineering functions. He holds a master degree in electrical engineering from National Cheng Kung University.

Y.J. Mii is our Senior Vice President of Research & Development/ Technology Development. He was promoted to Senior Vice President in November 2016. He was Vice President of Research & Development from August 2011 to November 2016. Prior to that, he was our Senior Director of Platform I Division from 2006 to 2011. He joined us in 1994 and has been involved continuously in the development and manufacturing of advanced CMOS technologies in both Operations and Research & Development. He holds a Ph.D. in electrical engineering from the University of California, Los Angeles.

J.K. Lin is our Senior Vice President of Information Technology and Materials Management & Risk Management. He led the organization from August 2018 and was promoted to Senior Vice President in November 2018. Prior to that, he was our Vice President of Operations/ Mainstream Fabs from August 2010 to August 2018. He joined us in 1987 and held various positions in manufacturing functions. He holds a B.S. degree from National Changhua University of Education.

J.K. Wang is our Senior Vice President of Corporate Planning Organization. Prior to that, he was Senior Vice President of Operations/ Fab Operations from November 2018 to April 2020. He was promoted to Senior Vice President of Operations in November 2018. He was Vice President of Operations/ 300mm Fabs from August 2010 to August 2018 and Operations/ Fab Operations from August to November 2018. He joined us in 1987 and held various positions in manufacturing and research and development functions. He holds a master degree in chemical engineering from National Cheng-Kung University.

Cliff Hou is our Senior Vice President of Europe & Asia Sales. He was Senior Vice President of Research & Development/ Technology Development from May 2020 to October 2020. He was promoted to Senior Vice President in May 2020. Prior to that, he was Vice President of Research & Development/ Technology Development from August 2018 to May 2020, Vice President of Research & Development/ Design and Technology Platform from August 2011 to August 2018, and Senior Director of Design and Technology Platform from 2010 to 2011. He joined us in 1997 and established the Company's technology design kit and reference flow development organizations. He holds a Ph.D. in electrical and computer engineering from Syracuse University.

Kevin Zhang is our Senior Vice President of Business Development. He was promoted to Senior Vice President in August 2020. He joined us in November 2016 as Vice President of Research & Development/ Design and Technology Platform. Prior to joining us in November 2016, he was a Vice President of Technology and Manufacturing Group of Circuit Technology at Intel. He holds a Ph.D. in electrical engineering from Duke University.

Sylvia Fang is our Vice President of Legal and General Counsel/ Corporate Governance Officer. She was promoted to Vice President and General Counsel of Legal Organization in August 2014. She joined us in 1995 and held various positions in legal functions. She holds a master degree in comparative law from University of Iowa. Ms. Fang is licensed to practice law in Taiwan.

Connie Ma is our Vice President of Human Resources. She was promoted to Vice President of Human Resources in August, 2014. Prior to joining us as Director of Human Resources in June 2014, she was a Senior Vice President of Global Human Resources at Trend Micros, Inc. She holds an EMBA from National Taiwan University.

Y.L. Wang is our Vice President of Operations/ Fab Operations I. Prior to that, he was Vice President of Operations/ Fab Operations from August 2018 to April 2020, Vice President of Research & Development/ Technology Development from February 2016 to August 2018 and Vice President of Operations/ Fab 14B from November 2015 to January 2016 after his promotion to this position. He joined us in 1992 and held various positions in manufacturing functions. He holds a Ph.D. in electronics engineering from National Chiao Tung University.

Doug Yu is our Vice President & TSMC Distinguished Fellow of Pathfinding for System Integration. He was Vice President of Research & Development/ Integrated Interconnect & Packaging from November 2016 to December 2020 after his promotion to this position. Prior to that, he was our Senior Director of Integrated Interconnect & Packaging Division. He joined us in 1994 and was in charge of development of interconnect technology for integrated circuits. He holds a Ph.D. in materials engineering from Georgia Institute of Technology.

T.S. Chang is our Vice President & TSMC Fellow of Operations/ Advanced Technology and Mask Engineering. He was Vice President of Operations/ Product Development from November 2018 to April 2020 and Vice President of Operations/ Fab 12B from February 2018 to November 2018 after his promotion to this position. Prior to that, he was our Senior Director of Fab 12B. He joined us in 1995 and held various positions in manufacturing functions. He holds a Ph.D. in electrical engineering from National Tsing Hua University.

Michael Wu is our Vice President of Research & Development/ Platform Development. He was promoted to Vice President in February 2018. Prior to that, he was our Senior Director of Platform Development Division. He joined us in 1996 and participated in advanced CMOS technology development. He holds a Ph.D. in electrical engineering from University of Wisconsin-Madison.

Min Cao is our Vice President of Research & Development/ Pathfinding. He was promoted to Vice President in February 2018. Prior to that, he was our Senior Director of Path-finding Division. He joined us in 2002 and participated in development of multiple generations of advanced CMOS technology. He holds a Ph.D. in physics from Stanford University.

Marvin Liao is our Vice President of Operations/ Advanced Packaging Technology and Service. He was promoted to Vice President in November 2018. Prior to that, he was Technical Director in Fab 6 upon joining us in 2002 and later Senior Director of Backend Technology and Service Division. He holds a Ph.D. in materials science from University of Texas-Arlington.

Y.H. Liaw is our Vice President of Operations/ Fab Operations II. He was Vice President of Operations/ Fab Operations from June 2019 to April 2020 and Vice President of Operations/ Fab 15B from February 2019 to June 2019 after his promotion to this position. He joined us in 1988 and held various positions in manufacturing functions. He holds a M.S. degree in chemical engineering from National Tsing Hua University.

Simon Jang is our Vice President of Research & Development/ Advanced Tool and Module Development. He was promoted to Vice President in August 2019. Prior to that, he was our Senior Director of Advanced Tool and Module Development Division. He joined us in 1993 and held various positions in research and development functions. He holds a Ph.D. in materials science & engineering from Massachusetts Institute of Technology.

Wendell Huang is our Vice President of Finance and Chief Financial Officer/ Spokesperson. He was promoted to Vice President of Finance in September 2019. Prior to that, he was Deputy Chief

Financial Officer of Finance from January 2019 to August 2019 and Senior Director of Finance Division from 2010 to 2018. Prior to joining us in 1999, he was Vice President of Corporate Finance at ING Barings. He holds an MBA from Cornell University.

C.S. Yoo is our Vice President of Research & Development/ More than Moore Technologies. Prior to that, he was Vice President of Europe and Asia Sales from November 2020 to December 2020 after his promotion to this position. He was our Senior Director of Office of Strategy Customer Program from May 2019 to November 2020 and Senior Director of E-Beam Operation Division from February 2010 to May 2019. He joined us in 1988 and held various positions in manufacturing functions. He holds a Ph.D. in chemical engineering from Worcester Polytech Institute.

Jun He is our Vice President of Quality and Reliability. He was promoted to Vice President in November 2020 and was our Senior Director of Quality and Reliability from May 2019 to November 2020. Prior to that, he was Senior Director of Manufacturing, Quality & Reliability Division, from July 2018 to May 2019, and Senior Director of Advanced Technology, Quality & Reliability Division, from May 2017 to July 2018. Prior to joining us in May 2017, he was a Senior Director of Technology and Manufacturing Group of Quality and Reliability at Intel. He holds a Ph.D. in materials science and engineering from University of California, Santa Barbara.

Geoffrey Yeap is our Vice President of Research & Development/ Platform Development. He was promoted to Vice President in February 2021 and was our Senior Director of Platform Development Division from August 2016 to February 2021. Prior to that, he was Senior director of Advanced Technology from March 2016 to August 2016. Prior to joining us in March 2016, he was Vice President of Engineering, Silicon Technology in Qualcomm. He holds a Ph.D. in electrical and computer engineering from University of Texas-Austin.

Chris Horng-Dar Lin is our Vice President of Corporate Information Technology and Chief Information Officer. He was promoted to Vice President in February 2021. Prior to joining us in January 2021, he was Vice President of Information Technology in Mozilla. He holds a Ph.D. in electrical engineering and computer science from University of California, Berkeley.

There is no family relationship between any of the persons named above. Other than that one of our Directors, Dr. Ming-Hsin Kung, is the representative of our shareholder, National Development Fund of the Executive Yuan, there is no arrangement or understanding with major shareholders, customers, suppliers or others, pursuant to which any person referred to above was selected as a director or member of senior management.

Share Ownership

The following table sets forth certain information as of February 28, 2021 with respect to our common shares owned by our directors and executive officers.

Name of Shareholders ⁽¹⁾	Number of Common Shares Owned ⁽²⁾	Percentage of Outstanding Common Shares ⁽²⁾
Mark Liu, Chairman	12,913,114	0.05%
C.C. Wei, Vice Chairman and Chief Executive Officer	7,179,207	0.03%
Ming-Hsin Kung, Director (Representative of the National Development Fund) ⁽³⁾	1,653,709,980	6.38%
F.C. Tseng, Director	34,472,675	0.13%
Stan Shih, Independent Director	1,480,286	0.01%
Sir Peter L. Bonfield, Independent Director	—	—
Kok-Choo Chen, Independent Director	—	—
Michael R. Splinter, Independent Director	—	—
Moshe N. Gavrielov, Independent Director	—	—
Yancey Hai, Independent Director	—	—
Lora Ho, Senior Vice President	4,570,080	0.02%
Wei-Jen Lo, Senior Vice President	1,441,127	0.01%
Rick Cassidy, Senior Vice President/ CEO & President of TSMC Arizona	—	—
Y.P. Chin, Senior Vice President	6,920,122	0.03%
Y.J. Mii, Senior Vice President	1,000,419	0.00%
J.K. Lin, Senior Vice President	12,648,251	0.05%
J.K. Wang, Senior Vice President	2,583,947	0.01%
Cliff Hou, Senior Vice President	376,104	0.00%
Kevin Zhang, Senior Vice President	68,000	0.00%
Sylvia Fang, Vice President & General Counsel/ Corporate Governance Officer	700,285	0.00%
Connie Ma, Vice President	180,000	0.00%
Y.L. Wang, Vice President	218,535	0.00%
Doug Yu, Vice President and TSMC Distinguished Fellow	235,000	0.00%
T.S. Chang, Vice President & TSMC Fellow	173,781	0.00%
Michael Wu, Vice President	483,501	0.00%
Min Cao, Vice President	363,152	0.00%
Marvin Liao, Vice President	65,485	0.00%
Y.H. Liaw, Vice President	370,000	0.00%
Simon Jang, Vice President	350,695	0.00%
Wendell Huang, Vice President & Chief Financial Officer/ Spokesperson	1,651,617	0.01%
C.S. Yoo, Vice President	1,703,690	0.01%
Jun He, Vice President	5,000	0.00%
Geoffrey Yeap, Vice President	—	—
Chris Horng-Dar-Lin, Vice President & Chief Information Officer	—	—

- (1) None of our directors and executive officers owned any stock option as of February 28, 2021.
- (2) The disclosed number of shares owned by the directors and executive officers did not include any common shares held in the form of ADS by such individuals as such individual ownership of ADSs had not been disclosed or otherwise made public. The disclosed number of shares owned by the directors and executive officers also did not include shares owned by their related parties. Except for the number of shares held by the National Development Fund, Executive Yuan, each of these individuals owned less than 1% of all common shares outstanding as of February 28, 2021.
- (3) Represented shares held by the National Development Fund, Executive Yuan.

Compensation

The aggregate compensation paid and benefits in kind granted to our directors and executive officers in 2020 was NT\$2,665.3 million (US\$94.9 million). According to our Articles of Incorporation, not more than 0.3% of our annual profits, after recovering any losses incurred in prior years, may be distributed as compensation to our directors and at least 1% of our annual profits may be distributed as profit sharing bonuses to employees, including executive officers. Compensation to directors is always paid in cash, while bonuses to our executive officers may be granted in cash, stock, or stock options or the combination of all these three. Individual awards are based on each individual's job responsibility, contribution and performance. See note 30 to our 2020 consolidated financial statements included herein. Under our Articles of Incorporation, directors who also serve as executive officers are not entitled to any director compensation.

Board Practices

General

For a discussion of the term of office of the Board of Directors, see “—Directors and Executive Officers”. No benefits are payable to members of the Board upon termination of their relationship with us.

Audit Committee

Our Audit Committee was established on August 6, 2002 to assist our Board of Directors in the review and monitoring of our financial and accounting matters, and the integrity of our financial reporting process and controls.

All members of the Audit Committee must have a basic understanding of finance and accounting and at least one member must have accounting or related financial management expertise.

Currently, the Audit Committee consists of six members comprising all of our independent directors. The members of the Audit Committee are Sir Peter L. Bonfield, the Chairman of our Audit Committee, Mr. Stan Shih, Ms. Kok-Choo Chen, Mr. Michael R. Splinter, Mr. Moshe N. Gavrielov, and Mr. Yancey Hai. In addition, Mr. Jan C. Lobbezoo was appointed to serve as a financial expert consultant to the Audit Committee from February 14, 2006 onwards. The Audit Committee is required to meet at least once every quarter. Our Audit Committee charter grants the Audit Committee the authority to conduct any investigation which it deems appropriate to fulfill its responsibilities. It has direct access to all our books, records, facilities, personnel, as well as registered public accountants. It has the authority to, among other things, appoint, terminate and approve all fees to be paid to our registered public accountants, subject to the approval of the Board of Directors as appropriate, and to oversee the work performed by the registered public accountants. The Audit Committee also has the authority to engage special legal, accounting, or other consultants it deems necessary in the performance of its duties. Beginning on January 1, 2007, the Audit Committee also assumed the responsibilities of supervisors pursuant to the R.O.C. Securities and Exchange Act.

The Audit Committee convened four regular meetings in 2020. In addition to these meetings, the Audit Committee members and consultant participated in one special meeting and three telephone conferences to discuss our annual report to be filed with the Taiwan and U.S. authorities and investor conference materials with management.

As part of its risk oversight of our operations and financial controls, our Audit Committee receives and reviews periodic reports from the head of Corporate Information Security function relating to our information technology and security matters, including any cybersecurity incidents, assessment of new and emerging cybersecurity risks and threats and their proposed improvement measures. Based on such reviews and their discussions with the head of Corporate Information Security function, our Audit Committee assists our Board to review, assess and enhance the adequacy and effectiveness of our cybersecurity policies and procedures on an ongoing basis.

Compensation Committee

Our Board of Directors established a Compensation Committee in June 2003 to assist our Board of Directors in discharging its responsibilities related to our compensation and benefit policies, plans and programs, and the compensation of our directors of the Board and executives.

The members of the Compensation Committee are appointed by the Board as required by the R.O.C. laws. The Compensation Committee, by its charter, shall consist of no fewer than three independent directors of the Board. Currently, the Compensation Committee comprises all of our six independent directors. The members of the Compensation Committee are Mr. Michael R. Splinter, the Chairman of our Compensation Committee, Sir Peter L. Bonfield, Mr. Stan Shih, Ms. Kok-Choo Chen, Mr. Moshe N. Gavriellov and Mr. Yancey Hai.

The Compensation Committee convened four regular meetings in 2020.

MAJOR SHAREHOLDERS

The following table sets forth certain information as of February 28, 2021, with respect to our common shares owned by (i) each person who, according to our records, beneficially owned 5% or more of our common shares and by (ii) all directors and executive officers as a group.

<u>Names of Shareholders</u>	<u>Number of Common Shares Owned</u>	<u>Percentage of Total Outstanding Common Shares</u>
National Development Fund, Executive Yuan	1,653,709,980	6.38%
Directors and executive officers as a group ⁽¹⁾	92,154,073	0.36%

(1) Excluded ownership of the National Development Fund, Executive Yuan.

As of February 28, 2021, a total of 25,930,380,458 common shares were outstanding. With certain limited exceptions, holders of common shares that are not R.O.C. persons are required to hold their common shares through their custodians in the R.O.C. As of February 28, 2021, 5,321,575,398 common shares were registered in the name of a nominee of Citibank, N.A., the depository under our ADS deposit agreement. Citibank, N.A., advised us that, as of February 28, 2021, 1,064,315,074 ADSs, representing 5,321,575,398 common shares, were held of record by Cede & Co. and 164 other registered shareholders domiciled in and outside of the United States. We have no further information as to common shares held, or beneficially owned, by U.S. persons.

Our major shareholders have the same voting rights as our other shareholders. We are currently not aware of any arrangement that may at a subsequent date result in a change of control of us.

RELATED PARTY TRANSACTIONS

Vanguard International Semiconductor Corporation (“VIS”)

In 1994, we, the R.O.C. Ministry of Economic Affairs and other investors established VIS, then an integrated DRAM manufacturer. VIS commenced volume commercial production in 1995 and listed its shares on the Taipei Exchange in March 1998. In 2004, VIS completely terminated its DRAM production and became a dedicated foundry company. As of February 28, 2021, we owned approximately 28.3% of the equity interest in VIS.

Pursuant to the terms of a manufacturing agreement between both parties, VIS was obligated to use its best commercial efforts to manufacture wafers at specified yield rates for us up to a fixed amount of reserved capacity per month, and TSMC was required to use its best commercial efforts to maintain utilization of such reserved capacity. In 2018, 2019 and 2020, we had total purchases of NT\$5,143 million, NT\$3,093 million and NT\$3,495 million (US\$124 million) from VIS, representing 1.0%, 0.5% and 0.6% of our total cost of revenue, respectively.

Systems on Silicon Manufacturing Company Pte. Ltd. (“SSMC”)

SSMC is a joint venture in Singapore that we established with Philips and EDB Investment Pte. Ltd. to produce integrated circuits by means of advanced submicron manufacturing processes. These integrated circuits are made pursuant to the product design specifications provided primarily by us and Philips under an agreement with Philips and EDB Investment Pte. Ltd. (the “SSMC Shareholders Agreement”) in March 1999 and primarily by us and NXP Semiconductors N.V. (“NXP”), subsequent to the assignment by Philips of its rights to NXP and NXP’s assumption of Philips’ obligations under the SSMC Shareholders Agreement pursuant to the Assignment and Assumption Agreement effective September 25, 2006. SSMC’s business is limited to manufacturing wafers for us, our subsidiaries, NXP and NXP’s subsidiaries. In November 15, 2006, we and NXP exercised the option rights under the SSMC Shareholders Agreement to purchase all of the SSMC shares owned by EDB Investment Pte. Ltd. As a result, we now own 38.8% and NXP owns 61.2%, of SSMC. While we, together with NXP, have the right to purchase up to 100% of SSMC’s annual capacity, we and NXP are required to purchase, in the aggregate, at least 70% of SSMC’s full capacity. See below for a detailed discussion of the contract terms we entered into with SSMC.

We entered into a technology cooperation agreement with SSMC effective March 30, 1999 in which SSMC agreed to base at least a major part of its production activities on processes compatible to those in use in our metal oxide semiconductor (“MOS”) integrated circuits wafer volume production fabs. In return, we agreed to provide SSMC with access to and benefit of the technical knowledge and experience relating to certain processes in use in our MOS integrated circuits wafer volume production fabs and to assist SSMC by rendering certain technical services in connection with its production activities. In addition, we granted to SSMC limited licenses of related intellectual property rights owned or controlled by us for the purpose of MOS integrated circuit production for the sole use in manufacturing products for us. SSMC pays to us during, and up to three years after, the term of this agreement a remuneration of a fixed percentage of the net selling price of all products manufactured by SSMC. In 2018, 2019 and 2020, we had total purchases of NT\$3,667 million, NT\$3,209 million and NT\$4,112 million (US\$146 million) from SSMC, representing 0.7%, 0.6% and 0.7% of our total cost of revenue, respectively.

Global Unichip Corporation (“GUC”)

In January 2003, we acquired a 52.0% equity interest in GUC, a SoC design service company that provides large scale SoC implementation services. GUC listed its shares on the Taiwan Stock Exchange in November 2006. As of February 28, 2021, we owned approximately 34.8% of the equity interest in GUC.

In 2018, 2019 and 2020, we had total sales of NT\$8,370 million, NT\$5,654 million and NT\$7,181 million (US\$256 million) to GUC, representing 0.8%, 0.5% and 0.5% of our total revenue, respectively.

Xintec, Inc. (“Xintec”)

In January 2007, we acquired a 51.2% equity interest in Xintec, a supplier of wafer level packaging service, to support our CMOS image sensor manufacturing business. Xintec listed its

shares on the Taipei Exchange in March 2015. Subsequent to Xintec's IPO, our shareholding in Xintec was diluted to approximately 41.2%. As of February 28, 2021, we owned approximately 41.0% of the equity interest in Xintec.

In 2018, 2019 and 2020, we incurred total manufacturing expenses of NT\$2,975 million, NT\$2,823 million and NT\$5,432 million (US\$193 million) from Xintec, representing 0.6%, 0.5% and 0.9% of our total cost of revenue, respectively.

DESCRIPTION OF THE NOTES AND THE GUARANTEES

The Notes (as defined below) and the Guarantees (as defined below) will be issued pursuant to an indenture dated as of April 3, 2013, as amended and supplemented by a supplemental indenture dated as of September 28, 2020 (the “Indenture”) among the Issuer, the Guarantor and Citicorp International Limited (the “Trustee”). A copy of the Indenture will be available for inspection at the corporate trust office of the Trustee located at 20/F, Citi Tower, One Bay East, 83 Hoi Bun Road, Kwun Tong, Kowloon, Hong Kong. The following summaries of certain provisions of the Notes, the Guarantees and the Indenture do not purport to be complete and are subject to, and are qualified in their entirety by reference to, the detailed provisions of the Notes, the Guarantees and the Indenture. The term “Indenture” when used in this offering circular refers to the Indenture, as amended and supplemented by the supplemental indenture dated as of September 28, 2020.

You will find the definitions of capitalized terms used in this description under the heading “—*Certain Definitions*.” For purposes of this description, references to the “Issuer” refer only to TSMC Global Ltd. and references to the “Guarantor” refer only to Taiwan Semiconductor Manufacturing Company Limited and not to its Subsidiaries.

General

The 1.250% notes due 2026 (the “2026 Notes”) will be issued in an aggregate principal amount of US\$1,100,000,000, the 1.750% notes due 2028 (the “2028 Notes”) will be issued in an aggregate principal amount of US\$900,000,000 and the 2.250% notes due 2031 (the “2031 Notes”, together with the 2026 Notes and the 2028 Notes, the “Notes”) will be issued in an aggregate principal amount of US\$1,500,000,000. The 2026 Notes will mature on April 23, 2026, unless redeemed prior to their maturity pursuant to the terms thereof and of the Indenture, the 2028 Notes will mature on April 23, 2028, unless redeemed prior to their maturity pursuant to the terms thereof and of the Indenture, and the 2031 Notes will mature on April 23, 2031, unless redeemed prior to their maturity pursuant to the terms thereof and of the Indenture. The 2026 Notes will bear interest at the rate of 1.250% per annum, the 2028 Notes will bear interest at the rate of 1.750% per annum, and the 2031 Notes will bear interest at the rate of 2.250% per annum, in each case, payable semi-annually in arrears on April 23 and October 23 of each year (each, an “Interest Payment Date”), beginning on October 23, 2021, to the persons in whose names the Notes are registered at the close of business on the preceding April 8 and October 8, respectively (each, an “Interest Record Date”). Interest on the Notes will accrue from the Issue Date. At maturity, the Notes are payable at their principal amount plus accrued and unpaid interest thereon. In any case where the payment of principal of, or interest on, the Notes is due on a date that is not a New York Business Day, then payment of principal of or interest on the Notes, as the case may be, will be made on the next succeeding New York Business Day and no interest will accrue with respect to such payment for the period from and after such date that is not a New York Business Day to such next succeeding New York Business Day. Interest will be calculated on the basis of a 360-day year consisting of twelve 30-day months. The Notes will not be subject to, nor entitled to the benefit of, any sinking fund. The Notes will be issued only in fully registered form, without coupons, in denominations of US\$200,000 and integral multiples of US\$1,000 in excess thereof.

No service charge will be made for any registration of transfer or exchange of the Notes, but the Issuer, the Guarantor, the transfer agent or the registrar may require payment of a sum sufficient to cover any transfer tax or other similar governmental charge payable in connection therewith. The Guarantor will fully, unconditionally and irrevocably guarantee (the “Guarantees”) to each holder of a 2026 Note, each holder of a 2028 Note and each holder of a 2031 Note the full and prompt payment of the principal of, and premium (if any) and interest on, such Notes (including any Additional Amounts (as defined below) payable in respect thereof) when and to the extent that such amounts shall become due and payable as provided in such Notes.

The principal of, interest on, and all other amounts payable under the Notes will be payable, and the Notes may be exchanged or transferred, at the office or agency of the Issuer which initially will be the office of Citibank, N.A., London Branch, paying agent, transfer agent and registrar (collectively, the “Agents”), located at c/o Citibank, N.A., Dublin Branch, 1 North Wall Quay, Dublin 1, Ireland. The principal of, premium (if any) and interest on the Notes will be payable in U.S. dollars (or in such other coin or currency of the United States of America as at the time of payment is legal tender for the payment of public and private debts) in immediately available funds. Payments of interest, premium (if

any) and principal with respect to interests in the Global Notes will be credited to the accounts of the holders of such interests with DTC, Euroclear or Clearstream, as the case may be. See “*Form, Denomination and Transfer.*”

Ranking

The Notes will:

- constitute senior unsecured obligations of the Issuer;
- at all times rank *pari passu* and without any preference or priority among themselves and at least equally with all other present and future senior unsecured obligations of the Issuer, except as may be required by mandatory provisions of law;
- be senior in right of payment to all future subordinated obligations of the Issuer; and
- be effectively subordinated to secured obligations of the Issuer, to the extent of the assets serving as security therefor.

Further Issues

Subject to the covenants described below and in accordance with the terms of the Indenture, the Issuer may, from time to time, without the consent of the holders of the Notes, create and issue further securities having the same terms and conditions as each series of the Notes in all respects (or in all respects except for the issue date, the issue price, the first payment of interest on them and, to the extent necessary, certain temporary securities law transfer restrictions) (“Additional Notes”). Additional Notes issued in this manner will be consolidated and form a single series with the previously outstanding Notes of the relevant series to constitute a single series of Notes. The Issuer may only issue any Additional Notes of each series with the same CUSIP number as the relevant series of Notes issued hereunder if such further issuance would be treated as part of the same “issue” as the relevant series of Notes issued hereunder within the meaning of United States Treasury regulation section 1.1275-1(f) or 1.1275-2(k) or would otherwise be fungible with the relevant series of Notes issued hereunder for United States federal income tax purposes.

The Guarantees

The Guarantor will fully, unconditionally and irrevocably guarantee to each holder of a 2026 Note, each holder of a 2028 Note and each holder of a 2031 Note, the full and prompt payment of the principal of, and premium (if any) and interest on, such Notes (including any Additional Amounts payable in respect thereof) when and as the same shall become due and payable as provided in such Notes. The Guarantor will (i) agree that its obligations under the Guarantees will be enforceable irrespective of any invalidity, irregularity or unenforceability of the Notes or the Indenture and (ii) waive its right to require the Trustee to pursue or exhaust its legal or equitable remedies against the Issuer prior to exercising its rights under the Guarantees. Moreover, if at any time any amount paid under a Note or the Indenture is rescinded or must otherwise be restored, the rights of the holders of the Notes under the Guarantees will be reinstated with respect to such payments as though such payment had not been made. Notwithstanding any other provision of this “*Description of the Notes and the Guarantees*”, each Guarantee will constitute a separate obligation of the Guarantor and will relate solely to the payment of the principal of, and premium (if any) and interest on, the relevant series of Notes (including any Additional Amounts payable in respect thereof).

The Guarantees will:

- constitute senior unsecured obligations of the Guarantor;
- at all times rank at least equally with all other present and future senior unsecured obligations of the Guarantor, except as may be required by mandatory provisions of law;
- be senior in right of payment to all future subordinated obligations of the Guarantor; and
- be effectively subordinated to secured obligations of the Guarantor, to the extent of the assets serving as security therefor.

The Guarantor will be released from and relieved of its obligations under a Guarantee in the event:

- (i) of repayment in full of the relevant series of Notes; or
- (ii) that there is a Legal Defeasance of the relevant series of Notes as described under “—*Legal Defeasance and Covenant Defeasance*,”

provided that the transaction is otherwise carried out pursuant to and in accordance with all other applicable provisions of the Indenture.

No release of the Guarantor from its obligations under a Guarantee will be effective against the Trustee or the holders of the relevant series of Notes until the Issuer has delivered to the Trustee an Officers’ Certificate and the opinion of Independent Legal Counsel, each stating that all requirements relating to such release have been complied with and that such release is authorized and permitted by the Indenture.

Payment of Additional Amounts

All payments of principal, premium and interest made by the Issuer in respect of the Notes of any series or the Guarantor in respect of the Guarantees will be made without withholding or deduction for, or on account of, any present or future taxes, duties, assessments or other governmental charges of whatever nature (“Taxes”) imposed or levied by or on behalf of the B.V.I. or the R.O.C. or within any political subdivision thereof or any authority therein having power to tax (a “Relevant Jurisdiction”), unless such withholding or deduction of such Taxes is required by law or by regulation. If the Issuer or the Guarantor (or their paying agents) is required to make such withholding or deduction, the Issuer or the Guarantor, as applicable, will withhold such Taxes and pay them to the relevant government authority, and the Issuer or the Guarantor, as applicable, will pay such additional amounts in respect of Taxes as will result (i) with respect to the Issuer, in the receipt by the holders or beneficial owners of the Notes of such series of such amounts as would have been received by such holders or beneficial owners had no such withholding or deduction of such Taxes been required or (ii) with respect to the Guarantor, in the receipt by the holders or beneficial owners of the Notes of such series of such amounts as would have been received by such holders or beneficial owners in respect of payments under the related Guarantee had no such withholding or deduction of such Taxes been required (such additional amounts payable by the Issuer or the Guarantor, the “Additional Amounts”), except that no such Additional Amounts shall be payable:

- (i) in respect of any such Taxes that would not have been imposed, deducted or withheld but for the existence of any connection (whether present or former) between the holder or beneficial owner of a Note and any Relevant Jurisdiction other than merely holding such Notes or receiving principal or interest in respect thereof (including such holder or beneficial owner being or having been a national, domiciliary or resident of such Relevant Jurisdiction or treated as a resident thereof or being or having been physically present or engaged in a trade or business therein or having currently or having had a permanent establishment therein);
- (ii) to the extent that any Taxes with respect to a Note would not have been so imposed or levied but for the fact that, where presentation is required in order to receive payment, the applicable Notes or Guarantees was presented more than 30 days after the date on which such payment became due and payable or the date on which payment thereof provided for and notice thereof given to the holders of the Notes, whichever is later, except to the extent that the holder or beneficiary thereof would have been entitled to such Additional Amounts on presenting the same for payment on the last day of such 30-day period;
- (iii) in respect of any failure of the holder or beneficial owner of a Note or a Guarantee to comply with a timely request of the Issuer or the Guarantor, as applicable, addressed to the holder or beneficial owner to provide information concerning such holder’s or beneficial owner’s nationality, residence, identity or connection with any Relevant Jurisdiction, if and to the extent that due and timely compliance with such request is required under the tax laws, statutes, treaties, regulations or administrative practices of any Relevant Jurisdiction in order to reduce or eliminate any withholding or deduction as to which Additional Amounts would have otherwise been payable to such holder or beneficial owner;

- (iv) in respect of any Taxes imposed as a result of any Notes or either Guarantee being presented for payment (where presentation is required) in the Relevant Jurisdiction, unless any such Notes or such Guarantee, as applicable, could not have been presented for payment elsewhere;
- (v) in respect of any estate, inheritance, gift, sales, transfer, personal property or similar Taxes;
- (vi) to any holder of a Note or beneficiary of a Guarantee that is a fiduciary, partnership or person other than the sole beneficial owner of any payment to the extent that such payment would be required to be included in the income under the laws of a Relevant Jurisdiction, for tax purposes, of a beneficiary or settlor with respect to the fiduciary, or a member of that partnership or a beneficial owner who would not have been entitled to such Additional Amounts had that beneficiary, settlor, partner or beneficial owner been the holder thereof;
- (vii) in respect of any Taxes that are payable otherwise than by deduction or withholding from payments on or in respect of any Notes or Guarantees; or
- (viii) in the case of any combination of the above listed items.

In addition, any amounts to be paid on the Notes will be paid net of any deduction or withholding imposed or required pursuant to Sections 1471 through 1474 of the Code, any current or future regulations or official interpretations thereof, any agreement entered into pursuant to Section 1471(b) of the Code, or any fiscal or regulatory legislation, rules or practices adopted pursuant to any intergovernmental agreement entered into in connection with the implementation of such Sections of the Code, and no additional amounts will be required to be paid on account of any such deduction or withholding.

In the event that any withholding or deduction for or on account of any taxes is required in respect of any payment of principal of or interest on the Notes of any series or any payment under the related Guarantee, at least five New York Business Days prior to the date of such payment, the Issuer or the Guarantor, as applicable, will furnish to the Trustee and the paying agent, if other than the Trustee, an Officers' Certificate specifying the amount required to be withheld or deducted on such payment, certifying that the Issuer or the Guarantor, as applicable, shall pay such amounts required to be withheld to the appropriate governmental authority and certifying the fact that the Additional Amounts will be payable and the amounts so payable to each holder, and that the Issuer or the Guarantor, as applicable, will pay to the Trustee or such paying agent the Additional Amounts required to be paid; *provided* that no such Officers' Certificate will be required prior to any date of payment of principal of or interest on any such Notes or any such Guarantees, as applicable, if there has been no change with respect to the matters set forth in a prior Officers' Certificate. The Trustee and each paying agent may rely on the fact that any Officers' Certificate contemplated by this paragraph has not been furnished as evidence of the fact that no withholding or deduction for or on account of any Taxes is required. The Issuer and the Guarantor covenant to indemnify the Trustee and any paying agent for and to hold them harmless against any loss, liability or expense reasonably incurred without fraudulent activity, gross negligence or willful misconduct on their part arising out of or in connection with actions taken or omitted by any of them in reliance on any such Officers' Certificate furnished pursuant to this paragraph or on the fact that any Officers' Certificate contemplated by this paragraph has not been furnished.

Whenever there is mentioned, in any context, the payment of principal, premium or interest in respect of any Notes, such mention shall be deemed to include the payment of Additional Amounts provided for in the Indenture, to the extent that, in such context, Additional Amounts are, were or would be payable in respect thereof pursuant to the Indenture.

The foregoing provisions shall apply in the same manner with respect to the jurisdiction in which any successor Person to the Issuer or the Guarantor is organized or resident for tax purposes or any authority therein or thereof having the power to tax (a "Successor Jurisdiction"), substituting such Successor Jurisdiction for the applicable Relevant Jurisdiction.

The Issuer's and the Guarantor's respective obligations to make payments of Additional Amounts under the terms and conditions described above will survive any termination, defeasance or discharge of the Indenture.

Tax Redemption

Each series of Notes may be redeemed at any time, at the option of the Issuer, in whole but not in part, upon notice as described below, at a redemption price equal to 100% of the principal amount thereof, together with accrued and unpaid interest, if any, to, but not including, the date fixed for redemption, if (i) as a result of any change in, or amendment to, the laws or regulations of a Relevant Jurisdiction (or, in the case of Additional Amounts payable by a successor Person to the Issuer or the Guarantor, the applicable Successor Jurisdiction), or any change in the application or official interpretation of such laws or regulations, which change or amendment becomes effective on or after the Issue Date (or, in the case of Additional Amounts payable by a successor Person to the Issuer or the Guarantor, the date on which such successor Person became such pursuant to the applicable provisions of the Indenture) (a "Tax Change"), the Issuer or the Guarantor or any such successor Person is, or would be, obligated to pay Additional Amounts upon the next payment of principal or interest in respect of such Notes or the next payment under the relevant Guarantee, as applicable, and (ii) such obligation cannot be avoided by the Issuer or the Guarantor or such successor Person, as applicable, taking reasonable measures available to it.

Prior to the giving of any notice of redemption of a series of Notes pursuant to the foregoing, the Issuer or the Guarantor or any such successor Person to the Issuer or the Guarantor, as applicable, shall deliver to the Trustee (i) a notice of such redemption election, (ii) an opinion of an Independent Legal Counsel or an opinion of an Independent Tax Consultant to the effect that the Issuer or the Guarantor or any such successor Person is, or would become, obligated to pay such Additional Amounts as the result of a Tax Change and (iii) an Officers' Certificate of the Issuer or the Guarantor or such successor Person, stating that such amendment or change has occurred, describing the facts leading thereto and stating that such requirement cannot be avoided by the Issuer or the Guarantor or the relevant successor Person, as applicable, taking reasonable measures available to it.

Notice of redemption of a series of Notes as provided above shall be given to the holders not less than 10 nor more than 60 days prior to the date fixed for redemption. Notice having been given, the relevant Notes shall become due and payable on the date fixed for redemption and will be paid at the redemption price, together with accrued and unpaid interest, if any, to, but not including, the date fixed for redemption, at the place or places of payment and in the manner specified in the relevant Notes. From and after the redemption date, if moneys for the redemption of such Notes shall have been made available as provided in the Indenture for redemption on the redemption date, such Notes shall cease to bear interest, and the only right of the holders of such Notes shall be to receive payment of the redemption price and accrued and unpaid interest, if any, to, but not including, the date fixed for redemption.

Optional Redemption

The Issuer may, at any time upon giving not less than 10 nor more than 60 days' notice to holders of a series of Notes, redeem such series of Notes, in whole or in part; *provided* that the principal amount of any Note remaining outstanding after redemption in part shall be US\$200,000 or an integral multiple of US\$1,000 in excess thereof. The redemption price for any Notes to be redeemed prior to the Applicable Par Call Date will be equal to the greater of (i) 100% of the aggregate principal amount of the Notes to be redeemed and (ii) the sum, as determined by the Independent Investment Banker based on the Reference Treasury Dealer Quotations, of the present values of the Remaining Scheduled Payments, discounted to the redemption date on a semi-annual basis (assuming a 360-day year consisting of twelve 30-day months) using a discount rate equal to the Treasury Rate plus 10 basis points, in the case of the 2026 Notes, 10 basis points, in the case of the 2028 Notes, and 15 basis points, in the case of the 2031 Notes, plus, in the case of each of clause (i) or (ii), accrued and unpaid interest thereon to, but not including, the redemption date for such Notes. On or after the Applicable Par Call Date, the redemption price will be equal to 100% of the aggregate principal amount of the 2026 Notes, the 2028 Notes or the 2031 Notes, as the case may be, to be redeemed, plus accrued and unpaid interest thereon to, but not including, the redemption date for such Notes. Neither the Trustee nor the paying agent shall be responsible for verifying or calculating the redemption price payable to holders.

If only some of the Notes of any series are to be redeemed, the Notes of such series to be redeemed will be selected, while such Notes are in global form, by the applicable clearing system and/

or stock exchange requirements, or while such Notes are in certificated form, by the Trustee on a pro rata basis, by lot or by such method as the Trustee in its sole discretion deems fair and appropriate, unless otherwise required by law.

Any notice of redemption of Notes as described in this “—*Optional Redemption*” section shall state the redemption price (if known) or the formula pursuant to which the redemption price is to be determined if the redemption price cannot be determined at the time the notice is given. If the redemption price cannot be determined at the time such notice is to be given, the actual redemption price, calculated as described in clause (ii) of the first paragraph under “—*Optional Redemption*” above, shall be set forth in an Officers’ Certificate delivered to the Trustee no later than two New York Business Days prior to the redemption date.

Any notice of redemption of Notes as described in this “—*Optional Redemption*” section may, at the Issuer’s discretion, be given subject to one or more conditions precedent, including, but not limited to, the completion of a corporate transaction that is pending (such as an equity or equity-linked offering, an incurrence of indebtedness or an acquisition or other strategic transaction involving a change of control in the Issuer or another entity). If such redemption is so subject to the satisfaction of one or more conditions precedent, such notice shall describe each such condition, and such notice may be rescinded in the event that any or all such conditions shall not have been satisfied or otherwise waived on or prior to the New York Business Day immediately preceding the relevant redemption date. The Issuer shall notify holders and the Trustee of any such rescission as soon as reasonably practicable after it determines that such conditions precedent will not be able to be satisfied or the Issuer shall not be able or willing to waive such conditions precedent. Once the notice of redemption is mailed or sent, subject to the satisfaction of any conditions precedent provided in the notice of redemption, the Notes called for redemption will become due and payable on the redemption date and at the applicable redemption price as described in this “—*Optional Redemption*” section.

Open Market Purchases

The Issuer or the Guarantor or any of the Guarantor’s Subsidiaries may, in accordance with all applicable laws and regulations, at any time purchase the Notes in the open market or otherwise at any price, so long as such purchase does not otherwise violate the terms of the Indenture. The Notes so purchased, while held by or on behalf of the Issuer or the Guarantor or any of the Guarantor’s Subsidiaries, shall not be deemed to be outstanding for the purposes of determining whether the holders of the requisite principal amount of outstanding Notes have given any request, demand, authorization, direction, notice, consent or waiver hereunder.

Modification and Waiver

The Indenture contains provisions permitting the Issuer, the Guarantor and the Trustee, without the consent of the holders of a series of Notes, to execute supplemental indentures for certain enumerated purposes in the Indenture and, with the consent of the holders of not less than a majority in aggregate principal amount of the relevant series of Notes then outstanding under the Indenture, to add, change, eliminate or modify in any way the provisions of the Indenture or any supplemental indentures or to change or modify in any manner the rights of the holders of Notes of such series. The Issuer, the Guarantor and the Trustee may not, however, without the consent of each holder of the Notes of the series affected thereby:

- (i) change the Stated Maturity of such series of Notes;
- (ii) reduce the principal amount of, payments of interest on or stated time for payment of interest on any Notes of such series;
- (iii) change any obligation of the Issuer or the Guarantor to pay Additional Amounts with respect to such series of Notes or the related Guarantee, respectively;
- (iv) change any obligation of the Guarantor to make payments under the Guarantee with respect to such series of Notes;
- (v) change the currency of payment of the principal of or interest on such series of Notes;
- (vi) impair the right to institute suit for the enforcement of any payment due on or with respect to such series of Notes or the related Guarantee;

- (vii) reduce the above stated percentage of outstanding Notes of such series necessary to modify or amend the Indenture;
- (viii) reduce the percentage of the aggregate principal amount of outstanding Notes of such series necessary for waiver of compliance with certain provisions of the Indenture or for waiver of certain Defaults;
- (ix) modify the provisions of the Indenture with respect to modification and waiver; or
- (x) reduce the amount of the premium payable upon the redemption or repurchase of any Notes of such series or change the time at which any Notes of such series may be redeemed or repurchased as described above under “—*Optional Redemption*” whether through an amendment or waiver of provisions in the covenants, definitions or otherwise.

The holders of not less than a majority in principal amount of a series of Notes may on behalf of all holders of that series of Notes waive any existing or past Default or Event of Default and its consequences under the Indenture, except a continuing Default or Event of Default (i) in the payment of principal of, or interest on (or Additional Amounts payable in respect of), the relevant Notes then outstanding or the payment of any amounts due under the relevant Guarantee, in which event the consent of all holders of that series of Notes is required; or (ii) in respect of a covenant or provision that under the Indenture cannot be modified or amended without the consent of each holder of that series of Notes then outstanding affected thereby. Any such waivers will be conclusive and binding on all holders of the relevant series of Notes, whether or not they have given consent to such waivers, and on all future holders of such series of Notes, whether or not notation of such waivers is made upon the relevant Notes. Any instrument given by or on behalf of any holder of any Notes in connection with any consent to any such waiver will be irrevocable once given and will be conclusive and binding on all subsequent holders of any such Notes.

Notwithstanding the foregoing, without the consent of any holder, the Issuer, the Guarantor and the Trustee may amend the Indenture, the Notes of each series and the Guarantees to, among other things:

- (i) cure any ambiguity, omission, defect or inconsistency; *provided*, however, that such amendment does not materially and adversely affect the rights of holders of the relevant series of Notes;
- (ii) provide for the assumption by a successor Person of the obligations of the Issuer or the Guarantee under the Indenture and a series of Notes in accordance with “—*Consolidation, Merger and Sale of Assets*”;
- (iii) provide for or facilitate the issuance of uncertificated Notes in addition to or in place of certificated Notes; *provided* that the uncertificated Notes are issued in registered form for purposes of Section 163(f) of the Code;
- (iv) comply with the rules of any applicable depository;
- (v) make any change that does not adversely affect the legal rights under the Indenture of any holder in any material respect;
- (vi) evidence and provide for the acceptance of an appointment under the Indenture of a successor trustee; *provided* that the successor trustee is otherwise qualified and eligible to act as such under the terms of the Indenture;
- (vii) conform the text of the Indenture, the Notes or the Guarantees to any provision of this “*Description of the Notes and the Guarantees*” in the final offering circular in relation to the Notes;
- (viii) make any amendment to the provisions of the Indenture relating to the transfer and legending of Notes or the Guarantees as permitted by the Indenture, including, but not limited to, amendments made to facilitate the issuance and administration of the Notes or the Guarantees or, if incurred in compliance with the Indenture, Additional Notes; *provided*, however, that (a) compliance with the Indenture as so amended would not result in the Notes or the Guarantees being transferred in violation of the Securities Act or any applicable securities law and (b) such amendment does not materially and adversely affect the rights of holders to transfer the Notes and the Guarantees as described in this offering circular;

- (ix) to provide for the issuance of Additional Notes of each series in accordance with the limitations set forth in the Indenture;
- (x) to evidence the succession of another Person to the Issuer or the Guarantor, and the assumption by any such successor of the covenants of the Issuer or the Guarantor, respectively;
- (xi) to establish the form or terms of a new series of notes;
- (xii) to reduce or otherwise limit the aggregate principal amount of notes that may be authenticated and delivered under the Indenture;
- (xiii) to supplement any of the provisions of the Indenture to such extent as shall be necessary to permit or facilitate the defeasance and discharge of any series of Notes, *provided* that any such action shall not adversely affect the interests of the holders of any Notes then outstanding; and
- (xiv) to amend or supplement any provision contained herein or in any supplemental indenture, *provided* that no such amendment or supplement shall adversely affect the interests of the holders of any Notes then outstanding.

The consent of the holders is not necessary under the Indenture to approve the particular form of any proposed amendment, supplement or waiver. It is sufficient if such consent approves the substance of the proposed amendment or supplement. A consent to any amendment, supplement or waiver under the Indenture by any holder given in connection with a tender of such holder's Notes will not be rendered invalid by such tender. After an amendment, supplement or waiver under the Indenture becomes effective, the Issuer is required to give to the holders of the affected Notes a notice briefly describing such amendment, supplement or waiver. However, the failure to give such notice to all such holders, or any defect in the notice will not impair or affect the validity of the amendment, supplement or waiver.

Certain Covenants

The Indenture sets forth limited covenants that will apply to each series of Notes. However, these covenants do not, among other things:

- limit the amount of indebtedness or lease obligations that may be incurred by the Issuer, the Guarantor or any Subsidiary of the Guarantor;
- limit the ability of the Issuer, the Guarantor or any Subsidiary of the Guarantor to issue, assume or guarantee indebtedness secured by liens; or
- limit the Issuer, the Guarantor or any Subsidiary of the Guarantor from paying dividends or making distributions on such Person's Capital Stock or purchasing or redeeming such Person's Capital Stock.

Reports

So long as the Notes remain outstanding and are "restricted securities" within the meaning of Rule 144(a)(3) of the Securities Act, the Guarantor will furnish, upon the request of any holder of a beneficial interest in any Notes, such information as is specified in paragraph (d)(4) of Rule 144A, to such holder or beneficial owner or to a prospective purchaser of such Notes, designated by such holder or beneficial owner, who is also a qualified institutional buyer within the meaning of Rule 144A to the extent required to permit compliance by such holder or beneficial owner with Rule 144A in connection with the resale of the Notes or beneficial interest therein in reliance on Rule 144A unless, at the time of such request, the Guarantor is subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act, or is exempt from the registration requirements of Section 12(g) of the Exchange Act pursuant to Rule 12g3-2(b) under the Exchange Act.

Consolidation, Merger and Sale of Assets

Prior to the satisfaction and discharge of the Indenture, the Guarantor and the Issuer may not consolidate with or merge into any other Person in a transaction or, directly or indirectly, convey, transfer or lease all or substantially all of its properties and assets to any Person, unless either:

- (i) in the case of a consolidation or merger, the Guarantor or the Issuer is the continuing and surviving Person and no Default or Event of Default shall have occurred and be continuing; or
- (ii) (a) the Person formed by such consolidation or into which the Issuer or the Guarantor is merged or to whom the Issuer or the Guarantor has conveyed, transferred or leased all or substantially all of its properties and assets expressly assumes by an indenture supplemental to the Indenture all the obligations of the Issuer or the Guarantor, as applicable, under the Indenture and the applicable Notes and Guarantee, including the obligation to pay Additional Amounts, with any jurisdiction in which the Person is organized or resident for tax purposes also being considered a “Relevant Jurisdiction” for purposes of the Additional Amounts provision;
- (b) immediately before and after giving effect to the transaction, no Default or Event of Default under the applicable series of Notes shall have occurred and be continuing; and
- (c) the Issuer or the Guarantor, as applicable, has delivered to the Trustee an Officers’ Certificate and an opinion of Independent Legal Counsel, each stating that such consolidation, merger, conveyance, transfer or lease and such supplemental indenture comply with the Indenture and that all conditions precedent therein provided for relating to such transaction have been complied with.

An assumption of the Issuer’s obligations under a series of Notes by any Person might be deemed for U.S. federal income tax purposes to be an exchange of such Notes for new Notes by the beneficial owners thereof, resulting in the recognition of gain or loss for such purposes and possibly certain other adverse tax consequences. Investors should consult their own tax advisors regarding the tax consequences of such an assumption.

Events of Default

For each series of Notes, each of the following shall constitute an Event of Default under the Indenture for such series of Notes:

- (i) failure to pay principal or premium in respect of any Notes of such series by the due date for such payment, but in the case of technical or administrative difficulties, only if the default continues for a period of two days;
- (ii) failure to pay interest on any Notes of such series within 30 days after the due date for such payment;
- (iii) the Issuer or the Guarantor defaults in the performance of or breaches its obligations under the “—*Consolidation, Merger and Sale of Assets*” covenant;
- (iv) the Issuer or the Guarantor defaults in the performance of or breaches any covenant or agreement in the Indenture or under such series of Notes (other than a default specified in clause (i), (ii) or (iii) above) and such default or breach continues for a period of 90 consecutive days after written notice to the Issuer and the Guarantor, as applicable, by the Trustee or the holders of 25% or more in aggregate principal amount of such series of Notes then outstanding;
- (v) the entry by a court having jurisdiction in the premises of (a) a decree or order for relief in respect of the Issuer or the Guarantor in an involuntary case or proceeding under any applicable bankruptcy, insolvency or other similar law or (b) a decree or order adjudging the Issuer or the Guarantor bankrupt or insolvent, or approving as final and nonappealable a petition seeking reorganization, arrangement, adjustment, or composition of or in respect of the Issuer or the Guarantor under any applicable bankruptcy, insolvency or other similar law, or appointing a custodian, receiver, liquidator, assignee, trustee, sequestrator, or other

similar official of the Issuer or the Guarantor or of any substantial part of their respective property, or ordering the winding up or liquidation of their respective affairs (or any similar relief granted under any foreign laws), and the continuance of any such decree or order for relief or any such other decree or order unstayed and in effect for a period of 90 consecutive calendar days;

- (vi) the commencement by the Issuer or the Guarantor of a voluntary case or proceeding under any applicable state or foreign bankruptcy, insolvency or other similar law or of any other case or proceeding to be adjudicated bankrupt or insolvent, or the consent by it to the entry of a decree or order for relief in respect of the Issuer or the Guarantor in an involuntary case or proceeding under any applicable bankruptcy, insolvency or other similar law or to the commencement of any bankruptcy or insolvency case or proceeding against it, or the filing by it of a petition or answer or consent seeking reorganization or relief with respect to the Issuer or the Guarantor under any applicable bankruptcy, insolvency or other similar law, or the consent by it to the filing of such petition or to the appointment of or taking possession by a custodian, receiver, liquidator, assignee, trustee, sequestrator, or other similar official of the Issuer or the Guarantor or of any substantial part of their respective property pursuant to any such law, or the making by the Issuer or the Guarantor of a general assignment for the benefit of creditors in respect of any indebtedness as a result of an inability to pay such indebtedness as it becomes due, or the admission by the Issuer or the Guarantor in writing of its inability to pay its debts generally as they become due, or the taking of corporate action by the Issuer or the Guarantor that resolves to commence any such action; and
- (vii) the relevant series of Notes, the relevant Guarantee or the Indenture is or becomes or is claimed to be unenforceable, invalid, ceases to be in full force and effect by the Issuer or the Guarantor, as applicable, or is deemed to contravene, breach or violate the laws of any relevant jurisdiction.

However, a default under subparagraph (iv) above will not constitute an Event of Default until the Trustee or the holders of 25% in aggregate principal amount of the then outstanding Notes of the relevant series notify the Issuer and the Guarantor of the default and the Issuer or the Guarantor, as applicable, does not cure such default within the time specified in subparagraph (iv) above after receipt of such notice.

If an Event of Default (other than an Event of Default described in subparagraphs (v) and (vi) above) shall occur and be continuing, either the Trustee or the holders of at least 25% in aggregate principal amount of the relevant series of Notes then outstanding by written notice to the Issuer and the Guarantor (and to the Trustee if such notice is given by the holders) as provided in the Indenture may, or the Trustee acting on the directions of the holders of at least 25% in aggregate principal amount of the relevant series of Notes then outstanding (subject to receipt of indemnity and/or security satisfactory to the Trustee) shall, declare the unpaid principal amount of the Notes of such series and any accrued and unpaid interest thereon (and any Additional Amount payable in respect thereof) to be due and payable immediately upon receipt of such notice. If an Event of Default in subparagraphs (v) or (vi) above shall occur, the unpaid principal amount of all the Notes of such series then outstanding and any accrued and unpaid interest thereon will automatically, and without any declaration or other action by the Trustee or any holder of such Notes, become immediately due and payable. After a declaration of acceleration but before a judgment or decree for payment of the money due has been obtained by the Trustee, the holders of at least a majority in aggregate principal amount of the affected Notes then outstanding may, under certain circumstances, waive all past Defaults and rescind and annul such acceleration if (1) rescission would not conflict with any judgment or decree of a court of competent jurisdiction and (2) all Events of Default in respect of such series of Notes, other than the non-payment of principal, premium, if any, or interest on such Notes that became due solely because of the acceleration of such Notes, have been cured or waived. For information as to waiver of Defaults, see “—*Modification and Waiver.*”

Subject to the provisions of the Indenture relating to the duties of the Trustee, in case an Event of Default of a series of Notes shall occur and be continuing, the Trustee will be under no obligation to exercise any of the trusts or powers vested in it by the Indenture at the written request, order or direction of any of the holders of such Notes, unless a requisite number of holders shall have instructed in writing and offered to the Trustee security and/or indemnity satisfactory to it against the costs, expenses and liabilities which may be incurred therein or thereby. Subject to certain provisions,

including those requiring security and/or indemnification of the Trustee, the holders of a majority in aggregate principal amount of such Notes then outstanding will have the right to direct in writing the time, method and place of conducting any proceeding for any remedy available to the Trustee or exercising any trust or power conferred on the Trustee. No holder of any Notes will have any right to institute any proceeding, judicial or otherwise, with respect to the Indenture, the Notes or the Guarantee, or for the appointment of a receiver or a trustee, or for any other remedy thereunder, unless (i) such holder has previously given to the Trustee written notice of a continuing Event of Default, (ii) the holders of at least 25% in aggregate principal amount of such series of Notes then outstanding have made written request to the Trustee to institute such proceeding, (iii) such holder or holders have instructed in writing and offered indemnity and/or security satisfactory to the Trustee and (iv) the Trustee has failed to institute such proceeding, and has not received from the holders of a majority in aggregate principal amount of such series of Notes then outstanding a written direction inconsistent with such request, within 60 days after such notice, request and offer. However, such limitations do not apply to a suit instituted by a holder of a Note for the enforcement of the right to receive payment of the principal of or interest on any such Notes on or after the applicable due date specified in any such Notes. The Trustee shall not be required to expend its funds in following such direction if it does not reasonably believe that reimbursement or indemnity and/or security is assured to it.

If the Trustee collects any money pursuant to the Indenture, it shall pay out the money in the following order:

First, to the Trustee and the Agents to the extent necessary to reimburse the Trustee and the Agents for any expenses incurred in connection with the collection or distribution of such amounts held or realized and any fees and expenses (including indemnity payments) incurred in connection with carrying out its functions under the Indenture (including reasonable legal fees);

Second, to the Trustee for the benefit of the holders of the Notes of the relevant series; and

Third, any surplus remaining after such payments will be paid to the Issuer or to whomever may be lawfully entitled thereto.

No Personal Liability of Directors, Officers, Employees and Shareholders

No director, officer, employee, incorporator or shareholder of the Issuer or the Guarantor, as such, will have any liability for any obligations of the Issuer or the Guarantors under the Notes, the Indenture or the Guarantees, or for any claim based on, in respect of, or by reason of, such obligations or their creation. Each holder of Notes by accepting a Note waives and releases all such liability. The waiver and release are part of the consideration for issuance of the Notes. The waiver may not be effective to waive liabilities under the U.S. federal securities laws.

Legal Defeasance and Covenant Defeasance

The Indenture will provide that the Issuer may, at its option and at any time, elect to have all of its (and the Guarantor's) obligations discharged with respect to the outstanding Notes of a series and the related Guarantees ("Legal Defeasance") except for:

- (i) the rights of holders of the Notes of the relevant series that are then outstanding to receive payments in respect of the principal of, or interest or premium on the Notes of the relevant series when such payments are due from the trust referred to below;
- (ii) the Issuer's obligations with respect to the Notes of the relevant series concerning issuing temporary notes, mutilated, destroyed, lost or stolen notes and the maintenance of an office or agency for payment and money for security payments held in trust;
- (iii) the rights, powers, trusts, duties and immunities of the Trustee for the relevant series of Notes, and the Issuer's obligations in connection therewith; and
- (iv) the Legal Defeasance and Covenant Defeasance (as defined below) provisions of the Indenture for the relevant series of Notes.

The Indenture will provide that the Issuer may, at its option and at any time, elect to have its (and the Guarantor's) obligations with respect to the outstanding Notes of the relevant series and the related Guarantee released with respect to certain covenants that are described in the Indenture ("Covenant Defeasance") and thereafter any omission to comply with those covenants will not constitute a Default or Event of Default. In the event Covenant Defeasance occurs, certain events (not including non-payment, bankruptcy, receivership, rehabilitation and insolvency events) described under the caption "*Events of Default*" will no longer constitute an Event of Default in respect of such series of Notes.

The Indenture will also provide that, in order to exercise either Legal Defeasance or Covenant Defeasance:

- (i) the Issuer must irrevocably deposit with the Trustee, in trust, for the benefit of the holders of all the Notes subject to Legal Defeasance or Covenant Defeasance, cash in U.S. dollars, U.S. Government Obligations, or a combination of cash in U.S. dollars and U.S. Government Obligations, in amounts as will be sufficient, in the opinion of an internationally recognized investment bank, appraisal firm or firm of independent public accountants, to pay the principal of, or interest and premium on such Notes as are then outstanding on the Stated Maturity or on the applicable redemption date, as the case may be, and the Issuer must specify whether such Notes are being defeased to maturity or to a particular redemption date;
- (ii) in the case of Legal Defeasance, the Issuer must deliver to the Trustee an opinion of Independent Legal Counsel reasonably acceptable to the Trustee confirming that (a) the Issuer has received from, or there has been published by, the U.S. Internal Revenue Service a ruling or (b) since the date of the Indenture, there has been a change in the applicable U.S. federal income tax law, in either case to the effect that, and based thereon such opinion of Independent Legal Counsel will confirm that, the holders of the then outstanding Notes of the affected series will not recognize income, gain or loss for U.S. federal income tax purposes as a result of such Legal Defeasance and will be subject to U.S. federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such Legal Defeasance had not occurred;
- (iii) in the case of Covenant Defeasance, the Issuer must deliver to the Trustee an opinion of Independent Legal Counsel reasonably acceptable to the Trustee confirming that the holders of the then outstanding Notes of the affected series will not recognize income, gain or loss for U.S. federal income tax purposes as a result of such Covenant Defeasance and will be subject to U.S. federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such Covenant Defeasance had not occurred;
- (iv) no Default or Event of Default with respect to the Notes of the affected series must have occurred and be continuing on the date of the deposit referred to in clause (i) above (other than a Default or Event of Default resulting from the borrowing of funds to be applied to such deposit);
- (v) the Issuer must deliver to the Trustee an Officers' Certificate stating that the deposit referred to in clause (i) above was not made by it with the intent of preferring the holders of Notes of the affected series over the Issuer's other creditors with the intent of defeating, hindering, delaying or defrauding its creditors or others; and
- (vi) the Issuer must deliver to the Trustee an Officers' Certificate and an opinion of Independent Legal Counsel, each stating that all conditions precedent relating to the Legal Defeasance or the Covenant Defeasance have been complied with.

Satisfaction and Discharge

The Indenture will be discharged and will cease to be of further effect when:

- (i) either:
 - (a) all of the Notes that have been authenticated, except lost, stolen or destroyed Notes that have been replaced or paid and Notes for whose payment money has been deposited in trust and thereafter repaid to the Issuer, have been delivered to the Trustee for cancellation; or

- (b) all of the Notes that have not been delivered to the Trustee for cancellation have become due and payable by reason of the mailing of a notice of redemption or otherwise or will become due and payable within one year and the Issuer or the Guarantor has irrevocably deposited or caused to be deposited with the Trustee, as trust funds in trust solely for the benefit of the holders of the Notes, cash in U.S. dollars, U.S. Government Obligations, or a combination of cash in U.S. dollars and U.S. Government Obligations, in amounts as will be sufficient, without consideration of any reinvestment of interest, to pay and discharge all amounts outstanding on the Notes not delivered to the Trustee for cancellation for principal, premium and accrued interest to the date of maturity or redemption;
- (ii) no Default or Event of Default under the Indenture has occurred and is continuing with respect to the Notes on the date of the deposit referred to in clause (i)(a) or (i)(b) above (other than a Default or Event of Default resulting from or related to the borrowing of funds to be applied to such deposit) and such deposit will not result in a breach or violation of, or constitute a default under, any other instrument to which the Issuer is a party or by which it is bound;
- (iii) the Issuer has paid or caused to be paid all sums payable by it under the Indenture with respect to the Notes; and
- (iv) the Issuer has delivered irrevocable instructions to the Trustee under the Indenture to apply the deposited money toward the payment of the Notes at maturity or the redemption date, as the case may be.

In addition, the Issuer must deliver an Officers' Certificate and an opinion of Independent Legal Counsel to the Trustee stating that all conditions precedent to satisfaction and discharge have been satisfied.

Concerning the Trustee and Agents

Pursuant to the Indenture, Citicorp International Limited will be designated as the initial trustee and Citibank, N.A., London Branch, a banking corporation organized and existing under the laws of the State of New York with limited liability, will be designated by the Issuer as the initial paying and transfer agent and registrar for the Notes. The corporate trust office of the Trustee is currently located at 20/F, Citi Tower, One Bay East, 83 Hoi Bun Road, Kwun Tong, Kowloon, Hong Kong.

The Indenture provides that the Trustee, except during the continuance of an Event of Default, undertakes to perform such duties and only such duties as are specifically set forth in such Indenture, and no implied covenant or obligation shall be read into the Indenture against the Trustee. If an Event of Default has occurred and is continuing, the Trustee will exercise such of the rights and powers vested in it by the Indenture, and use the same degree of care and skill in their exercise, as a prudent person would exercise or use under the circumstances in the conduct of such person's own affairs.

Furthermore, each Holder, by accepting the Notes will agree, for the benefit of the Trustee, that it is solely responsible for its own independent appraisal of, and investigation into, all risks arising under or in connection with the Notes and has not relied on and will not at any time rely on the Trustee in respect of such risks.

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 Issuer shall appoint and maintain a paying agent in Singapore, where the Notes may be presented or surrendered for payment or redemption, in the event that a Global Note is exchanged for definitive Notes. In addition, in the event that a Global Note is exchanged for definitive Notes, an announcement of such exchange shall be made by or on behalf of the Issuer through the SGX-ST and such announcement will include all material information with respect to the delivery of the definitive Notes, including details of the paying agent in Singapore.

Currency Indemnity

To the fullest extent permitted by law, the obligations of the Issuer or the Guarantor to any holder of the Notes under the Indenture or the Notes or the Guarantees, as the case may be, shall,

notwithstanding any judgment in a currency (the “Judgment Currency”) other than U.S. dollars (the “Agreement Currency”), be discharged only to the extent that on the Business Day following receipt by such holder or the Trustee, as the case may be, of any amount in the Judgment Currency, such holder or the Trustee, as the case may be, may in accordance with normal banking procedures purchase the Agreement Currency with the Judgment Currency. If the amount of the Agreement Currency so purchased is less than the amount originally to be paid to such holder or the Trustee, as the case may be, in the Agreement Currency, the Issuer and the Guarantor agree, as a separate obligation and notwithstanding such judgment, to pay the difference and if the amount of the Agreement Currency so purchased exceeds the amount originally to be paid to such holder, such holder or the Trustee, as the case may be, agrees to pay to or for the account of the Issuer or the Guarantor such excess, *provided* that such holder shall not have any obligation to pay any such excess as long as a default by the Issuer or the Guarantor in its obligations under the Indenture or the relevant series of Notes or the related Guarantee has occurred and is continuing, in which case such excess may be applied by such holder to such obligations.

Notices

All notices or demands required or permitted by the terms of the Notes or the Indenture to be given by the holders of the Notes are required to be in writing and may be given or served by being sent by prepaid courier or first-class mail, if intended for the Issuer or the Guarantor, addressed to the Issuer or the Guarantor, as applicable, if intended for the Trustee, at the corporate trust office of the Trustee.

Any notices required to be given to the holders of the Notes will be given to DTC, as the registered holder of the Global Notes. In the event that the Global Notes are exchanged for individual Notes in certificated form, notices to holders of the Notes will be sent by prepaid courier or first-class mail addressed to such holder at such holder’s last address as it appears in the Register.

Governing Law and Consent to Jurisdiction

The Notes, the Guarantees and the Indenture are governed by and will be construed in accordance with the laws of the State of New York. The Issuer and the Guarantor have agreed that any action arising out of or based upon the Indenture, the Notes or the Guarantees may be instituted in any U.S. federal or New York State court located in the Borough of Manhattan, the City of New York, and have irrevocably submitted to the non-exclusive jurisdiction of any such court in any such action. Prior to the delivery of the Notes, the Issuer and the Guarantor shall irrevocably appoint TSMC North America as their agent upon which process may be served in any such action.

Each of the Issuer and the Guarantor has agreed that, to the extent that it is or becomes entitled to any sovereign or other immunity, it will waive such immunity in respect of its obligations under the Indenture.

Certain Definitions

Set forth below are definitions of certain of the terms used herein. Additional terms are defined elsewhere above or in the Indenture.

“Applicable Par Call Date” means with respect to the (i) 2026 Notes, March 23, 2026 (ii) 2028 Notes, February 23, 2028 and (iii) 2031 Notes, January 23, 2031.

“Business Day” means a day other than a Saturday, Sunday or a day on which banking institutions or trust companies in the State of New York, Hong Kong and London are authorized or obligated by law, regulation or executive order to remain closed.

“B.V.I.” means the British Virgin Islands.

“Capital Stock” of any Person means any and all shares, interests, rights to purchase, warrants, options, participations or other equivalents of or interests in (however designated) equity of such

Person, including any Preferred Shares and limited liability or partnership interests (whether general or limited), but excluding any debt securities convertible or exchangeable into such equity, prior to conversion or exchange.

“Clearstream” means Clearstream Banking S.A.

“Code” means the U.S. Internal Revenue Code of 1986, as amended.

“Comparable Treasury Issue” means the United States Treasury security selected by an Independent Investment Banker as having an actual or interpolated maturity comparable to the Remaining Term of the applicable Notes to be redeemed as described under “—*Optional Redemption*” section that would be utilized, at the time of selection and in accordance with customary financial practice, in pricing new issues of corporate debt securities of comparable maturity to the Remaining Term of such Notes.

“Comparable Treasury Price” means, with respect to any redemption date as described under “—*Optional Redemption*” section, (1) the arithmetic average of the applicable Reference Treasury Dealer Quotations for such redemption date after excluding the highest and lowest such Reference Treasury Dealer Quotations, or (2) if the Issuer obtains fewer than four applicable Reference Treasury Dealer Quotations, the arithmetic average of all applicable Reference Treasury Dealer Quotations for such redemption date.

“CUSIP” means the identification number provided by Committee on Uniform Securities Identification Procedures.

“Default” means any event that is, or with the passage of time or the giving of notice or both would be, an Event of Default.

“DTC” means the Depository Trust Company, a subsidiary of the Depository Trust & Clearing Corporation.

“Euroclear” means Euroclear Bank SA/NV.

“Exchange Act” means the United States Securities Exchange Act of 1934, as amended.

“Global Notes” means (i) each series of the Notes sold in offshore transactions in reliance on Regulation S will be represented by one or more global Notes issued to the DTC and registered in the name of Cede & Co. as nominee of DTC, and held in New York, New York for the accounts of Euroclear and Clearstream; and (ii) each series of the Notes sold in reliance on Rule 144A will be represented by one or more global Notes.

“holder” and “Noteholder” in relation to a Note, means the Person in whose name a Note is registered in the Register.

“Independent Investment Banker” means one of the Reference Treasury Dealers appointed by the Issuer from time to time to act in such capacity.

“Independent Legal Counsel” means an independent legal firm of internationally recognized standing that is reasonably acceptable to the Trustee.

“Independent Tax Consultant” means an independent accounting firm or consultant of internationally recognized standing that is reasonably acceptable to the Trustee, *provided* that the Trustee shall have no liability for the selection or approval of such agent.

“Issue Date” means April 23, 2021.

“New York Business Day” means a day other than a Saturday, Sunday or a day on which banking institutions or trust companies in the State of New York are authorized or obligated by law, regulation or executive order to remain closed.

“Officer” means the Chairman of the Board, the Chief Executive Officer, the Vice Chairman, the Chief Financial Officer, any Vice President, the Treasurer or the Secretary of the Guarantor or, in the event that the Guarantor is a partnership or a limited liability company that has no such officers, a person duly authorized under applicable law by the general partner, managers, members or a similar body to act on behalf of the Guarantor or, in the case of the Issuer or any successor Person to the Issuer or the Guarantor, a director of such successor Person.

“Officers’ Certificate” means a certificate signed by two Officers of the Issuer or the Guarantor or any successor Person to the Issuer or the Guarantor, as applicable, one of whom is the principal executive officer, the principal financial officer, the treasurer or the principal accounting officer.

“Person” means any individual, corporation, firm, limited liability company, partnership, joint venture, undertaking, association, joint stock company, trust, unincorporated organization, trust, state, government or any agency or political subdivision thereof or any other entity (in each case whether or not being a separate legal entity).

“Preferred Shares,” as applied to the Capital Stock of any corporation, means Capital Stock of any class or classes (however designated) that is preferred as to the payment of dividends upon liquidation, dissolution or winding up.

“Primary Treasury Dealer” means a primary U.S. Government securities dealer in the United States of America.

“Reference Treasury Dealer” means (1) Goldman Sachs International and its successors; *provided*, however, that if Goldman Sachs International and its successors cease to be a Primary Treasury Dealer, the Issuer will substitute another Primary Treasury Dealer and (2) any other Primary Treasury Dealers selected by the Issuer.

“Reference Treasury Dealer Quotations” means, with respect to the Reference Treasury Dealer and any redemption date, the arithmetic average, as determined by the Issuer, of the bid and asked prices for the applicable Comparable Treasury Issue (expressed in each case as a percentage of its principal amount) quoted in writing to the Issuer by such Reference Treasury Dealer as of 5:00 p.m., New York City time, on the third New York Business Day preceding such redemption date.

“Register” means the register of Noteholders maintained by the registrar for the Notes.

“Remaining Scheduled Payments” means, with respect to any Note to be redeemed, the remaining scheduled payments of the principal thereof and interest thereon that would be due after the related redemption date but for such redemption (assuming such Note matured on the Applicable Par Call Date); *provided*, however, that, if such redemption date is not an Interest Payment Date with respect to such Note, the amount of the next scheduled interest payment thereon will be reduced by the amount of interest accrued thereon to such redemption date.

“Remaining Term” means, with respect to any Note to be redeemed as described under the “—*Optional Redemption*” section, the period from the relevant redemption date to the Applicable Par Call Date.

“R.O.C.” means the Republic of China.

“SEC” means the U.S. Securities and Exchange Commission.

“Stated Maturity” means April 23, 2026, in the case of the 2026 Notes, April 23, 2028, in the case of the 2028 Notes, and April 23, 2031, in the case of the 2031 Notes.

“Subsidiary” of any Person means (i) any corporation, association or other business entity (other than a partnership, joint venture, limited liability company or similar entity) of which more than 50% of the total ordinary voting power of shares of Voting Stock entitled (without regard to the occurrence of any contingency) to vote in the election of directors, managers or trustees thereof (or Persons performing similar functions) or (ii) any partnership, joint venture, limited liability company or similar entity of which more than 50% of the capital accounts, distribution rights, total equity and voting

interests or general or limited partnership interests, as applicable, is, in the case of clauses (i) and (ii), at the time owned or controlled, directly or indirectly, by (1) such Person, (2) such Person and one or more Subsidiaries of such Person or (3) one or more Subsidiaries of such Person. Unless otherwise specified herein, each reference to a Subsidiary will refer to a Subsidiary of the Guarantor.

“Treasury Rate” means, with respect to any redemption date as described under the “—*Optional Redemption*” section, the rate per annum equal to the semi-annual equivalent yield to maturity (computed as of the third New York Business Day immediately preceding that redemption date) of the applicable Comparable Treasury Issue. In determining this rate, the Issuer will assume a price for the applicable Comparable Treasury Issue (expressed as a percentage of its principal amount) equal to the applicable Comparable Treasury Price for such redemption date.

“Trustee” means Citicorp International Limited, who will act as the trustee under the Indenture for the Notes.

“U.S. Government Obligations” means securities that are (i) direct obligations of the United States of America for the payment of which its full faith and credit is pledged or (ii) obligations of an agency or instrumentality of the United States of America the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States of America, and shall also include a depositary receipt issued by a bank or trust company as custodian with respect to any such U.S. Government Obligation or a specific payment of interest on or principal of any such U.S. Government Obligation held by such custodian for the account of the holder of a depositary receipt; provided that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depositary receipt from any amount received by the custodian in respect of the U.S. Government Obligation or the specific payment of interest on or principal of the U.S. Government Obligation evidenced by such depositary receipt.

“Voting Stock” of a Person means all classes of Capital Stock of such Person then outstanding and normally entitled to vote in the election of directors, managers or trustees, as applicable, of such Person.

FORM, DENOMINATION AND TRANSFER

The statements set forth herein include summaries of certain rules and operating procedures of DTC, Euroclear and Clearstream which will affect transfers of interests in the Global Notes.

The Notes sold in offshore transactions in reliance on Regulation S will be initially in the form of one or more Regulation S Global Notes, fully registered without interest coupons, which will be deposited with Citibank, N.A., London Branch (in such capacity, the “Custodian”) for DTC and registered in the name of Cede & Co., as nominee of DTC, for the accounts of Euroclear and Clearstream.

The Notes sold to Qualified Institutional Buyers who are also Qualified Purchasers in reliance on Rule 144A will be issued initially in the form of one or more Rule 144A Global Notes and, together with the Regulation S Global Notes, the “Global Notes”, fully registered without interest coupons, which will be deposited with the Custodian for DTC and registered in the name of Cede & Co., as nominee of DTC.

The Global Notes may only be exchanged for individual certificated notes in fully registered form in the circumstances described under “—Individual Notes” below.

The Notes and beneficial interests in the Notes will be issued in minimum denominations of US\$200,000 and in integral multiples of US\$1,000 in excess thereof. The Notes (including beneficial interests in the Global Notes) will be subject to certain restrictions on transfer set forth therein and in the Indenture, the Rule 144A Global Notes and the Regulation S Global Notes and will bear a legend regarding such restrictions as set forth under “Transfer Restrictions”. Under certain circumstances, transfers may be made only upon receipt by the Transfer Agent of a written certification (in the form(s) provided in the Indenture).

A beneficial interest in a Regulation S Global Note may be transferred to a person who wishes to take delivery of such beneficial interest through a Rule 144A Global Note only upon receipt by the Transfer Agent of a written certification (in the form(s) provided in the Indenture) from the transferor to the effect that the transferor (i) reasonably believes that the transferee is a Qualified Institutional Buyer who is also a Qualified Purchaser purchasing for its own account (or for the account of one or more Qualified Institutional Buyers and Qualified Purchasers over which account it exercises sole investment discretion), (ii) transfers such note in a transaction meeting the requirements of Rule 144A and (iii) has notified the transferee of the restrictions on transfer and the representations described in “Transfer Restrictions”.

Beneficial interests in a Rule 144A Global Note may be transferred to a person who takes delivery in the form of an interest in a Rule 144A Global Note without any written certification from the transferor or the transferee.

Beneficial interests in a Rule 144A Global Note may be transferred to a person who takes delivery in the form of an interest in a Regulation S Global Note only upon receipt by the Transfer Agent of a written certification (in the form(s) provided in the Indenture) from the transferor to the effect that such transfer is being made in compliance with the restrictions and representations described in “Transfer Restrictions” and in accordance with Rule 904 of Regulation S under the Securities Act.

Any beneficial interest in a Rule 144A Global Note that is transferred to a person who takes delivery in the form of a beneficial interest in a Regulation S Global Note will, upon transfer, cease to be a beneficial interest in such Rule 144A Global Note and become a beneficial interest in the Regulation S Global Note and, accordingly, will thereafter be subject to all transfer restrictions and other procedures applicable to a beneficial interest in such Regulation S Global Note for so long as such person retains such an interest.

Any beneficial interest in a Regulation S Global Note that is transferred to a person who takes delivery in the form of a beneficial interest in a Rule 144A Global Note will, upon transfer, cease to be a beneficial interest in such Regulation S Global Note and become a beneficial interest in the Rule 144A Global Note and, accordingly, will thereafter be subject to all transfer restrictions and other procedures

applicable to a beneficial interest in such Rule 144A Global Note for so long as such person retains such an interest.

Investors may hold their interests in the Global Notes directly through DTC, Clearstream or Euroclear, as the case may be, if they are participants in such systems, or indirectly through organizations which are participants in such systems. Clearstream and Euroclear will hold interests in the Regulation S Global Notes on behalf of their participants through customers' securities accounts in their respective names on the books of their respective depositories, which are participants in DTC.

Transfers between participants in DTC (the "Participants") will be effected in the ordinary way in accordance with DTC rules. Transfers between participants in Clearstream and Euroclear ("Clearstream Participants" and "Euroclear Participants", respectively) will be effected in the ordinary way in accordance with their respective rules and operating procedures. Subject to compliance with the transfer restrictions applicable to the Notes, cross-market transfers between DTC, on the one hand, and Clearstream Participants or Euroclear Participants, on the other hand, will be effected in DTC in accordance with DTC rules on behalf of Euroclear or Clearstream, as the case may be. Such cross-market transactions, however, will require delivery of instructions to Euroclear or Clearstream, as the case may be, by the counterparty in such system in accordance with its rules and procedures and within its established deadlines. Euroclear or Clearstream, as the case may be, will, if the transaction meets its settlement requirements, deliver instructions to DTC to take action to effect final settlement on its behalf by delivering or receiving payment in accordance with DTC's system.

Persons who are not Participants may beneficially own interests in the Global Notes held by DTC only through Participants or Indirect Participants (as defined below) (including Euroclear and Clearstream). So long as Cede & Co., as the nominee of DTC, is the registered owner of the Global Notes, Cede & Co. for all purposes will be considered the sole holder of such Notes.

Payment of interest and principal on the Global Notes will be made to Cede & Co., the nominee for DTC, as the registered owner of the Global Notes by wire transfer of immediately available funds. None of the Issuer, the Guarantor, the Trustee or any of the Agents will have any responsibility or liability for any aspect of the records relating to or payments made on account of beneficial ownership interests in the Global Notes or for maintaining, supervising or reviewing any records relating to such beneficial ownership interest.

The Issuer has been informed by DTC that, upon receipt of any payment of interest on or the redemption price of the Global Notes, DTC will credit Participants' accounts with payments in amounts proportionate to their respective beneficial interests in the Global Notes as shown on the records of DTC. Payments of interest on and principal of the Notes held through Clearstream or Euroclear will be credited to the cash accounts of Clearstream Participants or Euroclear Participants, as the case may be, in accordance with the relevant system's rules and procedures. Payments by Participants to owners of beneficial interests in the Global Notes held through such Participants will be the responsibility of such Participants, as is the case with securities held by broker-dealers, either directly or through nominees, for the accounts of customers and registered in "street name".

Because DTC can only act on behalf of Participants, who in turn act on behalf of Indirect Participants and certain banks, the ability of a person having a beneficial interest in the Global Notes to pledge such interest to persons or entities that do not participate in the DTC system, or to otherwise take actions in respect of such interest, may be affected by the lack of a physical certificate. The laws of some jurisdiction require that certain persons take physical delivery of securities in definitive form. Consequently, the ability to transfer beneficial interests to such persons may be limited. In addition, owners of beneficial interests through DTC will receive distributions attributable to the Rule 144A Global Notes only through Participants.

So long as the Notes are represented by Global Notes and such Global Notes are held on behalf of DTC or any other clearing system, such clearing system or its nominee will be considered the sole holder of the Notes represented by the applicable Global Notes for all purposes under the Indenture, including, without limitation, obtaining consents and waivers thereunder, and neither the Trustee nor the Issuer shall be affected by any notice to the contrary. None of the Trustee, the Issuer, the Guarantor or any of the Agents shall have any responsibility or obligation with respect to the accuracy of any records maintained by any clearing system or any Participant of such clearing system. The

clearing systems will take actions on behalf of their Participants (and any such Participants will take actions on behalf of any Indirect Participants) in accordance with their standard procedures. To the extent that any clearing system acts upon the direction of the holders of the beneficial interests in the applicable Global Note and such beneficial holders give conflicting instructions, the applicable clearing system may take conflicting actions in accordance with such instructions.

DTC has advised the Issuer that it will take any action permitted to be taken by a holder of the Notes (including, without limitation, the presentation of the Notes for exchange) only at the direction of one or more Participants and only in respect of the principal amount of the Notes represented by the Global Notes as to which such Participant or Participants has or have given such direction.

Clearstream or Euroclear, as the case may be, will take any action permitted to be taken by a holder of the Notes (including, without limitation, the presentation of the Notes for exchange) on behalf of a Clearstream Participant or a Euroclear Participant only in accordance with its relevant rules and procedures and subject to its ability to effect such actions through DTC.

DTC has advised the Issuer as follows:

DTC is a limited purpose trust company organized under the laws of the State of New York, a “banking organization” within the meaning of New York Banking Law, a member of the Federal Reserve System, a “clearing corporation” within the meaning of the Uniform Commercial Code and a “Clearing Agency” registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934, as amended. DTC was created to hold securities for its Participants and facilitate the clearance and settlement of securities transactions between Participants through electronic book-entry changes in accounts of its Participants, thereby eliminating the need for the physical movement of certificates. Participants include securities brokers and dealers, banks, trust companies and clearing corporations and may include certain other organizations. Indirect access to the DTC system is available to others such as banks, brokers, dealers and trust companies that clear through or maintain a custodial relationship with a Participant, either directly or indirectly (“Indirect Participants”).

Although DTC, Clearstream and Euroclear have agreed to the foregoing procedures in order to facilitate transfers of interests in the Global Notes among participants of DTC, Clearstream and Euroclear, they are under no obligation to perform or continue to perform such procedures, and such procedures may be discontinued at any time. None of the Issuer, the Guarantor, the Trustee or any of the Agents will have any responsibility for the performance by DTC, Clearstream and Euroclear, or their respective Participants or Indirect Participants, of their respective obligations under the rules and procedures governing their operations.

Individual Notes

If DTC is at any time unwilling or unable to continue as depository and a successor depository is not appointed within 90 days or if there shall have occurred and be continuing an Event of Default (as described above) with respect to the Notes, the Issuer will issue individual Notes in certificated, fully registered form in exchange for the Global Notes.

Subject to the transfer restrictions set forth on the individual Notes in certificated form, the holder of such individual Notes in certificated form may transfer or exchange such Notes (whether received directly from the Issuer or in exchange for beneficial interests in the Global Notes) by surrendering them at the specified office of the Transfer Agent. Prior to any proposed transfer of individual Notes in certificated form (other than pursuant to an effective registration statement), the holder may be required to provide certifications and other documentation relating to the manner of such transfer and submit such certifications and other documentation to the Trustee as provided in the Indenture. Upon the transfer, exchange or replacement of individual Notes in certificated form not bearing the legend referred to under “Transfer Restrictions”, the Trustee will deliver individual Notes in certificated form that do not bear the legend.

Upon the transfer, exchange or replacement of individual Notes in certificated form bearing the legend, or upon specific request for removal of the legend on an individual Note in certificated form, the Transfer Agent will deliver only individual Notes in certificated form that bear such legend or shall

refuse to remove such legend, as the case may be, unless there is delivered to the Issuer such satisfactory evidence, which may include an opinion of counsel, as may reasonably be required by the Issuer that neither the legend nor the restrictions on transfer set forth therein are required to ensure compliance with the provisions of the Securities Act.

Same-day settlement in respect of Global Notes

So long as any Notes are represented by Global Notes registered in the name of DTC or its nominee, such Notes will trade in DTC's same-day funds settlement system, and secondary market trading activity in such Notes will therefore be required by DTC to settle in immediately available funds. No assurance can be given as to the effect, if any, of settlement in immediately available funds on trading activity in the Notes.

TAXATION

The following summary of certain tax consequences of the purchase, ownership and disposition of the Notes is based upon applicable laws, rules and regulations in effect as of the date of this offering circular, all of which are subject to change (possibly with retroactive effect). This discussion does not purport to be a comprehensive description of all the tax considerations that may be relevant to a decision to purchase, own or dispose of the Notes and does not purport to deal with consequences applicable to all categories of investors, some of which may be subject to special rules. Persons considering the purchase of the Notes should consult their own tax advisors concerning the tax consequences of the purchase, ownership and disposition of the Notes, including any possible consequences under the laws of their country of citizenship, residence or domicile.

U.S. Taxation

The following summary describes certain material U.S. federal income tax consequences of purchasing, owning and disposing of the Notes. It addresses only U.S. federal income taxation and does not discuss all of the tax consequences that may be relevant to you in light of your individual circumstances, including foreign, state or local tax consequences, and tax consequences arising under the Medicare contribution tax on net investment income or the alternative minimum tax. The summary does not purport to be a comprehensive description of all of the tax considerations that may be relevant to any particular investor. The discussion set forth below deals only with the Notes purchased at their original issuance and issue price and held as capital assets (generally, property held for investment) and does not deal with special situations, such as those of dealers in securities or currencies, certain short-term holders of the Notes, financial institutions, tax-exempt entities, insurance companies, regulated investment companies, real estate investment trusts, controlled foreign corporations, passive foreign investment companies, U.S. expatriates, persons holding the Notes as a part of a hedging, integrated, conversion or constructive sale transaction or a straddle for tax purposes, persons that purchase or sell the Notes as part of a wash sale for tax purposes, traders in securities that elect to use a mark-to-market method of accounting for their securities holdings or U.S. Holders (as defined below) of the Notes whose “functional currency” is not the U.S. dollar. Furthermore, the discussion below is based upon the provisions of the Code, its legislative history, existing and proposed regulations, rulings and judicial decisions thereunder as of the date hereof, and such authorities may be repealed, revoked or modified, possibly on a retroactive basis, so as to result in U.S. federal income tax consequences different from those discussed below.

As used herein, a “U.S. Holder” means a beneficial owner of a Note that is, for U.S. federal income tax purposes, an individual who is a citizen or resident of the United States, a corporation created or organized in or under the laws of the United States or any political subdivision thereof, an estate the income of which is subject to U.S. federal income taxation regardless of its source, or a trust if a court within the United States is able to exercise primary supervision over the administration of the trust and one or more U.S. persons have the authority to control all substantial decisions of the trust, or if a valid election is in place to treat the trust as a U.S. person.

If an entity or arrangement that is treated as a partnership for U.S. federal income tax purposes holds a Note, the tax treatment of a partner in such partnership generally will depend on the status of the partner and activities of the partnership. If you are a partner of a partnership holding a Note, you should consult your tax advisor.

A “Non-U.S. Holder” is a beneficial owner (other than a partnership) of a Note that is not a U.S. Holder.

Investors should consult their tax advisors regarding the tax consequences of the acquisition, ownership and disposition of the Notes, including the application to their particular circumstances of the U.S. federal income tax considerations discussed below, as well as the application of U.S. state and local tax laws and foreign tax laws.

U.S. Holders

Payments of Interest and Additional Amounts. Interest on a Note (which may include Additional Amounts) generally will be taxable to a U.S. Holder as ordinary income at the time it is paid

or accrued in accordance with the U.S. Holder's method of accounting for U.S. federal income tax purposes. A U.S. Holder must include the R.O.C. tax that, as discussed below under "R.O.C. Taxation", will generally be withheld from the interest payment as ordinary income even though the U.S. Holder does not in fact receive it. A U.S. Holder may be entitled to deduct or credit this tax, subject to applicable limits. A U.S. Holder will also be required to include in income as interest any Additional Amounts paid with respect to withholding tax on the Notes, including withholding tax on payments of such Additional Amounts. Accordingly, a U.S. Holder will generally include an amount of interest income on the Notes that will exceed the stated interest rate on the Notes.

Interest income in respect of the Notes generally will constitute foreign-source income for purposes of computing the foreign tax credit allowable under the U.S. federal income tax laws. The limitation on foreign income taxes eligible for credit is calculated separately with respect to specific classes of income. Such interest income generally will constitute "passive category income" for foreign tax credit purposes for most U.S. Holders. The calculation and availability of foreign tax credits and, in the case of a U.S. Holder that elects to deduct foreign income taxes, the availability of such deduction involves the application of complex rules that depend on the U.S. Holder's particular circumstances. In addition, foreign tax credits generally will not be allowed for certain short-term or hedged positions in the Notes. The rules governing the foreign tax credit are complex. U.S. Holders are urged to consult their tax advisors regarding the availability of the foreign tax credit under their particular circumstances.

Sale, Exchange and Retirement of Notes. Upon the sale, exchange, retirement or other taxable disposition of a Note, a U.S. Holder will generally recognize gain or loss equal to the difference between the amount realized upon the sale, exchange, retirement or other disposition (less an amount equal to any accrued and unpaid interest, which will be taxable as an interest payment) and the U.S. Holder's adjusted tax basis in the Notes. A U.S. Holder's adjusted tax basis in a Note will generally be the cost for that Note. Such gain or loss will be capital gain or loss and will be long-term capital gain or loss if at the time of sale, exchange, retirement or other disposition, the Notes have been held for more than one year. Capital gains of individuals derived with respect to capital assets held for more than one year are generally eligible for reduced rates of taxation. The deductibility of capital losses is subject to limitations. Capital gain or loss recognized by a U.S. Holder generally will be U.S.-source gain or loss.

Information with Respect to Foreign Financial Assets. Owners of "specified foreign financial assets" with an aggregate value in excess of \$50,000 (and in some circumstances, a higher threshold) may be required to file an information report with respect to such assets with their tax returns. "Specified foreign financial assets" may include financial accounts maintained by foreign financial institutions, as well as the following, but only if they are held for investment and not held in accounts maintained by financial institutions: (i) stocks and securities issued by non-U.S. persons, such as the Notes, (ii) financial instruments and contracts that have non-U.S. issuers or counterparties, and (iii) interests in foreign entities. U.S. Holders are urged to consult their tax advisors regarding the application of this reporting requirement to their ownership of the Notes.

Information Reporting and Backup Withholding. Information reporting requirements generally apply in connection with payments made on the Notes within the United States or through certain U.S.-related financial intermediaries and on the proceeds from a sale or other disposition of the Notes, unless the U.S. Holder is a corporation or other exempt recipient, and demonstrates this fact when so required. A U.S. Holder may be subject to backup withholding on these payments if the U.S. Holder fails to provide its taxpayer identification number to the paying agent or comply with certain certification procedures or otherwise establish an exemption from backup withholding. Backup withholding is not an additional tax. Any amount paid as backup withholding may be creditable against the holder's U.S. federal income tax liability, provided that the required information is timely furnished to the U.S. Internal Revenue Service.

Non-U.S. Holders

Payments of Interest. Provided that a Non-U.S. Holder of a Note does not hold such Note in connection with the conduct of a trade or business in the United States, no U.S. federal income or withholding tax generally will apply to a payment of interest on such Note. Non-U.S. Holders should consult their own tax advisors in the event interest income with respect to the Notes is effectively connected with their trade or business in the United States.

Sale, Exchange and Retirement of Notes. A Non-U.S. Holder generally will not be subject to U.S. federal income or withholding tax on the receipt of payments of principal on a Note, or on any gain realized on the sale, exchange, retirement or other disposition of such Note so long as (i) such gain is not effectively connected with the conduct by the Non-U.S. Holder of a trade or business in the United States or (ii) in the case of gain realized by an individual, such Non-U.S. Holder is not present in the United States for 183 days or more in the taxable year of the disposition. Non-U.S. Holders should consult their own tax advisors in the event either of the foregoing conditions applies.

Information Reporting and Backup Withholding. Although Non-U.S. Holders generally are exempt from backup withholding and information reporting, a Non-U.S. Holder may, in certain circumstances, be required to comply with certification procedures to prove entitlement to this exemption.

R.O.C. Taxation

THE INFORMATION PROVIDED BELOW DOES NOT PURPORT TO BE A COMPLETE SUMMARY OF THE R.O.C. TAX LAW AND PRACTICE CURRENTLY APPLICABLE. ALL PROSPECTIVE PURCHASERS OF NOTES SHOULD CONSULT WITH THEIR OWN TAX ADVISERS IN DETERMINING THE TAX CONSEQUENCES TO THEM OF THE PURCHASE, OWNERSHIP AND DISPOSITION OF THE NOTES.

The following summary of the R.O.C. tax considerations applies to non-R.O.C. resident individuals (“Non-Resident Individuals”) and entities (“Non-Resident Entities” and, together with the Non-Resident Individuals, a “Non-Residents”). A Non-Resident Individual is a foreign national individual who is not physically present in the R.O.C. for 183 days or more during any calendar year, and a Non-Resident Entity is a corporation or an unincorporated body that is organized under the laws of a jurisdiction other than the R.O.C. for profit-making purposes and does not have a fixed place of business or other permanent establishment in the R.O.C. Foreign entities that have a fixed place of business or other permanent establishment in the R.O.C. are taxed under different rules.

All payments, except the payment of the principal amount, under the Guarantees by the Guarantor to a Non-Resident holder of the Notes may be subject to a withholding tax at different rates as may be applicable under the tax treaty between the R.O.C. and the country of tax residence of the Non-Resident holder, if any, depending on the nature of such payments. In general, the interest payment on the Notes under the Guarantees by the Guarantor to a Non-Resident holder would likely constitute R.O.C.-sourced income and therefore be subject to a 20% withholding tax. However, such payments may be subject to a withholding tax at different rates under an applicable tax treaty between the R.O.C. and the country of tax residence of the Non-Resident holder. Therefore, holders of the Notes who are otherwise entitled to the benefits of a relevant income tax treaty should consult their own tax advisers concerning their eligibility for benefits under the treaty with respect to the Notes. If any deduction or withholding is required by law with respect to the amount guaranteed under the Guarantees, the Guarantor will pay additional amounts, in accordance with the terms of the Notes, as may be necessary to ensure that the holders of the Notes receive the amounts guaranteed under the Guarantees that would otherwise have been receivable in the absence of such deduction or withholding, subject to certain exceptions.

B.V.I. Taxation

A B.V.I. business company is exempt from all provisions of the Income Tax Act (as amended) of the B.V.I. including with respect to all dividends, interests, rents, royalties, compensations and other amounts payable by the company to persons who are not resident in the B.V.I.

Income and capital gains realized with respect to notes issued by such company, such as the Notes, by persons who are not persons resident in the B.V.I. are also exempt from all provisions of the Income Tax Act of the B.V.I. Accordingly, there is no income or other tax of the B.V.I. imposed by withholding or otherwise on any payments to be made by such company pursuant to the Notes to persons who are not resident in the B.V.I.

No estate, inheritance, succession or gift tax, rate, duty, levy or other charge is payable with respect to the Notes by persons who are not persons resident in the B.V.I., save for interest payable to or for the benefit of an individual resident in the European Union.

The B.V.I. enacted the Economic Substance (Companies and Limited Partnerships) Act, 2018 (the “ES Act”), which became effective on January 1, 2019, and the Rules on Economic Substance in the Virgin Islands, containing rules and guidance relating to the interpretation of the ES Act and how the International Tax Authority (the “ITA”) will carry out its obligations, were released on October 9, 2019, and were further updated on February 10, 2020. The Issuer is required to report to the ITA on a periodic basis to enable the ITA to monitor compliance with the economic substance requirements, if it is carrying on one or more relevant activities. If this is the case, it may be required to adopt adequate economic substance in the B.V.I.

PLAN OF DISTRIBUTION

Goldman Sachs International is acting as the sole global coordinator and joint bookrunner, J.P. Morgan Securities plc, Morgan Stanley & Co. LLC and Citigroup Global Markets Inc. are acting as the other joint bookrunners (collectively, the “Initial Purchasers”) in this offering. Subject to the terms and conditions set forth in a purchase agreement (the “Purchase Agreement”) among the Issuer, the Guarantor and Goldman Sachs International as the representative for the Initial Purchasers (the “Representative”), the Issuer intends to sell to the Initial Purchasers, and the Initial Purchasers intend to purchase, severally but not jointly, from the Issuer, the principal amount of Notes set forth opposite the Initial Purchasers’ name below.

<u>Initial Purchasers</u>	<u>2026 Notes</u>	<u>2028 Notes</u>	<u>2031 Notes</u>
Goldman Sachs International	US\$ 880,000,000	US\$720,000,000	US\$1,200,000,000
J.P. Morgan Securities plc	US\$ 110,000,000	US\$ 90,000,000	US\$ 150,000,000
Morgan Stanley & Co. LLC	US\$ 55,000,000	US\$ 45,000,000	US\$ 75,000,000
Citigroup Global Markets Inc.	US\$ 55,000,000	US\$ 45,000,000	US\$ 75,000,000
Total	<u>US\$1,100,000,000</u>	<u>US\$900,000,000</u>	<u>US\$1,500,000,000</u>

The Issuer and the Guarantor have agreed to indemnify the Initial Purchasers against certain liabilities in connection with this offering, including liabilities under the Securities Act, or to contribute to payments the Initial Purchasers may be required to make in respect of those liabilities.

The Initial Purchasers have agreed to reimburse the Issuer and the Guarantor for certain expenses amounting to approximately US\$3.87 million in connection with this offering.

The Initial Purchasers are offering the Notes, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of certain legal matters by counsel, including the validity of the Notes, and other conditions contained in the Purchase Agreement, such as the receipt by the Representative of officers’ certificates and legal opinions.

Commissions and Discounts

The purchase price for the Notes will be the issue price set forth on the cover page of this offering circular net of underwriting commissions. After the initial offering, the offering price or any other term of the offering may be changed.

Notes and Guarantees Are Not Being Registered

The Notes and the Guarantees have not been and will not be registered under the Securities Act, the securities laws of any state of the United States or the securities laws of any other jurisdiction. The Issuer has not been and will not be registered as an “investment company” under the Investment Company Act, in reliance on the exception provided by Section 3(c)(7) thereof. The Initial Purchasers propose to offer the Notes for resale in transactions not requiring registration under the Securities Act or applicable state securities laws, including sales in reliance on the exemption provided by Rule 144A or in accordance with Regulation S under the Securities Act. The Initial Purchasers will only offer or sell the Notes (i) within the United States and to U.S. persons, each of whom they reasonably believes to be both a Qualified Institutional Buyer and a Qualified Purchaser, purchasing for its own account (or the account of one or more Qualified Institutional Buyers, each of whom is also a Qualified Purchaser over which account it exercises sole investment discretion), in reliance on the exemption from the registration requirements of the Securities Act provided by Rule 144A thereof, or (ii) to persons that are not in the United States and are not acting for the account or benefit of U.S. persons, in offshore transactions in accordance with Regulation S under the Securities Act. Each Initial Purchaser has acknowledged and agreed that, except as permitted by the preceding sentence, it will not offer or sell the Notes (i) as part of its distribution at any time within the United States or to, or for the account or benefit of, U.S. persons or (ii) otherwise until 40 days after the later of the commencement of this offering and the closing of this offering, within the United States or to, or for the account or benefit of,

U.S. persons. Each Initial Purchaser has agreed to send to each dealer to which it sells the Notes during the distribution compliance period a confirmation or other notice setting forth the restrictions on offers and sales of the Notes and the Guarantees within the United States or to, or for the account or benefit of, U.S. persons. Terms used in this paragraph but not otherwise defined have the meanings given to them by Regulation S.

In addition, until 40 days after the commencement of this offering, an offer or sale of the Notes within the United States by a dealer (whether or not participating in this offering) may violate the registration requirements of the Securities Act if that offer or sale is made otherwise than in accordance with Rule 144A. Each purchaser of the Notes will be deemed to have made acknowledgments, representations and agreements as described under "Transfer Restrictions".

New Issue of Notes

The Notes are a new issue of securities with no established trading market. The Initial Purchasers have advised the Issuer and the Guarantor that they presently intend to make a market in the Notes after completion of the offering. However, they are not obligated to do so, and any market-making activity with respect to the Notes, if commenced, would be by the Initial Purchasers or their respective affiliates on their own behalf and may be discontinued at any time without notice in their sole discretion. Accordingly, no assurances can be made as to 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 operating performance and financial condition of the Company, general economic conditions and other factors.

Settlement

Delivery of the Notes is expected on or about April 23, 2021, which will be the third business day following the date of this offering circular (such settlement being referred to as "T+3"). Under Rule 15c6-1 under the Exchange Act, trades in the secondary market are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. Accordingly, purchasers of the Notes who wish to trade the Notes prior to the delivery of the Notes hereunder will be required, by virtue of the fact that the Notes initially settle in T+3, to specify an alternate settlement arrangement at the time of any such trade to prevent a failed settlement. Purchasers of the Notes who wish to trade the Notes prior to their date of delivery hereunder should consult their advisors.

No Sales of Similar Securities

The Issuer and the Guarantor have agreed with the Initial Purchasers, until the expiration of 45 days after the date of the closing, not to offer, sell, contract to sell, pledge, grant any option to purchase, make any short sale or otherwise transfer or dispose of, directly or indirectly, or file with the U.S. Securities and Exchange Commission a registration statement under the Securities Act relating to any U.S. dollar-denominated securities of the Issuer or the Guarantor that are substantially similar to the Notes and the Guarantees, or publicly disclose the intention to make any offer, sale, pledge, disposition or filing of U.S. dollar-denominated securities without the prior written consent of the Initial Purchasers.

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 the Notes than they are required to purchase in the offering. The Initial Purchasers must close out any short position by purchasing the 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 the Notes in the offering.

Similar to other purchase transactions, the Initial Purchasers' purchases to cover their respective 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 Issuer, the Guarantor and the Initial Purchasers makes 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 Issuer, the Guarantor and the Initial Purchasers makes any representation that the Initial Purchasers will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

Other Relationships

The Initial Purchasers and certain of their respective affiliates may have performed certain investment banking, banking, trustee, hedging and advisory services for the Issuer, the Guarantor and/or their respective affiliates from time to time for which they have received customary fees and commissions and may, from time to time, engage in transactions with and perform services for the Issuer, the Guarantor and/or their respective affiliates in the ordinary course of their business. The Initial Purchasers or certain of their respective affiliates may purchase the Notes and be allocated the Notes for asset management and/or proprietary purposes but not with a view to distribution.

The Initial Purchasers or their respective affiliates may purchase the Notes for their own account and enter into transactions, including credit derivatives, such as asset swaps, repackaging and credit default swaps relating to the Notes and/or other securities of the Issuer, the Guarantor or their respective subsidiaries or associates at the same time as the offer and sale of the Notes or in secondary market transactions. Such transactions would be carried out as bilateral trades with selected counterparties and separately from any existing sale or resale of the Notes to which this offering circular relates (notwithstanding that such selected counterparties may also be purchasers of the Notes).

Each of the Issuer and the Guarantor has been advised by the Initial Purchasers that they may offer and sell the Notes to or through any of their respective affiliates and any such affiliate may offer and sell the Notes purchased by it to or through any Initial Purchasers.

Selling Restrictions

General

Each Initial Purchaser has undertaken to us that it will comply with all applicable laws and regulations in each country or jurisdiction in which it purchases, offers, sells or delivers the Notes or has in its possession or distributes this offering circular or any other offering material related to the Notes.

No action has been taken or will be taken in any jurisdiction by us or the Initial Purchasers that would permit a public offering of the Notes, or the possession, circulation or distribution of this offering circular or any other material relating to the Notes or this offering, in any jurisdiction where action for that purpose is required. Accordingly, the Notes may not be offered or sold, directly or indirectly, and neither this offering circular nor such other material may be distributed or published, in or from any country or jurisdiction except in compliance with any applicable rules and regulations of such country or jurisdiction.

United States

The Notes and the Guarantees have not been and will not be registered under the Securities Act, the securities laws of any state of the United States or the securities laws of any other jurisdiction. The Issuer has not been and will not be registered as an "investment company" under the Investment Company Act, in reliance on the exception set forth in Section 3(c)(7) thereof. Accordingly, the Notes can only be offered and sold (i) within the United States and to U.S. persons, each of whom the seller reasonably believes to be both a Qualified Institutional Buyer and a Qualified Purchaser, purchasing for

its own account (or for the account of one or more Qualified Institutional Buyers, each of whom is also a Qualified Purchaser over which account it exercises sole investment discretion), in reliance on the exemption from the registration requirements of the Securities Act provided by Rule 144A thereof, or (ii) to persons that are not in the United States and are not acting for the account or benefit of U.S. persons, in offshore transactions in accordance with Regulation S under the Securities Act. Each Initial Purchaser has acknowledged and agreed that, except as permitted by the preceding sentence, it will not offer or sell the Notes (i) as part of its distribution at any time within the United States or to, or for the account or benefit of, U.S. persons or (ii) otherwise until 40 days after the later of the commencement of this offering and the closing of this offering, within the United States or to, or for the account or benefit of, U.S. persons. Each Initial Purchaser has also agreed that it will send to each dealer to which it sells the Notes during the distribution compliance period a confirmation or other notice setting forth the restrictions on offers and sales of the Notes within the United States or to, or for the account or benefit of, U.S. persons. Terms used in this paragraph but not otherwise defined have the meanings given to them by Regulation S.

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

To the extent any Initial Purchaser makes any offers or sales of the Notes in the United States, or to nationals or residents of the United States, it will do so only through one or more registered broker-dealers in compliance with applicable securities laws and regulations, as well as with applicable laws of various states.

Each purchaser of the Notes will be deemed to have made acknowledgments, representations and agreements as described under “Transfer Restrictions”.

CERTAIN VOLCKER RULE CONSIDERATIONS—The Issuer has not been and will not be registered as an “investment company” under the Investment Company Act, in reliance on the exception provided by Section 3(c)(7) thereof. Consequently, the Issuer will likely be a “covered fund” for purposes of the “Volcker Rule”. See “Risk Factors—Risks Relating to the Notes and Guarantees” and “Transfer Restrictions”.

EEA

Each Initial Purchaser has represented and agreed that it has not offered, sold or otherwise made available and will not offer, sell or otherwise make available any Notes to any retail investor in the EEA. For the purposes of this provision:

- (a) the expression “retail investor” means a person who is one (or more) of the following:
 - (i) a retail client as defined in point (11) of Article 4(1) of MiFID II; or
 - (ii) a customer within the meaning of the Insurance Distribution Directive, where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; and

the expression “offer” includes 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.

United Kingdom

No invitation or inducement to engage in investment activity (within the meaning of section 21 of FSMA received by the underwriters in connection with the issue or sale of the Notes may be communicated or caused to be communicated except in circumstances in which section 21(1) of the FSMA does not apply to the underwriters. All applicable provisions of the FSMA must be complied with respect to anything done or to be done by the underwriters in relation to any Notes in, from or otherwise involving the United Kingdom.

Each Initial Purchaser has represented and agreed that it has not offered, sold or otherwise made available and will not offer, sell or otherwise make available any Notes to any retail investor in the UK. For the purposes of this provision:

- (a) the expression “retail investor” means a person who is one (or more) of the following:
 - (i) a retail client, as defined in point (8) of Article 2 of Regulation (EU) No 2017/565 as it forms part of domestic law by virtue of the EUWA; or
 - (ii) a customer within the meaning of the provisions of the FSMA and any rules or regulations made under the FSMA to implement Directive (EU) 2016/97, where that customer would not qualify as a professional client, as defined in point (8) of Article 2(1) of Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the EUWA; and

the expression “offer” includes 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.

Hong Kong

Each Initial Purchaser has represented and agreed that:

- a) 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
- b) 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 in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to the 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.

Singapore

Each Initial Purchaser has acknowledged that this offering circular has not been registered as a prospectus with the Monetary Authority of Singapore. 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 persons in Singapore other than:

- (i) to an institutional investor (as defined in Section 4A of SFA) pursuant to Section 274 of the SFA;
- (ii) to a relevant person (as defined in Section 275(2) of the SFA) 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; 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 Section 2(1) of 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:

- a) to an institutional investor or to a relevant person, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;
- b) where no consideration is or will be given for the transfer;
- c) where the transfer is by operation of law;
- d) as specified in Section 276(7) of the SFA; or
- e) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018.

Any reference to the SFA is a reference to the Securities and Futures Act, Chapter 289 of Singapore and a reference to any term as defined in the SFA or any provision in the SFA is a reference to that term or provision as modified or amended from time to time including by such of its subsidiary legislation as may be applicable at the relevant time.

British Virgin Islands

Each Initial Purchaser has represented, warranted and agreed that it has not and will not offer the Notes to the public or any person in the British Virgin Islands for purchase or subscription by or on behalf of the Issuer. Each Initial Purchaser has further represented, warranted and agreed that the Notes may be offered to companies incorporated under the B.V.I. Business Companies Act ("B.V.I. Companies") but only where the offer will be made to, and received by, the relevant B.V.I. Company entirely outside of the British Virgin Islands.

This offering circular has not been and will not be registered with the Financial Services Commission of the British Virgin Islands. No registered prospectus has been or will be prepared in respect of the Notes for the purposes of the Securities and Investment Business Act or the Public Issuers Code of the British Virgin Islands.

Switzerland

Each Initial Purchaser agrees that this offering circular is not intended to constitute an offer or solicitation to purchase or invest in the Notes described therein. The Notes may not be publicly offered, sold or advertised, directly or indirectly, in, into or from Switzerland and will not be listed on the SIX Swiss Exchange or on any other exchange or regulated trading facility in Switzerland. Neither this offering circular nor any other offering or marketing material relating to the Notes constitutes a prospectus as such term is understood pursuant to article 652a or article 1156 of the Swiss Code of Obligations or a listing prospectus within the meaning of the listing rules of the SIX Swiss Exchange or any other regulated trading facility in Switzerland, 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.

Neither this offering circular nor any other offering or marketing material relating to the offering, the Issuer or the Notes has been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of the Notes will not be supervised by, the Swiss Financial Market Supervisory Authority, and the offer of the Notes has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes ("CISA"). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of the Notes.

Republic of China

The Notes and the Guarantees have not been and will not be registered or filed with, or approved by, the FSC and/or other regulatory authorities or agencies of the R.O.C. pursuant to relevant

R.O.C. securities laws and regulations and may not be sold, issued or offered within the R.O.C. through a public offering or in circumstances which constitute an offer within the meaning of the R.O.C. Securities and Exchange Act that requires a registration or approval of the FSC and/or other regulatory authorities or agencies of the R.O.C. No person or entity in the R.O.C. has been authorized to offer, sell, give advice regarding or otherwise intermediate the offering and sale of the Notes in the R.O.C.

People's Republic of China

Each Initial Purchaser has represented and agreed that the Notes are not being offered or sold and may not be offered or sold, directly or indirectly, in the P.R.C. (for such purposes, not including the Hong Kong and Macau Special Administrative Regions or Taiwan), except as permitted by applicable laws of the P.R.C.

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, warranted 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 in compliance with the other relevant laws and regulations of Japan.

Canada

Resale Restrictions

The distribution of the Notes in Canada is being made only in the provinces of Ontario, Quebec, Alberta and British Columbia on a private placement basis exempt from the requirement that the Issuer prepares and files a prospectus with the securities regulatory authorities in each province where trades of the Notes are made. Any resale of the Notes in Canada must be made under applicable securities laws which may vary depending on the relevant jurisdiction, and which may require resales to be made under available statutory exemptions or under a discretionary exemption granted by the applicable Canadian securities regulatory authority. Purchasers are advised to seek legal advice prior to any resale of the securities.

Representations of Canadian Purchasers

By purchasing the Notes in Canada and accepting delivery of a purchase confirmation, a purchaser is representing to the Issuer and the dealer from whom the purchase confirmation is received that:

- the purchaser is entitled under applicable provincial securities laws to purchase the Notes without the benefit of a prospectus qualified under those securities laws as it is an "accredited investor" as defined under National Instrument 45-106—Prospectus Exemptions;
- the purchaser is a "permitted client" as defined in National Instrument 31-103—Registration Requirements, Exemptions and Ongoing Registrant Obligations;
- where required by law, the purchaser is purchasing as principal and not as agent; and
- the purchaser has reviewed the text above under "Resale Restrictions".

Conflicts of Interest

Canadian purchasers are hereby notified that the Initial Purchasers are and the further dealers appointed for the offering of the Notes will be relying on the exemption set out in section 3A.3 or 3A.4, if applicable, of National Instrument 33-105—Underwriting Conflicts from having to provide certain conflict of interest disclosure in this prospectus.

Statutory Rights of Action

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if the offering documents (including any amendment thereto) such as this offering circular contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser of these securities in Canada should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal adviser.

Enforcement of Legal Rights

All of the Issuer's directors and officers as well as the experts named herein and the Issuer may be located outside of Canada and, as a result, it may not be possible for Canadian purchasers to effect service of process within Canada upon the Issuer or those persons. All or a substantial portion of the Issuer's assets and the assets of those persons may be located outside of Canada and, as a result, it may not be possible to satisfy a judgment against the Issuer or those persons in Canada or to enforce a judgment obtained in Canadian courts against the Issuer or those persons outside of Canada.

Taxation and Eligibility for Investment

Canadian purchasers of the Notes should consult their own legal and tax advisers with respect to the tax consequences of an investment in the Notes in their particular circumstances and about the eligibility of the Notes for investment by the purchaser under relevant Canadian legislation.

Korea

The Notes have not been and will not be registered under the Financial Investment Services and Capital Markets Act. 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 Transaction Law of Korea and its Enforcement Decree), except as otherwise permitted under applicable Korean laws and regulations.

Ireland

The Notes are not being offered, directly or indirectly, to the general public in Ireland and no offers or sales of any securities under or in connection with this offering circular may be effected except in conformity with the provisions of Irish law including the Irish Companies Acts 1963 to 2009, the Regulation 2017/1129/EU of the European Parliament and of the Council, the European Communities (Markets in Financial Instruments) Regulations 2007 (Nos. 1 to 3) of Ireland and the Regulation (EU) No 596/2014 of the European Parliament and of the Council.

Saudi Arabia

This offering circular may not be distributed in the Kingdom of Saudi Arabia except to such persons as are permitted under the Capital Market Authority.

The Capital Market Authority does not make any representations as to the accuracy or completeness of this offering circular, and expressly disclaims any liability whatsoever for any loss arising from, or incurred in reliance upon, any part of this offering circular. Prospective purchasers of the Notes and the Guarantees should conduct their own due diligence on the accuracy of the information relating to the Notes and the Guarantees. If a prospective purchaser does not understand the contents of this offering circular, he or she should consult an authorized financial advisor.

Bermuda

Each Initial Purchaser has represented, warranted and agreed that it has not offered or sold, and will not offer or sell, any Notes to any person, firm or company regarded as a resident of Bermuda for exchange control purposes and will procure that any purchaser of the Notes from it will comply with such prescription.

United Arab Emirates

This offering circular has not been approved or licensed by the Central Bank of the United Arab Emirates (the "UAE"), Securities and Commodities Authority of the UAE and/or any other relevant licensing authority in the UAE. The offer of the Notes does not constitute a public offer of securities in the UAE in accordance with relevant laws of the UAE, in particular, the Commercial Companies Law, Federal law No. 8 of 1984 (as amended).

The Notes may not be offered to the public in the UAE. The Notes may only be offered and issued to a limited number of investors in the UAE who qualify as sophisticated investors under the relevant laws and regulations of the UAE.

Kuwait

The Notes have not been authorized or licensed for offering, marketing or sale in the State of Kuwait. No marketing or sale of the Notes may take place in Kuwait unless the same has been duly authorized by the Kuwaiti Ministry of Commerce and Industry pursuant of the provisions of Law 31 of 1990 and the various ministerial regulations issued thereunder.

Other Jurisdictions

The distribution of this offering circular may be restricted by law in certain jurisdictions. Persons into whose possession this offering circular (or any part hereof) comes are required by us and the Initial Purchasers to inform themselves about, and to observe, any such restrictions.

TRANSFER RESTRICTIONS

Because of the following restrictions, purchasers are advised to consult legal counsel prior to making any offer, sale, resale, pledge or other transfer of the Notes and the Guarantees.

United States

The Notes and the Guarantees have not been and will not be registered under the Securities Act, the securities laws of any state of the United States or the securities laws of any other jurisdiction. The Issuer has not been and will not be registered as an “investment company” under the Investment Company Act, in reliance on the exception provided by Section 3(c)(7) thereof. Accordingly, the Notes may be offered and sold only (1) in the United States and to U.S. persons (as defined in Regulation S under the Securities Act), each of whom is reasonably believed to be both (A) a Qualified Institutional Buyer and (B) a Qualified Purchaser, purchasing for its own account (or the account of one or more Qualified Institutional Buyers, each of whom is also a Qualified Purchaser over which account it exercises sole investment discretion), in reliance on the exemption from the registration requirements of the Securities Act provided by Rule 144A thereof; or (2) to persons that are not in the United States and are not acting for the account or benefit of U.S. persons, in offshore transactions in accordance with Regulation S under the Securities Act.

Rule 144A Notes

Each purchaser of the Notes (including the registered holders and beneficial owners of the Notes as they exist from time to time, including as a result of transfers, in each case, as of the time of purchase) offered hereby in reliance on Rule 144A (the “Rule 144A Notes”) must be able to and will be deemed to have represented, warranted and agreed, on its own behalf and on behalf of each account for which it is purchasing any Notes, as follows:

1. It is a Qualified Institutional Buyer who is also a Qualified Purchaser; is aware the sale of the Notes to it is being made in reliance on Rule 144A; is acquiring such Notes for its own account (or the account of one or more Qualified Institutional Buyers, each of whom is also a Qualified Purchaser over which account the purchaser exercises sole investment discretion, and it and each such account:
 - (a) is not a broker-dealer that owns and invests on a discretionary basis less than US\$25 million in securities of unaffiliated issuers;
 - (b) is not a plan referred to in paragraph (A)(1)(i)(D) or (A)(1)(i)(E) of Rule 144A or a trust fund referred to in paragraph (A)(1)(i)(F) of Rule 144A that holds the assets of such a plan, if investment decisions with respect to the plan are made by the beneficiaries of the plan;
 - (c) is not formed for the purpose of investing in the Issuer or the Guarantor;
 - (d) is not an investment company that relies on the exclusion from the definition of “investment company” provided by Section 7(d), Section 3(c)(1) or Section 3(c)(7) of the Investment Company Act (or a foreign investment company under Section 7(d) thereof relying on Section 3(c)(1) or 3(c)(7) with respect to its holders that are U.S. persons) and that was formed prior to April 30, 1996, unless such entity has received the consent of its beneficial owners with respect to the treatment of such entity as a Qualified Purchaser in the manner required by Section 2(a)(51)(C) of the Investment Company Act and the rules and regulations thereunder;
 - (e) is not an entity that, immediately subsequent to its purchase or other acquisition of a Note or a beneficial interest therein, will have invested more than 40% of its assets in the Notes or beneficial interests therein and/or in other securities of the Issuer, unless all of the beneficial owners of such entity’s securities are a Qualified Institutional Buyer and (B) a Qualified Purchaser;
 - (f) will hold and transfer at least the minimum denomination of the Notes;
 - (g) acknowledges that the Issuer and the Guarantor may receive a list of participants holding positions in the Rule 144A Global Notes from one or more book-entry depositaries; and

- (h) will provide notice of the transfer restrictions described in this “Transfer Restrictions” to any subsequent transferees.
2. It understands and acknowledges that the Issuer is not and will not be registered as an “investment company” under the Investment Company Act, in reliance on the exception provided by Section 3(c)(7) thereof.
 3. It understands and agrees that any sale or transfer of the Notes (or of any beneficial interest therein) to a person that does not comply with the requirements set forth in this “Transfer Restrictions” will be null and void *ab initio* and not honored by the Issuer. It further understands that if at any time the Issuer determines in good faith that a holder of the Notes (or of any beneficial interest therein) is in breach, at the time given, of any of the representations, warranties and agreements contained in this “Transfer Restrictions”, the Issuer may require and compel holder to transfer such Notes (or beneficial interest therein) to a transferee acceptable to the Issuer who is able to and who does make all of the representations, warranties and agreements set forth in this “Transfer Restrictions”. Pending such transfer, such holder or owner of a beneficial interest therein will be deemed not to be the holder of such Notes (or any beneficial interest therein) for any purpose, including, but not limited to, receipt of principal and interest payments on such Notes (or any beneficial interest therein), and such holder will be deemed to have no interest whatsoever in such Notes (or any beneficial interest therein), except as otherwise required to sell its interest therein as described in this paragraph.
 4. It understands and acknowledges that such Rule 144A Notes are being offered only in a transaction not involving any public offering in the United States, within the meaning of the Securities Act, and the Rule 144A Notes offered hereby have not been and will not be registered under the Securities Act and may not be offered, resold, pledged or otherwise transferred except to a person who the seller reasonably believes is both a Qualified Institutional Buyer and a Qualified Purchaser in a transaction meeting the requirements of Rule 144A under the Securities Act, in accordance with all applicable securities laws of the states of the United States and the securities laws of any other jurisdiction.
 5. It understands and acknowledges that Rule 144A Global Notes (or any beneficial interest therein) may be purchased, sold, pledged or otherwise transferred only in denominations of US\$200,000 and integral multiples of US\$1,000 in excess thereof.
 6. Either (i) no portion of the assets used by it or its transferee to acquire or hold the Notes or any beneficial interest therein constitutes assets of any (A) “employee benefit plan” (as defined in Section 3(3) of the United States Employee Retirement Income Security Act of 1974, as amended (“ERISA”)) subject to Title I of ERISA, (B) plan, individual retirement account or other arrangement subject to Section 4975 of the United States Internal Revenue Code of 1986, as amended (the “Code”), (C) governmental plan, church plan or non-U.S. plan subject to provisions under any other federal, state, local, non-U.S. or other laws or regulations that are similar to such provisions of ERISA or the Code (collectively, “Similar Laws”), or (D) entity whose underlying assets are considered to include “plan assets” within the meaning of 29 C.F.R. Section 2510.3-101 (as modified by Section 3(42) of ERISA) of any such employee benefit plan, plan, individual retirement account or arrangement; or (ii) the purchase and holding of the Notes or any beneficial interest therein by it or its transferee will not constitute a non-exempt prohibited transaction under Section 406 of ERISA or Section 4975 of the Code or a similar violation of any applicable Similar Laws.
 7. It understands that each Rule 144A Global Note, and each definitive note issued in exchange for all or part of a Rule 144A Global Note or a beneficial interest therein, will bear a legend to the following effect, unless the Issuer determines otherwise in compliance with applicable law:

THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE AND ANY BENEFICIAL INTEREST HEREIN MAY BE PURCHASED AND TRANSFERRED ONLY IN DENOMINATIONS OF US\$200,000 AND INTEGRAL MULTIPLES OF US\$1,000 IN EXCESS THEREOF.

ANY SALE OR TRANSFER OF THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE OR BENEFICIAL INTERESTS HEREIN TO A PERSON THAT DOES NOT COMPLY

WITH THE REQUIREMENTS SET FORTH HEREIN WILL BE NULL AND VOID *AB INITIO* AND NOT HONORED BY THE ISSUER. IF AT ANY TIME THE ISSUER DETERMINES IN GOOD FAITH THAT A HOLDER OR BENEFICIAL OWNER OF THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE OR BENEFICIAL INTERESTS THEREIN IS IN BREACH, AT THE TIME GIVEN, OF ANY OF THE TRANSFER RESTRICTIONS SET FORTH HEREIN AND IN THE INDENTURE, THE ISSUER SHALL COMPEL SUCH HOLDER TO TRANSFER THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE (OR BENEFICIAL INTEREST HEREIN) TO A TRANSFEREE ACCEPTABLE TO THE ISSUER WHO IS ABLE TO AND WHO DOES SATISFY ALL OF THE REQUIREMENTS SET FORTH HEREIN AND IN THE INDENTURE. PENDING SUCH TRANSFER, SUCH HOLDER WILL BE DEEMED NOT TO BE THE HOLDER OF THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE (OR BENEFICIAL INTEREST HEREIN) FOR ANY PURPOSE, INCLUDING, BUT NOT LIMITED TO, RECEIPT OF PRINCIPAL AND INTEREST PAYMENTS ON THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE, AND SUCH HOLDER OR OWNER OF A BENEFICIAL INTEREST HEREIN WILL BE DEEMED TO HAVE NO INTEREST WHATSOEVER IN THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE EXCEPT AS OTHERWISE REQUIRED TO SELL ITS INTEREST HEREIN AS DESCRIBED HEREIN.

NEITHER THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE NOR THE RELATED GUARANTEES HAVE BEEN REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), THE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES OR THE SECURITIES LAWS OF ANY OTHER JURISDICTION. THE ISSUER OF THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE HAS NOT BEEN AND WILL NOT BE REGISTERED AS AN "INVESTMENT COMPANY" UNDER THE U.S. INVESTMENT COMPANY ACT OF 1940, AS AMENDED (THE "INVESTMENT COMPANY ACT"). ACCORDINGLY, THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE OR BENEFICIAL INTERESTS HEREIN MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED EXCEPT (A)(1) TO A PERSON WHO IS BOTH A "QUALIFIED INSTITUTIONAL BUYER" (AS DEFINED IN RULE 144A UNDER THE SECURITIES ACT) AND A "QUALIFIED PURCHASER" (AS DEFINED IN SECTION 2(A)(51) OF THE INVESTMENT COMPANY ACT AND RELATED RULES), IN EACH CASE, PURCHASING FOR ITS OWN ACCOUNT OR FOR THE ACCOUNT OF ONE OR MORE QUALIFIED INSTITUTIONAL BUYERS, EACH OF WHOM IS ALSO A QUALIFIED PURCHASER OVER WHICH ACCOUNT IT EXERCISES SOLE INVESTMENT DISCRETION, IN RELIANCE ON THE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT PROVIDED BY RULE 144A, AND FURTHER PROVIDED THAT EACH SUCH PERSON AND ACCOUNT FOR WHICH SUCH PERSON IS PURCHASING (A) IS NOT A BROKER-DEALER THAT OWNS AND INVESTS ON A DISCRETIONARY BASIS LESS THAN U.S.\$25,000,000 IN SECURITIES OF ISSUERS THAT ARE NOT ITS AFFILIATED PERSONS AND IS NOT A PLAN REFERRED TO IN PARAGRAPH (A)(1)(i)(D) OR (A)(1)(i)(E) OF RULE 144A OR A TRUST FUND REFERRED TO IN PARAGRAPH (A)(1)(i)(F) OF RULE 144A THAT HOLDS THE ASSETS OF SUCH A PLAN, IF INVESTMENT DECISIONS WITH RESPECT TO THE PLAN ARE MADE BY THE BENEFICIARIES OF THE PLAN, (B) EITHER (I) NO PORTION OF THE ASSETS USED BY SUCH PERSON TO ACQUIRE OR HOLD THE NOTES OR ANY BENEFICIAL INTEREST THEREIN CONSTITUTES ASSETS OF ANY "EMPLOYEE BENEFIT PLAN" (AS DEFINED IN SECTION 3(3) OF THE UNITED STATES EMPLOYEE RETIREMENT INCOME SECURITY ACT OF 1974, AS AMENDED ("ERISA")) SUBJECT TO TITLE I OF ERISA, PLAN, INDIVIDUAL RETIREMENT ACCOUNT OR OTHER ARRANGEMENT SUBJECT TO SECTION 4975 OF THE UNITED STATES INTERNAL REVENUE CODE OF 1986, AS AMENDED (THE "CODE"), OR GOVERNMENTAL PLAN, CHURCH PLAN OR NON-U.S. PLAN SUBJECT TO PROVISIONS UNDER ANY OTHER FEDERAL, STATE, LOCAL, NON-U.S. OR OTHER LAWS OR REGULATIONS THAT ARE SIMILAR TO SUCH PROVISIONS OF ERISA OR THE CODE (COLLECTIVELY, "SIMILAR LAWS") OR OF ANY ENTITY WHOSE UNDERLYING ASSETS ARE CONSIDERED TO INCLUDE "PLAN ASSETS" WITHIN THE MEANING OF 29 C.F.R. SECTION 2510.3-101 (AS MODIFIED BY SECTION 3(42) OF ERISA) OF ANY SUCH EMPLOYEE BENEFIT PLAN, PLAN, INDIVIDUAL RETIREMENT ACCOUNT OR ARRANGEMENT OR (II) THE PURCHASE

AND HOLDING OF THE NOTES OR ANY BENEFICIAL INTEREST THEREIN BY SUCH PERSON WILL NOT CONSTITUTE A NON- EXEMPT PROHIBITED TRANSACTION UNDER SECTION 406 OF ERISA OR SECTION 4975 OF THE CODE OR A SIMILAR VIOLATION OF ANY APPLICABLE SIMILAR LAWS, (C) IS NOT FORMED FOR THE PURPOSE OF INVESTING IN THE ISSUER OR THE GUARANTOR, (D) UNDERSTANDS THAT THE ISSUER AND THE GUARANTOR MAY RECEIVE A LIST OF PARTICIPANTS HOLDING POSITIONS IN THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE FROM ONE OR MORE BOOK-ENTRY DEPOSITARIES, (E) IF IT, OR ANY OTHER PERSON FOR WHICH IT IS ACTING, IS AN INVESTMENT COMPANY EXCEPTED FROM THE INVESTMENT COMPANY ACT PURSUANT TO SECTION 3(C)(1) OR SECTION 3(C)(7) THEREOF (OR A FOREIGN INVESTMENT COMPANY UNDER SECTION 7(D) THEREOF RELYING ON SECTION 3(C)(1) OR SECTION 3(C)(7) WITH RESPECT TO ITS HOLDERS THAT ARE U.S. PERSONS) AND WERE FORMED ON OR BEFORE APRIL 30, 1996, IT HAS RECEIVED CONSENT OF THE BENEFICIAL OWNERS WHO ACQUIRED THEIR INTEREST ON OR BEFORE APRIL 30, 1996, WITH RESPECT TO ITS TREATMENT AS A QUALIFIED PURCHASER IN THE MANNER REQUIRED BY SECTION 2(A)(51) OF THE INVESTMENT COMPANY ACT AND THE RULES PROMULGATED THEREUNDER AND (F) MUST BE ABLE TO AND WILL BE DEEMED TO REPRESENT THAT IT AGREES TO COMPLY WITH THE APPLICABLE TRANSFER RESTRICTIONS, AND WILL NOT TRANSFER THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE OR ANY BENEFICIAL INTERESTS HEREIN EXCEPT TO A PURCHASER WHO CAN MAKE THE SAME REPRESENTATIONS AND AGREEMENTS ON BEHALF OF ITSELF AND EACH ACCOUNT FOR WHICH IT IS PURCHASING OR (2) TO PERSONS THAT ARE NOT IN THE UNITED STATES AND ARE NOT ACTING FOR THE ACCOUNT OR BENEFIT OF U.S. PERSONS, IN OFFSHORE TRANSACTIONS IN ACCORDANCE WITH REGULATIONS UNDER THE SECURITIES, AND (B) IN EACH CASE IN ACCORDANCE WITH ALL APPLICABLE SECURITIES LAWS OF THE STATES OF THE UNITED STATES AND THE SECURITIES LAWS OF ANY OTHER JURISDICTION, PROVIDED THAT, AS A CONDITION TO THE REGISTRATION OF THE TRANSFER OF THIS RULE 144A GLOBAL NOTE OR ANY BENEFICIAL INTEREST HEREIN, THE ISSUER, THE GUARANTOR OR THE TRANSFER 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 THE FOREGOING. THE HOLDER OF THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE AND EACH OWNER OF A BENEFICIAL INTEREST HEREIN, BY PURCHASING OR ACCEPTING THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE OR A BENEFICIAL INTEREST HEREIN, REPRESENTS AND AGREES FOR THE BENEFIT OF THE ISSUER THAT IT WILL NOTIFY ANY PURCHASER OF THE NOTES EVIDENCED BY THIS RULE 144A GLOBAL NOTE FROM THE HOLDER OF THE RESTRICTIONS REFERRED TO ABOVE.

8. It understands that no representation can be made as to the availability of the exemption provided by Rule 144 for resales of the Notes offered hereby.
9. It acknowledges that the Transfer Agent will not be required to accept for registration of transfer any Notes acquired by it, except upon presentation of evidence satisfactory to the Issuer, the Guarantor and the Transfer Agent, including an opinion of counsel, that, in its sole discretion, the restrictions set forth herein have been complied with.
10. It acknowledges that the Issuer, the Guarantor, the Initial Purchasers, the Transfer Agent and others will rely upon the truth and accuracy of the foregoing acknowledgements, representations, warranties and agreements, and agrees that if any of the acknowledgements, representations, warranties or agreements deemed to have been made by it by its purchase of the Notes are no longer accurate, it shall promptly notify the Issuer, the Transfer Agent and the Initial Purchasers. If it is acquiring any Notes as a fiduciary or agent for one or more investor accounts, it represents that it has sole investment discretion with respect to each such account and it has full power to make the foregoing acknowledgements, representations and agreements on behalf of each such account.
11. It understands that the Issuer will likely be a “covered fund” as defined in the Volcker Rule. The definition of “covered fund” in the Volcker Rule includes, among other things, any entity that would be an “investment company” under the Investment Company Act, but for the

exception provided under Section 3(c)(1) or 3(c)(7) thereunder. Because the Issuer has not been and will not be registered as an “investment company” under the Investment Company Act, in reliance on the exception set forth in Section 3(c)(7) thereof, it will be considered a “covered fund” for purposes of the Volcker Rule in the absence of an exclusion from the definition of “covered fund”. Accordingly, “banking entities” (as defined under the Volcker Rule) that are subject to the Volcker Rule may be prohibited under the Volcker Rule from, among other things, acquiring or retaining an “ownership interest” in the Issuer as a “covered fund”, absent any applicable exclusion from the definition of “covered fund” or exemption under the Volcker Rule. Under the Volcker Rule, “ownership interest” is defined broadly to include any equity, partnership or other similar interest, and the phrase “other similar interest” is further defined to include any participation or other interest that entitles the holder of such interest to, amongst other things: (a) participate in the selection or removal of management or otherwise (other than as a creditor exercising remedies upon an event of default or acceleration event and to participate in the removal of an investment manager for “cause” (as defined therein) or in the selection of a replacement manager upon an investment manager’s resignation or removal), (b) share in the income, gains or profits of the “covered fund”, (c) receive underlying assets of the “covered fund” after all other interests have been redeemed and/or paid in full (other than as a creditor exercising remedies upon an event of default or acceleration event), (d) receive all or a portion of excess spread (as defined therein), (e) provide under the terms of the interest that the amounts payable by the “covered fund with respect to the interest can be reduced based on losses arising from the underlying assets of the “covered fund”, (f) receive income on a pass-through basis from the “covered fund” or have a rate of return that is determined by reference to the performance of the underlying assets of the “covered fund”, or (g) any synthetic right to have, receive or be allocated any of the rights in clauses (a) through (f) above.

Regulation S Notes

Each purchaser of the Notes (including the registered holders and beneficial owners of the Notes as they exist from time to time, including as a result of transfers, in each case, as of the time of purchase) other than the Rule 144A Notes (“Regulation S Notes”) must be able to and will be deemed to have represented, warranted and agreed as follows:

1. It is not in the United States and is not, nor is it acting for the account or benefit of, any U.S. person who is acquiring such Regulation S Notes in an offshore transaction in accordance with Rule 903 or Rule 904 of Regulation S under the Securities Act.
2. It understands that such Regulation S Notes are being offered only outside the United States to persons that are not, and are not acting for the account or benefit of, U.S. persons, in offshore transactions in reliance on Regulation S under the Securities Act and that the Regulation S Notes have not been and will not be registered under the Securities Act, the securities laws of any state of the United States or the securities laws of any other jurisdiction and may not be offered, resold, pledged or transferred within the United States or to, or for the account or benefit of, U.S. persons except to the extent permitted by the legend set forth in paragraph (5) below.
3. It agrees that it will deliver to each person to whom it transfers the Regulation S Notes notice of any restrictions on transfer of such Regulation S Notes.
4. Either (i) no portion of the assets used by such purchaser or transferee to acquire or hold the Notes or any beneficial interest therein constitutes assets of any (A) “employee benefit plan” (as defined in Section 3(3) of the United States Employee Retirement Income Security Act of 1974, as amended (“ERISA”)) subject to Title I of ERISA, (B) plan, individual retirement account or other arrangement subject to Section 4975 of the United States Internal Revenue Code of 1986, as amended (the “Code”), (C) governmental plan, church plan or non-U.S. plan subject to provisions under any other federal, state, local, non-U.S. or other laws or regulations that are similar to such provisions of ERISA or the Code (collectively, “Similar Laws”), or (D) entity whose underlying assets are considered to include “plan assets” within the meaning of 29 C.F.R. Section 2510.3-101 (as modified by Section 3(42) of ERISA) of any such employee benefit plan, plan, account or arrangement or (ii) the purchase and holding of the Notes or any beneficial interest therein by such

purchaser or transferee will not constitute a non-exempt prohibited transaction under Section 406 of ERISA or Section 4975 of the Code or a similar violation of any applicable Similar Laws.

5. It understands that each Regulation S Global Note, and each definitive note issued in exchange for all or part of a Regulation S Global Note or interest therein, will bear a legend to the following effect, unless the Issuer determines otherwise in compliance with applicable law:

THE NOTES EVIDENCED BY THIS REGULATION S GLOBAL NOTE AND ANY BENEFICIAL INTEREST HEREIN MAY BE PURCHASED AND TRANSFERRED ONLY IN DENOMINATIONS OF US\$200,000 AND INTEGRAL MULTIPLES OF US\$1,000 IN EXCESS THEREOF.

NEITHER THE NOTES EVIDENCED BY THIS REGULATION S GLOBAL NOTE NOR THE RELATED GUARANTEES OR BENEFICIAL INTERESTS HEREIN HAVE BEEN OR WILL BE REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), THE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES OR THE SECURITIES LAWS OF ANY OTHER JURISDICTION AND MAY NOT BE REOFFERED, RESOLD, PLEDGED OR OTHERWISE TRANSFERRED WITHIN THE UNITED STATES OR TO A U.S. PERSON (EACH AS DEFINED IN REGULATION S UNDER THE SECURITIES ACT). THE ISSUER HAS NOT BEEN AND WILL NOT BE REGISTERED AS AN "INVESTMENT COMPANY" UNDER THE U.S. INVESTMENT COMPANY ACT OF 1940, AS AMENDED (THE "INVESTMENT COMPANY ACT"). IN RELIANCE ON THE EXCEPTION PROVIDED BY SECTION 3(C)(7) THEREOF.

BY PURCHASING OR OTHERWISE ACQUIRING ANY BENEFICIAL INTEREST IN THIS REGULATION S GLOBAL NOTE, EACH OWNER OF SUCH BENEFICIAL INTEREST WILL BE DEEMED TO HAVE: (I) REPRESENTED AND WARRANTED TO AND FOR THE BENEFIT OF THE ISSUER, THE GUARANTOR AND THE SELLER ("SELLER") OF ANY BENEFICIAL INTEREST HEREIN, AND TO AND FOR THE BENEFIT OF ANY AGENT OF THE ISSUER, THE GUARANTOR OR SUCH SELLER, THAT (A) IT AND ANY PERSON FOR WHICH IT IS ACTING IS NOT A U.S. PERSON (AS DEFINED IN REGULATION S OF THE SECURITIES ACT ("REGULATION S")); AND (B) IT AND EACH SUCH PERSON ARE PURCHASING OR OTHERWISE ACQUIRING SUCH BENEFICIAL INTEREST IN AN OFFSHORE TRANSACTION (AS DEFINED BELOW) THAT IS NOT SUBJECT TO THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT PURSUANT TO REGULATION S THEREUNDER AND (II) AGREED FOR THE BENEFIT OF THE ISSUER, THE GUARANTOR AND THE SELLER OF SUCH BENEFICIAL INTEREST, AND FOR THE BENEFIT OF ANY AGENT OF THE ISSUER, THE GUARANTOR OR SUCH SELLER, THAT ANY SALE OR TRANSFER OF THE NOTES EVIDENCED BY THIS REGULATION S GLOBAL NOTE OR BENEFICIAL INTERESTS HEREIN TO A PERSON THAT DOES NOT COMPLY WITH THE REQUIREMENTS SET FORTH HEREIN WILL BE NULL AND VOID *AB INITIO* AND NOT HONORED BY THE ISSUER. IF AT ANY TIME THE ISSUER DETERMINES IN GOOD FAITH THAT A HOLDER OR BENEFICIAL OWNER OF THE NOTES EVIDENCED BY THIS REGULATION S GLOBAL NOTE OR BENEFICIAL INTERESTS THEREIN IS IN BREACH, AT THE TIME GIVEN, OF ANY OF THE TRANSFER RESTRICTIONS SET FORTH HEREIN AND IN THE INDENTURE, THE ISSUER SHALL COMPEL SUCH HOLDER TO TRANSFER THE NOTES EVIDENCED BY THIS REGULATION S GLOBAL NOTE (OR BENEFICIAL INTEREST HEREIN) TO A TRANSFEREE ACCEPTABLE TO THE ISSUER WHO IS ABLE TO AND WHO DOES SATISFY ALL OF THE REQUIREMENTS SET FORTH HEREIN AND IN THE INDENTURE. PENDING SUCH TRANSFER, SUCH HOLDER WILL BE DEEMED NOT TO BE THE HOLDER OF THE NOTES EVIDENCED BY THIS REGULATION S GLOBAL NOTE (OR BENEFICIAL INTEREST HEREIN) FOR ANY PURPOSE, INCLUDING, BUT NOT LIMITED TO, RECEIPT OF PRINCIPAL AND INTEREST PAYMENTS ON THE NOTES EVIDENCED BY THIS REGULATION S GLOBAL NOTE, AND SUCH HOLDER OR OWNER OF A BENEFICIAL INTEREST HEREIN WILL BE DEEMED TO HAVE NO INTEREST WHATSOEVER IN THE NOTES EVIDENCED BY THIS REGULATION S GLOBAL NOTE EXCEPT AS OTHERWISE REQUIRED TO SELL ITS INTEREST HEREIN AS DESCRIBED HEREIN.

6. It acknowledges that the Transfer Agent will not be required to accept for registration of transfer any Notes acquired by it, except upon presentation of evidence satisfactory to the Issuer, the Guarantor and the Transfer Agent, including an opinion of counsel, that, in its sole discretion, the restrictions set forth herein have been complied with.

7. It acknowledges that the Issuer, the Guarantor, the Initial Purchasers, the Transfer Agent and others will rely upon the truth and accuracy of the foregoing acknowledgements, representations, warranties and agreements, and agrees that if any of the acknowledgements, representations, warranties or agreements deemed to have been made by it by its purchase of the Notes are no longer accurate, it shall promptly notify the Issuer, the Transfer Agent and the Initial Purchasers. If it is acquiring any Notes as a fiduciary or agent for one or more investor accounts, it represents that it has sole investment discretion with respect to each such account and it has full power to make the foregoing acknowledgements, representations and agreements on behalf of each such account.
8. It understands that the Issuer will likely be a “covered fund” as defined in the Volcker Rule. The definition of “covered fund” in the Volcker Rule includes, among other things, any entity that would be an “investment company” under the Investment Company Act, but for the exception provided under Section 3(c)(1) or 3(c)(7) thereunder. Because the Issuer has not been and will not be registered as an “investment company” under the Investment Company Act, in reliance on the exception set forth in Section 3(c)(7) thereof, it will be considered a “covered fund” for purposes of the Volcker Rule in the absence of an exclusion from the definition of “covered fund”. Accordingly, “banking entities” (as defined under the Volcker Rule) that are subject to the Volcker Rule may be prohibited under the Volcker Rule from, among other things, acquiring or retaining an “ownership interest” in the Issuer as a “covered fund”, absent any applicable exclusion from the definition of “covered fund” or exemption under the Volcker Rule. Under the Volcker Rule, “ownership interest” is defined broadly to include any equity, partnership or other similar interest, and the phrase “other similar interest” is further defined to include any participation or other interest that entitles the holder of such interest to, amongst other things: (a) participate in the selection or removal of management or otherwise (other than as a creditor exercising remedies upon an event of default or acceleration event and to participate in the removal of an investment manager for “cause” (as defined therein) or in the selection of a replacement manager upon an investment manager’s resignation or removal), (b) share in the income, gains or profits of the “covered fund”, (c) receive underlying assets of the “covered fund” after all other interests have been redeemed and/or paid in full (other than as a creditor exercising remedies upon an event of default or acceleration event), (d) receive all or a portion of excess spread (as defined therein), (e) provide under the terms of the interest that the amounts payable by the “covered fund with respect to the interest can be reduced based on losses arising from the underlying assets of the “covered fund”, (f) receive income on a pass-through basis from the “covered fund” or have a rate of return that is determined by reference to the performance of the underlying assets of the “covered fund”, or (g) any synthetic right to have, receive or be allocated any of the rights in clauses (a) through (f) above.

R.O.C. FOREIGN EXCHANGE CONTROL

The R.O.C. Foreign Exchange Control Statute and regulations provide that all foreign exchange transactions must be executed by banks designated by the FSC and the CBC to handle foreign exchange transactions. Current regulations favor trade-related foreign exchange transactions. Consequently, foreign currency earned from exports of merchandise and services may now be retained and used freely by exporters. All foreign currency needed for the importation of merchandise and services may be purchased freely from the designated foreign exchange banks.

Aside from trade or service-related foreign exchange transactions, R.O.C. companies and individual residents of the R.O.C. may, without a foreign exchange approval, remit to and from Taiwan foreign currencies of up to US\$50 million, or its equivalent, and US\$5 million, or its equivalent, respectively, in each calendar year. These limits apply to remittances involving a conversion between NT dollars and U.S. dollars or other foreign currencies. In addition, all private enterprises are required to register all medium- and long-term foreign debts with the CBC.

In addition, a foreign person may, subject to certain requirements but without a foreign exchange approval, remit to and from Taiwan foreign currencies of up to US\$100,000 (or its equivalent) per remittance if the required documentation is provided to the R.O.C. authorities. This limit applies to remittances involving a conversion between NT dollars and U.S. dollars or other foreign currencies.

LEGAL MATTERS

Certain legal matters relating to the issue and sale of the Notes will be passed upon for the Issuer and the Guarantor by Sullivan & Cromwell (Hong Kong) LLP as to matters of U.S. Federal and New York law, by Lee and Li, Attorneys-at-Law as to matters of R.O.C. law and by Harney Westwood & Riegels as to matters of B.V.I. law. Certain legal matters relating to the issue and sale of the Notes will be passed upon for the Initial Purchasers by Latham & Watkins LLP as to matters of U.S. Federal and New York law.

INDEPENDENT AUDITORS

The Company's consolidated financial statements as of December 31, 2019 and 2020 and for each of the three years in the period ended December 31, 2020 included in this offering circular and the effectiveness of the Company's internal control over financial reporting have been audited in accordance with the Standards of the Public Company Accounting Oversight Board (United States) by Deloitte & Touche, an independent registered public accounting firm, as stated in their reports appearing herein which reports (1) express an unqualified opinion on the consolidated financial statements and includes two explanatory paragraphs referring to translation of NT dollar amounts into U.S. dollar amounts solely for the convenience of the readers and a separate report on the effectiveness of internal control over financial reporting and (2) express an unqualified opinion on the effectiveness of internal control over financial reporting.

Deloitte & Touche is located at 20th Floor, No. 100, Songren Rd., Xinyi District., Taipei, Taiwan.

CONTROLS AND PROCEDURES

Disclosure Controls and Procedures. Pursuant to Rule 13(a)-15(b) of the Securities Exchange Act of 1934, an evaluation was carried out under the supervision and with the participation of our principal executive and principal financial officers of the effectiveness of our disclosure controls and procedures. Based upon that evaluation, the Chief Executive Officers and Chief Financial Officer concluded that these disclosure controls and procedures were effective as of December 31, 2020.

Management’s Annual Report on Internal Control over Financial Reporting. Management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting is a process designed under the supervision of our principal executive and principal financial officers to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our financial statements for external reporting purposes in accordance with IFRSs as issued by the IASB. Our internal control over financial reporting includes policies and procedures that pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect transactions and dispositions of assets; provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with IFRSs as issued by the IASB, and that receipts and expenditures are being made only in accordance with authorizations of our management and directors; and provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

As of the end of 2020, management conducted an assessment of the effectiveness of our internal control over financial reporting based on the framework established in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, management has determined that our internal control over financial reporting as of December 31, 2020 was effective.

Our independent registered public accounting firm, Deloitte & Touche, independently assessed the effectiveness of our company’s internal control over financial reporting. Deloitte & Touche has issued an attestation report, which is included below.

Changes in Internal Control over Financial Reporting. During 2020, there was no material change to our internal control over financial reporting.

Attestation Report of the Independent Registered Public Accounting Firm.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of

Taiwan Semiconductor Manufacturing Company Limited

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Taiwan Semiconductor Manufacturing Company Limited and subsidiaries (the “Company”) as of December 31, 2020, based on criteria established in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control—Integrated Framework (2013) issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2020, of the Company and our report dated April 16, 2021, expressed an unqualified opinion on those financial statements.

Basis for Opinion

The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial

reporting, included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Deloitte & Touche
Taipei, Taiwan
The Republic of China
April 16, 2021

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of
Taiwan Semiconductor Manufacturing Company Limited

Opinion on the Financial Statements

We have audited the accompanying consolidated statements of financial position of Taiwan Semiconductor Manufacturing Company Limited (a Republic of China corporation) and subsidiaries (the “Company”) as of December 31, 2019 and 2020, the related consolidated statements of profit or loss and other comprehensive income, changes in equity, and cash flows for each of the three years in the period ended December 31, 2020, and the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2020, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board.

Our audits also comprehended the translation of New Taiwan dollar amounts into U.S. dollar amounts and, in our opinion, such translation has been made in conformity with the basis stated in Note 3 to the consolidated financial statements. Such U.S. dollar amounts are presented solely for the convenience of the readers outside the Republic of China.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company’s internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated April 16, 2021, expressed an unqualified opinion on the Company’s internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Property, plant and equipment (PP&E)—commencement of depreciation related to PP&E classified as equipment under installation and construction in progress (EUI/CIP)—refer to Notes 5, 6, and 15

Critical Audit Matter Description

The Company's evaluation of when to commence depreciation of EUI/CIP involves determining when the assets are available for their intended use. The criteria the Company uses to determine whether EUI/CIP are available for their intended use involves subjective judgments and assumptions about the conditions necessary for the assets to be capable of operating in the intended manner. Changes in these assumptions could have a significant impact on when depreciation is recognized.

Given the subjectivity in determining the date to commence depreciation of EUI/CIP, performing audit procedures to evaluate the reasonableness of the Company's judgments and assumptions required a high degree of auditor judgment.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the evaluation of when to commence depreciation of EUI/CIP included the following, among others:

1. We read the Company's policy and understand the criteria used to determine when to commence depreciation.
2. We tested the effectiveness of the controls over the evaluation of when to commence depreciation of EUI/CIP.
3. We sampled EUI/CIP at year end and performed the following for each selection:
 - a. Evaluated whether the selection did not meet the criteria specified by the Company for commencement of depreciation.
 - b. Observed the assets and evaluated their status at year end.
4. We sampled and evaluated whether the selection of EUI/CIP met the criteria specified by the Company for commencement of depreciation during the year.
5. We sampled and evaluated whether the selection of EUI/CIP met the criteria specified by the Company for commencement of depreciation subsequent to year end.

/s/ Deloitte & Touche
Taipei, Taiwan
The Republic of China

April 16, 2021

We have served as the Company's auditor since 1987.

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION
(In Millions of New Taiwan Dollars or U.S. Dollars)

	Notes	December 31, 2019	December 31, 2020	
		NT\$	NT\$	US\$ (Note 3)
ASSETS				
CURRENT ASSETS				
Cash and cash equivalents	7	\$ 455,399.3	\$ 660,170.6	\$23,510.4
Financial assets at fair value through profit or loss	8	326.8	2,259.4	80.4
Financial assets at fair value through other comprehensive income	9	127,396.6	122,448.5	4,360.7
Financial assets at amortized cost	10	299.9	6,598.0	235.0
Hedging financial assets	11	25.9	0.1	—
Notes and accounts receivable, net	12	138,908.6	145,480.3	5,180.9
Receivables from related parties	34	862.1	558.1	19.9
Other receivables from related parties	34	51.6	50.6	1.8
Inventories	6, 13, 37	82,981.2	137,353.4	4,891.5
Other financial assets	35	11,041.1	10,676.1	380.2
Other current assets		5,320.8	6,590.2	234.7
Total current assets		<u>822,613.9</u>	<u>1,092,185.3</u>	<u>38,895.5</u>
NONCURRENT ASSETS				
Financial assets at fair value through other comprehensive income	9	4,124.3	4,514.9	160.8
Financial assets at amortized cost	10	7,348.9	4,372.2	155.7
Investments accounted for using equity method	14	18,618.8	18,730.2	667.0
Property, plant and equipment	6, 15	1,352,377.4	1,555,589.1	55,398.5
Right-of-use assets	6, 16	17,232.4	27,728.5	987.5
Intangible assets	6, 17	20,653.0	25,768.1	917.7
Deferred income tax assets	6, 28	17,928.4	25,958.2	924.4
Refundable deposits		2,085.0	1,343.0	47.8
Other noncurrent assets		1,742.9	4,411.0	157.1
Total noncurrent assets		<u>1,442,111.1</u>	<u>1,668,415.2</u>	<u>59,416.5</u>
TOTAL		<u><u>\$2,264,725.0</u></u>	<u><u>\$2,760,600.5</u></u>	<u><u>\$98,312.0</u></u>

(Continued)

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION
(In Millions of New Taiwan Dollars or U.S. Dollars)

	Notes	December 31, 2019		December 31, 2020	
		NT\$	NT\$	NT\$	US\$ (Note 3)
LIABILITIES AND EQUITY					
CURRENT LIABILITIES					
Short-term loans	18, 31	\$ 118,522.3	\$ 88,559.0	\$ 3,153.8	
Financial liabilities at fair value through profit or loss	8	982.3	94.1	3.4	
Hedging financial liabilities	11	1.8	1.2	0.1	
Accounts payable		38,771.1	38,987.3	1,388.4	
Payables to related parties	34	1,434.9	2,107.7	75.1	
Salary and bonus payable		16,272.3	20,071.2	714.8	
Accrued profit sharing bonus to employees and compensation to directors and supervisors	30	23,648.9	35,681.0	1,270.7	
Payables to contractors and equipment suppliers		140,810.7	157,805.0	5,619.8	
Cash dividends payable	23	129,652.0	129,652.0	4,617.2	
Income tax payable	6, 28	40,094.3	68,656.7	2,445.0	
Long-term liabilities—current portion	19, 31	31,800.0	2,600.0	92.6	
Accrued expenses and other current liabilities	6, 16, 22, 24,31	56,373.2	87,683.2	3,122.6	
Total current liabilities		598,363.8	631,898.4	22,503.5	
NONCURRENT LIABILITIES					
Bonds payable	19, 31	25,100.0	254,105.1	9,049.3	
Long-term bank loans	20, 31	—	1,967.6	70.1	
Deferred income tax liabilities	6, 28	344.4	1,729.9	61.6	
Lease liabilities	6, 16, 31	15,041.8	20,560.6	732.2	
Net defined benefit liability	21	9,182.5	11,914.1	424.3	
Guarantee deposits	22, 31	176.9	265.6	9.5	
Others		2,128.3	2,395.4	85.3	
Total noncurrent liabilities		51,973.9	292,938.3	10,432.3	
Total liabilities		650,337.7	924,836.7	32,935.8	
EQUITY ATTRIBUTABLE TO SHAREHOLDERS OF THE PARENT					
Capital stock	23	259,303.8	259,303.8	9,234.5	
Capital surplus	23	56,339.7	56,347.2	2,006.7	
Retained earnings	23				
Appropriated as legal capital reserve		311,147.0	311,147.0	11,080.7	
Appropriated as special capital reserve		10,675.1	42,259.1	1,505.0	
Unappropriated earnings		1,003,808.3	1,220,434.0	43,462.7	
		1,325,630.4	1,573,840.1	56,048.4	
Others	23	(27,568.3)	(54,679.8)	(1,947.3)	
Equity attributable to shareholders of the parent		1,613,705.6	1,834,811.3	65,342.3	
NON-CONTROLLING INTERESTS		681.7	952.5	33.9	
Total equity		1,614,387.3	1,835,763.8	65,376.2	
TOTAL		\$2,264,725.0	\$2,760,600.5	\$98,312.0	

The accompanying notes are an integral part of the consolidated financial statements. (Concluded)

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME
(In Millions of New Taiwan Dollars or U.S. Dollars, Except Earnings Per Share that are in New Taiwan or U.S. Dollars)

	Notes	2018	2019	2020	
		NT\$	NT\$	NT\$	US\$ (Note 3)
NET REVENUE	6, 24, 34, 38	\$1,031,473.6	\$1,069,985.4	\$1,339,254.8	\$47,694.3
COST OF REVENUE	6, 13, 30, 34, 37	533,487.5	577,286.9	628,108.4	22,368.6
GROSS PROFIT BEFORE REALIZED (UNREALIZED) GROSS PROFIT ON SALES TO ASSOCIATES		497,986.1	492,698.5	711,146.4	25,325.7
REALIZED (UNREALIZED) GROSS PROFIT ON SALES TO ASSOCIATES		(111.8)	3.4	(16.3)	(0.6)
GROSS PROFIT		497,874.3	492,701.9	711,130.1	25,325.1
OPERATING EXPENSES	6, 30, 34				
Research and development		85,895.6	91,418.7	109,486.0	3,899.1
General and administrative		20,265.9	21,737.2	28,457.6	1,013.4
Marketing		5,987.8	6,348.6	7,112.8	253.3
Total operating expenses		112,149.3	119,504.5	145,056.4	5,165.8
OTHER OPERATING INCOME AND EXPENSES, NET	15, 16, 30	(2,101.5)	(496.3)	710.0	25.3
INCOME FROM OPERATIONS	38	383,623.5	372,701.1	566,783.7	20,184.6
NON-OPERATING INCOME AND EXPENSES					
Share of profits of associates		3,090.6	2,861.0	3,562.0	126.8
Interest Income	25	14,694.4	16,189.4	9,018.4	321.2
Other income		158.4	417.3	660.6	23.4
Foreign exchange gain (loss), net		2,438.2	2,095.2	(3,303.3)	(117.6)
Finance costs	26	(3,051.2)	(3,250.9)	(2,081.5)	(74.1)
Other gains and losses, net	27	(3,410.8)	(1,151.0)	10,106.4	360.0
Total non-operating income and expenses		13,919.6	17,161.0	17,962.6	639.7
INCOME BEFORE INCOME TAX		397,543.1	389,862.1	584,746.3	20,824.3
INCOME TAX EXPENSE	6, 28	34,436.9	35,835.1	73,738.3	2,626.0
NET INCOME		363,106.2	354,027.0	511,008.0	18,198.3
OTHER COMPREHENSIVE INCOME (LOSS)	6, 21, 23, 28				
Items that will not be reclassified subsequently to profit or loss:					
Remeasurement of defined benefit obligation		(861.2)	253.9	(3,516.8)	(125.2)
Unrealized gain/(loss) on investments in equity instruments at fair value through other comprehensive income		(3,309.1)	334.3	423.7	15.1
Gain (loss) on hedging instruments		41.0	(109.6)	24.1	0.9
Share of other comprehensive loss of associates		(14.2)	(18.2)	(11.6)	(0.4)
Income tax benefit (expense) related to items that will not be reclassified subsequently		195.7	(21.0)	422.7	15.0
		(3,947.8)	439.4	(2,657.9)	(94.6)

(Continued)

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME
(In Millions of New Taiwan Dollars or U.S. Dollars, Except Earnings Per Share that are in New Taiwan or U.S. Dollars)

	Notes	2018	2019	2020	
		NT\$	NT\$	NT\$	US\$ (Note 3)
Items that may be reclassified subsequently to profit or loss:					
Exchange differences arising on translation of foreign operations		\$ 14,562.4	\$ (14,689.1)	\$ (29,847.2)	\$ (1,062.9)
Unrealized gain/(loss) on investments in debt instruments at fair value through other comprehensive income		(870.9)	2,566.4	2,466.7	87.8
Share of other comprehensive income (loss) of associates		93.3	(140.2)	(283.4)	(10.1)
		<u>13,784.8</u>	<u>(12,262.9)</u>	<u>(27,663.9)</u>	<u>(985.2)</u>
Other comprehensive income (loss) for the year, net of income tax		9,837.0	(11,823.5)	(30,321.8)	(1,079.8)
TOTAL COMPREHENSIVE INCOME FOR THE YEAR		<u>\$372,943.2</u>	<u>\$342,203.5</u>	<u>\$480,686.2</u>	<u>\$17,118.5</u>
NET INCOME ATTRIBUTABLE TO:					
Shareholders of the parent		\$363,052.7	\$353,948.0	\$510,744.0	\$18,188.9
Non-controlling interests		53.5	79.0	264.0	9.4
		<u>\$363,106.2</u>	<u>\$354,027.0</u>	<u>\$511,008.0</u>	<u>\$18,198.3</u>
TOTAL COMPREHENSIVE INCOME ATTRIBUTABLE TO:					
Shareholders of the parent		\$372,886.8	\$342,124.9	\$480,422.1	\$17,109.0
Non-controlling interests		56.4	78.6	264.1	9.5
		<u>\$372,943.2</u>	<u>\$342,203.5</u>	<u>\$480,686.2</u>	<u>\$17,118.5</u>
		2018	2019	2020	
		Income Attributable to Shareholders of the Parent	Income Attributable to Shareholders of the Parent	Income Attributable to Shareholders of the Parent	
		NT\$	NT\$	NT\$	US\$ (Note 3)
EARNINGS PER SHARE	29				
Basic earnings per share		\$ 14.00	\$ 13.65	\$ 19.70	\$ 0.70
Diluted earnings per share		\$ 14.00	\$ 13.65	\$ 19.70	\$ 0.70
EARNINGS PER EQUIVALENT ADS					
Basic earnings per share		\$ 70.01	\$ 68.25	\$ 98.48	\$ 3.51
Diluted earnings per share		\$ 70.01	\$ 68.25	\$ 98.48	\$ 3.51

The accompanying notes are an integral part of the consolidated financial statements.

(Concluded)

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(In Millions of New Taiwan Dollars)

	Equity Attributable to Shareholders of the Parent											Total Equity		
	Others										Non-controlling Interests			
	Capital Stock - Common Stock		Retained Earnings			Foreign Currency Translation Reserve	Unrealized Gain (Loss) on Financial Assets at Fair Value Through Other Comprehensive Income	Gain (Loss) on Hedging Instruments	Unearned Stock-Based Employee Compensation	Total				
Shares (In Millions)	Amount	Capital Surplus	Legal Capital Reserve	Special Reserve	Special Reserve	Unappropriated Earnings	Total	Gain (Loss) on Hedging Instruments	Unearned Stock-Based Employee Compensation	Total	Total	Total		
BALANCE, JANUARY 1, 2018	25,930.3	\$259,303.8	\$56,309.6	\$241,722.7	\$	\$ 964,884.9	\$1,206,607.6	\$(26,697.7)	\$ (524.9)	\$ 4.2	\$(10.3)	\$1,494,992.3	\$700.0	\$1,495,692.3
Appropriations of earnings														
Legal capital reserve				34,311.2		(34,311.2)								
Special capital reserve					26,907.5	(26,907.5)								
Cash dividends to shareholders						(207,443.0)	(207,443.0)					(207,443.0)		(207,443.0)
Total				34,311.2	26,907.5	(268,661.7)	(207,443.0)					(207,443.0)		(207,443.0)
Net income in 2018						363,052.7	363,052.7					363,052.7	53.5	363,106.2
Other comprehensive income (loss) in 2018, net of income tax						(765.3)	(765.3)	14,655.3	(4,097.5)	41.6		9,834.1	2.9	9,837.0
Total comprehensive income (loss) in 2018							362,287.4	14,655.3	(4,097.5)	41.6		372,886.8	56.4	372,943.2
Disposal of investments in equity instruments at fair value through other comprehensive income						(1,193.1)	(1,193.1)		1,193.1					
Basis adjustment for loss on hedging instruments										(22.2)		(22.2)		(22.2)
Adjustments to share of changes in equities of associates											8.5	8.5		2.1
From share of changes in equities of subsidiaries														2.7
Donation from shareholders														10.1
Decrease in non-controlling interests														(77.4)
BALANCE, DECEMBER 31, 2018	25,930.3	\$259,303.8	\$56,316.0	\$276,033.9	\$ 26,907.5	\$1,057,317.5	\$1,360,258.9	\$(12,042.4)	\$(3,429.3)	\$ 23.6	\$(1.8)	\$1,660,428.8	\$676.3	\$1,661,105.1
Appropriations of earnings														
Legal capital reserve				35,113.1		(35,113.1)								
Special capital reserve					(16,232.4)	16,232.4								
Cash dividends to shareholders						(388,955.7)	(388,955.7)					(388,955.7)		(388,955.7)
Total				35,113.1	(16,232.4)	(407,836.4)	(388,955.7)					(388,955.7)		(388,955.7)
Net income in 2019						353,948.0	353,948.0					353,948.0	79.0	354,027.0
Other comprehensive income (loss) in 2019, net of income tax						217.1	217.1	(14,829.0)	2,898.5	(109.7)		(11,823.1)	(0.4)	(11,823.5)
Total comprehensive income (loss) in 2019							354,165.1	(14,829.0)	2,898.5	(109.7)		342,124.9	78.6	342,203.5
Disposal of investments in equity instruments at fair value through other comprehensive income						162.1	162.1		(162.1)					
Basis adjustment for gain on hedging instruments										82.3		82.3		82.3
Adjustments to share of changes in equities of associates											1.6	1.6		21.2
From share of changes in equities of subsidiaries														(0.3)
Donation from shareholders														4.0
Decrease in non-controlling interests														(73.1)
BALANCE, DECEMBER 31, 2019	25,930.3	\$259,303.8	\$56,339.7	\$311,147.0	\$ 10,675.1	\$1,003,808.3	\$1,325,630.4	\$(26,871.4)	\$(692.9)	\$ (3.8)	\$(0.2)	\$1,613,705.6	\$681.7	\$1,614,387.3

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(In Millions of New Taiwan Dollars)

	Equity Attributable to Shareholders of the Parent											Total Equity				
	Capital Stock - Common Stock					Retained Earnings			Foreign Currency Translation Reserve		Unrealized Gain (Loss) on Financial Assets at Fair Value/Other Comprehensive Income		Gain (Loss) on Hedging Instruments	Unearned Stock-Based Employee Compensation	Non-controlling Interests	
	Shares (In Millions)	Amount	Capital Surplus	Legal Capital Reserve	Special Reserve	Special Reserve	Unappropriated Earnings	Total	Foreign Currency Translation Reserve	Total	Unrealized Gain (Loss) on Financial Assets at Fair Value/Other Comprehensive Income		Gain (Loss) on Hedging Instruments	Unearned Stock-Based Employee Compensation	Total	Non-controlling Interests
Appropriations of earnings	—	—	—	—	—	(31,584.0)	—	—	—	—	—	—	—	—	—	—
Special capital reserve	—	—	—	—	—	(259,303.8)	(259,303.8)	—	—	—	—	—	—	—	—	(259,303.8)
Cash dividends to shareholders	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	31,584.0	(31,584.0)	(259,303.8)	—	—	—	—	—	—	—	(259,303.8)
Net income in 2020	—	—	—	—	—	510,744.0	510,744.0	—	—	—	—	—	—	—	—	510,744.0
Other comprehensive income (loss) in 2020, net of income tax	—	—	—	—	—	(3,121.8)	(3,121.8)	(30,130.2)	—	—	2,906.0	24.1	—	(27,200.1)	0.1	511,008.0
Total comprehensive income (loss) in 2020	—	—	—	—	—	507,622.2	507,622.2	(30,130.2)	—	—	2,906.0	24.1	—	(27,200.1)	264.1	480,686.2
Disposal of investments in equity instruments at fair value through other comprehensive income	—	—	—	—	—	(108.7)	(108.7)	—	—	108.7	—	—	—	108.7	—	—
Basis adjustment for loss on hedging instruments	—	—	—	—	—	—	—	—	—	—	(20.3)	(20.3)	—	(20.3)	—	(20.3)
Adjustments to share of changes in equities of associates	—	—	0.3	—	—	—	—	—	—	—	—	0.2	—	0.2	—	0.5
Donation from shareholders	—	—	7.2	—	—	—	—	—	—	—	—	—	—	—	—	7.2
Increase in non-controlling interests	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.7	6.7
BALANCE, DECEMBER 31, 2020	25,930.3	\$259,303.8	\$56,347.2	\$311,147.0	\$42,259.1	\$1,220,494.0	\$1,579,840.1	\$(57,001.6)	—	\$2,321.8	\$	\$	\$	\$(54,679.8)	\$952.5	\$1,835,763.8
BALANCE, DECEMBER 31, 2020 (IN MILLIONS OF US\$—Note 3)		\$ 9,234.5	\$ 2,006.7	\$ 11,080.7	\$ 1,505.0	\$ 43,462.7	\$ 56,048.4	\$(2,030.0)		\$ 82.7	\$	\$	\$	\$(1,947.3)	\$ 33.9	\$ 65,376.2

The accompanying notes are an integral part of the consolidated financial statements.

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In Millions of New Taiwan Dollars or U.S. Dollars)

	2018	2019	2020	
	NT\$	NT\$	NT\$	US\$ (Note 3)
CASH FLOWS FROM OPERATING ACTIVITIES				
Income before income tax	\$397,543.1	\$389,862.1	\$584,746.3	\$20,824.3
Adjustments for:				
Depreciation expense	288,124.9	281,411.8	324,538.4	11,557.6
Amortization expense	4,421.4	5,472.4	7,186.2	255.9
Expected credit losses recognized (reversal) on investments in debt instruments	(2.4)	1.7	3.7	0.1
Finance costs	3,051.2	3,250.9	2,081.5	74.1
Share of profits of associates	(3,090.6)	(2,861.0)	(3,562.0)	(126.8)
Interest income	(14,694.4)	(16,189.4)	(9,018.4)	(321.2)
Share-based compensation	—	2.8	6.6	0.2
Loss (gain) on disposal or retirement of property, plant and equipment, net	1,005.6	950.0	(188.9)	(6.7)
Loss (gain) on disposal of intangible assets, net	(0.4)	2.4	0.6	—
Impairment loss (reversal of impairment loss) on property, plant and equipment	423.5	(301.4)	10.2	0.4
Loss (gain) on financial instruments at fair value through profit or loss, net	358.2	955.7	(3.0)	(0.1)
Loss (gain) on disposal of investments in debt instruments at fair value through other comprehensive income, net	989.1	(537.8)	(1,439.4)	(51.3)
Loss from disposal of subsidiaries	—	4.6	—	—
Unrealized (realized) gross profit on sales to associates	111.8	(3.4)	16.3	0.6
Loss (gain) on foreign exchange, net	2,916.7	(5,228.2)	(1,372.6)	(48.9)
Dividend income	(158.4)	(417.3)	(637.6)	(22.7)
Loss (gain) arising from fair value hedges, net	2.3	(13.1)	—	—
Gain on lease modification	—	(2.1)	(2.8)	(0.1)
Changes in operating assets and liabilities:				
Financial instruments at fair value through profit or loss	480.1	848.8	(2,965.2)	(105.6)
Notes and accounts receivable, net	(13,271.3)	(18,119.6)	(8,082.7)	(287.8)
Receivables from related parties	599.7	(277.7)	304.0	10.8
Other receivables from related parties	106.1	13.4	7.6	0.3
Inventories	(29,370.0)	20,249.8	(54,372.2)	(1,936.3)
Other financial assets	(4,601.3)	3,383.5	1,389.5	49.5
Other current assets	(513.0)	(76.3)	(1,358.1)	(48.4)
Other noncurrent assets	152.6	—	—	—
Accounts payable	4,540.6	5,860.1	404.6	14.4
Payables to related parties	(279.9)	58.4	672.8	24.0
Salary and bonus payable	216.5	1,800.9	3,798.9	135.3
Accrued profit sharing bonus to employees and compensation to directors and supervisors	562.0	(332.2)	12,032.1	428.5
Accrued expenses and other current liabilities	(20,226.4)	(2,372.0)	20,617.4	734.2
Net defined benefit liability	(60.5)	(215.0)	(785.2)	(28.0)
Cash generated from operations	619,336.8	667,182.8	874,028.6	31,126.3
Income taxes paid	(45,382.5)	(52,044.1)	(51,362.4)	(1,829.1)
Net cash generated by operating activities	<u>573,954.3</u>	<u>615,138.7</u>	<u>822,666.2</u>	<u>29,297.2</u>

(Continued)

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In Millions of New Taiwan Dollars or U.S. Dollars)

	2018	2019	2020	
	NT\$	NT\$	NT\$	US\$ (Note 3)
CASH FLOWS FROM INVESTING ACTIVITIES				
Acquisitions of:				
Financial instruments at fair value through profit or loss—debt instruments	\$ (310.5)	\$ (124.7)	\$ —	\$ —
Financial assets at fair value through other comprehensive income	(96,412.8)	(257,558.2)	(262,637.5)	(9,353.2)
Financial assets at amortized cost	(2,294.1)	(313.9)	(4,302.8)	(153.2)
Property, plant and equipment	(315,581.9)	(460,422.2)	(507,238.7)	(18,064.1)
Intangible assets	(7,100.3)	(9,329.9)	(9,542.4)	(339.8)
Proceeds from disposal or redemption of:				
Financial instruments at fair value through profit or loss—debt instruments	487.2	2,418.2	30.0	1.1
Financial assets at fair value through other comprehensive income	86,639.3	230,444.5	266,931.9	9,506.1
Financial assets at amortized cost	2,032.4	14,349.2	285.2	10.2
Property, plant and equipment	181.5	287.3	606.7	21.6
Intangible assets	0.5	—	—	—
Proceeds from return of capital of investments in equity instruments at fair value through other comprehensive income	127.9	1.1	51.1	1.8
Derecognition of hedging financial instruments	250.5	(436.6)	(308.8)	(11.0)
Interest received	14,660.4	16,875.0	9,775.1	348.1
Proceeds from government grants—property, plant and equipment	—	2,565.3	1,044.3	37.2
Proceeds from government grants—land use right and others	—	850.6	25.4	0.9
Other dividends received	158.4	320.2	735.1	26.2
Dividends received from investments accounted for using equity method	3,262.9	1,719.0	2,752.1	98.0
Increase in prepayments for leases	—	—	(4,693.4)	(167.1)
Refundable deposits paid	(2,227.5)	(1,465.8)	(726.9)	(25.9)
Refundable deposits refunded	1,857.2	1,019.3	1,431.9	51.0
Net cash used in investing activities	<u>(314,268.9)</u>	<u>(458,801.6)</u>	<u>(505,781.7)</u>	<u>(18,012.1)</u>
CASH FLOWS FROM FINANCING ACTIVITIES				
Increase (decrease) in short-term loans	23,923.0	31,804.3	(31,571.6)	(1,124.3)
Proceeds from short-term bills payable	—	—	7,485.3	266.6
Repayments of short-term bills payable	—	—	(7,500.0)	(267.1)
Proceeds from issuance of bonds	—	—	236,725.7	8,430.4
Repayment of bonds	(58,024.9)	(34,900.0)	(31,800.0)	(1,132.5)
Proceeds from long-term bank loans	—	—	2,000.0	71.2
Payments for transaction costs attributable to the issuance of bonds	—	—	(390.7)	(13.9)
Repayment of the principal portion of lease liabilities	—	(2,930.6)	(2,615.7)	(93.2)
Interest paid	(3,233.4)	(3,597.1)	(1,781.1)	(63.4)
Guarantee deposits received	1,668.9	62.2	145.6	5.2
Guarantee deposits refunded	(1,948.1)	(701.3)	(16.1)	(0.6)
Cash dividends	(207,443.0)	(259,303.8)	(259,303.8)	(9,234.5)
Donation from shareholders	10.1	4.0	7.3	0.3
Decrease in non-controlling interests	(77.4)	(75.9)	—	—
Net cash used in financing activities	<u>(245,124.8)</u>	<u>(269,638.2)</u>	<u>(88,615.1)</u>	<u>(3,155.8)</u>
EFFECT OF EXCHANGE RATE CHANGES ON CASH AND CASH EQUIVALENTS	\$ 9,862.3	\$ (9,114.2)	\$ (23,498.1)	\$ (836.8)
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	24,422.9	(122,415.3)	204,771.3	7,292.5
CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR	553,391.7	577,814.6	455,399.3	16,217.9
CASH AND CASH EQUIVALENTS, END OF YEAR	<u>\$ 577,814.6</u>	<u>\$ 455,399.3</u>	<u>\$ 660,170.6</u>	<u>\$ 23,510.4</u>

The accompanying notes are an integral part of the consolidated financial statements.

(Concluded)

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. GENERAL

Taiwan Semiconductor Manufacturing Company Limited (TSMC), a Republic of China (R.O.C.) corporation, was incorporated on February 21, 1987. TSMC is a dedicated foundry in the semiconductor industry which engages mainly in the manufacturing, selling, packaging, testing and computer-aided design of integrated circuits and other semiconductor devices and the manufacturing of masks.

On September 5, 1994, TSMC's shares were listed on the Taiwan Stock Exchange (TWSE). On October 8, 1997, TSMC listed some of its shares of stock on the New York Stock Exchange (NYSE) in the form of American Depositary Shares (ADSs).

The address of its registered office and principal place of business is No. 8, Li-Hsin Rd. 6, Hsinchu Science Park, Taiwan. The principal operating activities of TSMC's subsidiaries are described in Note 5.

2. THE AUTHORIZATION OF FINANCIAL STATEMENTS

The accompanying consolidated financial statements were authorized for issue by the management on April 16, 2021.

3. U.S. DOLLAR AMOUNTS

TSMC and its subsidiaries (collectively as the "Company") maintain its accounts and express its consolidated financial statements in New Taiwan dollars. For convenience only, U.S. dollar amounts presented in the accompanying consolidated financial statements have been translated from New Taiwan dollars at the exchange rate as set forth in the statistical release of the Federal Reserve Board of the United States, which was NT\$28.08 to US\$1.00 as of December 31, 2020. The convenience translations should not be construed as representations that the New Taiwan dollar amounts have been, could have been, or could in the future be, converted into U.S. dollars at this or any other rate of exchange.

4. APPLICATION OF NEW AND REVISED INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS), INTERNATIONAL ACCOUNTING STANDARDS (IAS), IFRIC INTERPRETATIONS (IFRIC), AND SIC INTERPRETATIONS (SIC) ISSUED BY THE INTERNATIONAL ACCOUNTING STANDARDS BOARD (IASB) (collectively, "IFRSs").

- a. Amendments to IFRSs and the new interpretation that are mandatorily effective for the current year

<u>New, Revised or Amended Standards and Interpretations</u>	<u>Effective Date Issued by IASB</u>
Amendments to IFRS 3 "Definition of a Business"	January 1, 2020 (Note 1)
Amendments to IFRS 9, IAS 39 and IFRS 7 "Interest Rate Benchmark Reform"	January 1, 2020 (Note 2)
Amendments to IAS 1 and IAS 8 "Definition of Material"	January 1, 2020 (Note 3)
Amendment to IFRS 16 "Covid-19-Related Rent Concessions"	June 1, 2020 (Note 4)

Note 1: The Company shall apply these amendments to business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after January 1, 2020 and to asset acquisitions that occur on or after the beginning of that period.

Note 2: The Company shall apply these amendments retrospectively for annual reporting periods beginning on or after January 1, 2020.

Note 3: The Company shall apply these amendments prospectively for annual reporting periods beginning on or after January 1, 2020.

Note 4: The Company shall apply these amendments for annual reporting periods beginning on or after June 1, 2020. The Company has early adopted the amendments on January 1, 2020.

The Company believes that the adoption of aforementioned standards or interpretations did not have a significant effect on the Company's accounting policies

- b. New and revised standards, amendments and interpretations in issue but not yet effective

<u>New, Revised or Amended Standards and Interpretations</u>	<u>Effective Date Issued by IASB</u>
Annual Improvements to IFRS Standards 2018—2020	January 1, 2022
Amendments to IFRS 3 “Reference to the Conceptual Framework”	January 1, 2022
Amendments to IFRS 9, IAS 39, IFRS 7 and IFRS 16 “Interest Rate Benchmark Reform—Phase 2”	January 1, 2021
Amendments to IFRS 10 and IAS 28 “Sale or Contribution of Assets between an Investor and its Associate or Joint Venture”	To be determined by IASB
Amendments to IAS 1 “Classification of Liabilities as Current or Non-current”	January 1, 2023
Amendments to IAS 1 “Disclosure of Accounting Policies”	January 1, 2023
Amendments to IAS 8 “Definition of Accounting Estimates”	January 1, 2023
Amendments to IAS 16 “Property, Plant and Equipment—Proceeds before Intended Use”	January 1, 2022
Amendments to IAS 37 “Onerous Contracts—Cost of Fulfilling a Contract”	January 1, 2022

As of the date the accompanying consolidated financial statements were authorized for issue, the Company continues in evaluating the impact on its financial position and financial performance as a result of the initial adoption of the aforementioned standards or interpretations and related applicable period. The related impact will be disclosed when the Company completes the evaluation.

5. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Significant accounting policies are summarized as follows:

Statement of Compliance

The accompanying consolidated financial statements have been prepared in accordance with IFRSs.

Basis of Preparation

The accompanying consolidated financial statements have been prepared on the historical cost basis except for financial instruments that are measured at fair values, as explained in the accounting policies below. Historical cost is generally based on the fair value of the consideration given in exchange for the assets.

Basis of Consolidation

The basis for the consolidated financial statements

The consolidated financial statements incorporate the financial statements of TSMC and entities controlled by TSMC (its subsidiaries).

Income and expenses of subsidiaries acquired or disposed of are included in the consolidated statements of profit or loss and other comprehensive income from the effective date of acquisition and up to the effective date of disposal, as appropriate. Total comprehensive income of subsidiaries is attributed to the shareholders of the parent and to the non-controlling interests even if this results in the non-controlling interests having a deficit balance.

When necessary, adjustments are made to the financial statements of subsidiaries to bring their accounting policies into line with those used by the Company.

All intra-group transactions, balances, income and expenses are eliminated in full on consolidation.

Changes in the Company's ownership interests in subsidiaries that do not result in the Company losing control over the subsidiaries are accounted for as equity transactions. The carrying amounts of the Company's interests and the non-controlling interests are adjusted to reflect the changes in their relative interests in the subsidiaries. Any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received is recognized directly in equity and attributed to shareholders of the parent.

When the Company loses control of a subsidiary, a gain or loss is recognized in profit or loss and is calculated as the difference between:

- a. the aggregate of the fair value of consideration received and the fair value of any retained interest at the date when control is lost; and
- b. the previous carrying amount of the assets (including goodwill), and liabilities of the subsidiary and any non-controlling interest.

The Company shall account for all amounts recognized in other comprehensive income in relation to the subsidiary on the same basis as would be required if the Company had directly disposed of the related assets and liabilities.

The fair value of any investment retained in the former subsidiary at the date when control is lost is regarded as the cost on initial recognition of an investment in an associate.

The subsidiaries in the consolidated financial statements

The detail information of the subsidiaries at the end of reporting period was as follows:

Name of Investor	Name of Investee	Main Businesses and Products	Establishment and Operating Location	Percentage of Ownership		Note
				December 31, 2019	December 31, 2020	
TSMC	TSMC North America	Selling and marketing of integrated circuits and other semiconductor devices	San Jose, California, U.S.A.	100%	100%	—
	TSMC Europe B.V. (TSMC Europe)	Customer service and supporting activities	Amsterdam, the Netherlands	100%	100%	a)
	TSMC Japan Limited (TSMC Japan)	Customer service and supporting activities	Yokohama, Japan	100%	100%	a)
	TSMC Design Technology Japan, Inc. (TSMC JDC)	Engineering support activities	Yokohama, Japan	—	100%	a), b)
	TSMC Korea Limited (TSMC Korea)	Customer service and supporting activities	Seoul, Korea	100%	100%	a)
TSMC	TSMC Partners, Ltd. (TSMC Partners)	Investing in companies involved in the design, manufacture, and other related business in the semiconductor industry and other investment activities	Tortola, British Virgin Islands	100%	100%	a)
	TSMC Global, Ltd. (TSMC Global)	Investment activities	Tortola, British Virgin Islands	100%	100%	—
	TSMC China Company Limited (TSMC China)	Manufacturing, selling, testing and computer-aided design of integrated circuits and other semiconductor devices	Shanghai, China	100%	100%	—
	TSMC Nanjing Company Limited (TSMC Nanjing)	Manufacturing, selling, testing and computer-aided design of integrated circuits and other semiconductor devices	Nanjing, China	100%	100%	d)

(Continued)

Name of Investor	Name of Investee	Main Businesses and Products	Establishment and Operating Location	Percentage of Ownership		Note
				December 31, 2019	December 31, 2020	
	VisEra Technologies Company Ltd. (VisEra Tech)	Engaged in manufacturing electronic spare parts and in researching, developing, designing, manufacturing, selling, packaging and testing of color filter	Hsin-Chu, Taiwan	87%	87%	—
	TSMC Arizona Corporation (TSMC Arizona)	Manufacturing, selling and testing of integrated circuits and other semiconductor devices	Phoenix, Arizona, U.S.A.	—	100%	a), c)
	VentureTech Alliance Fund II, L.P. (VTAF II)	Investing in new start-up technology companies	Cayman Islands	98%	98%	a)
	VentureTech Alliance Fund III, L.P. (VTAF III)	Investing in new start-up technology companies	Cayman Islands	98%	98%	a)
TSMC Partners	TSMC Development, Inc. (TSMC Development)	Investing in companies involved in the manufacturing related business in the semiconductor industry	Delaware, U.S.A.	100%	100%	—
	TSMC Technology, Inc. (TSMC Technology)	Engineering support activities	Delaware, U.S.A.	100%	100%	a)
	TSMC Design Technology Canada Inc. (TSMC Canada)	Engineering support activities	Ontario, Canada	100%	100%	a)
	InveStar Semiconductor Development Fund, Inc. (ISDF)	Investing in new start-up technology companies	Cayman Islands	97%	—	a), e)
	InveStar Semiconductor Development Fund, Inc. (II) LDC. (ISDF II)	Investing in new start-up technology companies	Cayman Islands	97%	—	a), e)
TSMC Development . .	WaferTech, LLC (WaferTech)	Manufacturing, selling and testing of integrated circuits and other semiconductor devices	Washington, U.S.A.	100%	100%	—
VTAF III	Growth Fund Limited (Growth Fund)	Investing in new start-up technology companies	Cayman Islands	100%	100%	a)

(Concluded)

Note a: This is an immaterial subsidiary for which the consolidated financial statements are not audited by the Company's independent auditors.

Note b: TSMC JDC has been established in January 2020.

Note c: TSMC Arizona has been established in November 2020. Under the terms of the development agreement entered into between TSMC Arizona and the City of Phoenix in March 2021, the City of Phoenix commits approximately US\$205 million toward various public infrastructure projects in the area of the proposed manufacturing facility, conditioned on TSMC Arizona's achieving a minimum project scale with defined spending and job-creation thresholds.

Note d: Under the investment agreement entered into with the municipal government of Nanjing, China, the Company will make an investment in Nanjing in the amount of approximately US\$3 billion to establish a subsidiary operating a 300mm wafer fab with the capacity of 20,000 12-inch wafers per month, and a design service center. The aforementioned 300mm wafer fab has reached the capacity of 20,000 12-inch wafers per month.

Note e: ISDF and ISDF II have completed the liquidation procedures in November 2020.

Foreign Currencies

The financial statements of each individual consolidated entity were expressed in the currency which reflected its primary economic environment (functional currency). The functional currency of TSMC and presentation currency of the consolidated financial statements are both New Taiwan Dollars (NT\$). In preparing the consolidated financial statements, the operating results and financial positions of each consolidated entity are translated into NT\$.

In preparing the financial statements of each individual consolidated entity, transactions in currencies other than the entity's functional currency (foreign currencies) are recognized at the rates of exchange prevailing at the dates of the transactions. At the end of each reporting period, monetary items denominated in foreign currencies are retranslated at the rates prevailing at that date. Such exchange differences are recognized in profit or loss in the year in which they arise. Non-monetary

items measured at fair value that are denominated in foreign currencies are retranslated at the rates prevailing at the date when the fair value was determined. Exchange differences arising on the retranslation of non-monetary items are included in profit or loss for the year except for exchange differences arising on the retranslation of non-monetary items in respect of which gains and losses are recognized directly in other comprehensive income, in which case, the exchange differences are also recognized directly in other comprehensive income. Non-monetary items that are measured in terms of historical cost in foreign currencies are not retranslated.

For the purposes of presenting consolidated financial statements, the assets and liabilities of the Company's foreign operations are translated into NT\$ using exchange rates prevailing at the end of each reporting period. Income and expense items are translated at the average exchange rates for the period. Exchange differences arising, if any, are recognized in other comprehensive income and accumulated in equity (attributed to non-controlling interests as appropriate).

Classification of Current and Noncurrent Assets and Liabilities

Current assets are assets held for trading purposes and assets expected to be converted to cash, sold or consumed within one year from the end of the reporting period. Current liabilities are obligations incurred for trading purposes and obligations expected to be settled within one year from the end of the reporting period. Assets and liabilities that are not classified as current are noncurrent assets and liabilities, respectively.

Cash Equivalents

Cash equivalents, for the purpose of meeting short-term cash commitments, consist of highly liquid time deposits and investments that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value.

Financial Instruments

Financial assets and liabilities shall be recognized when the Company becomes a party to the contractual provisions of the instruments.

Financial assets and liabilities are initially recognized at fair values. Transaction costs that are directly attributable to the acquisition or issue of financial assets and financial liabilities (other than financial assets and financial liabilities at fair value through profit or loss) are added to or deducted from the fair value of the financial assets or financial liabilities, as appropriate, on initial recognition. Transaction costs directly attributable to the acquisition of financial assets or financial liabilities at fair value through profit or loss are recognized immediately in profit or loss.

Financial Assets

The classification of financial assets depends on the nature and purpose of the financial assets and is determined at the time of initial recognition. Regular way purchases or sales of financial assets are recognized and derecognized on a trade date or settlement date basis for which financial assets were classified in the same way, respectively. Regular way purchases or sales are purchases or sales of financial assets that require delivery of assets within the time frame established by regulation or convention in the marketplace.

a. Category of financial assets and measurement

Financial assets are classified into the following categories: financial assets at FVTPL, investments in debt instruments and equity instruments at FVTOCI, and financial assets at amortized cost.

1) Financial asset at FVTPL

For certain financial assets which include debt instruments that do not meet the criteria of amortized cost or FVTOCI, it is mandatorily required to measure them at FVTPL. Any gain or loss

arising from remeasurement is recognized in profit or loss. The net gain or loss recognized in profit or loss incorporates any interest earned on the financial asset.

2) Investments in debt instruments at FVTOCI

Debt instruments with contractual terms specifying that cash flows are solely payments of principal and interest on the principal amount outstanding, together with objective of collecting contractual cash flows and selling the financial assets, are measured at FVTOCI.

Interest income calculated using the effective interest method, foreign exchange gains and losses and impairment gains or losses on investments in debt instruments at FVTOCI are recognized in profit or loss. Other changes in the carrying amount of these debt instruments are recognized in other comprehensive income and will be reclassified to profit or loss when these debt instruments are disposed.

3) Investments in equity instruments at FVTOCI

On initial recognition, the Company may irrevocably designate investments in equity investments that is not held for trading as at FVTOCI.

Investments in equity instruments at FVTOCI are subsequently measured at fair value with gains and losses arising from changes in fair value recognized in other comprehensive income and accumulated in other equity.

Dividends on these investments in equity instruments at FVTOCI are recognized in profit or loss when the Company's right to receive the dividends is established, unless the Company's rights clearly represent a recovery of part of the cost of the investment.

4) Measured at amortized cost

Cash and cash equivalents, debt instrument investments, notes and accounts receivable (including related parties), other receivables and refundable deposits are measured at amortized cost.

Debt instruments with contractual terms specifying that cash flows are solely payments of principal and interest on the principal amount outstanding, together with objective of holding financial assets in order to collect contractual cash flows, are measured at amortized cost.

Subsequent to initial recognition, financial assets measured at amortized cost are measured at amortized cost, which equals to carrying amount determined by the effective interest method less any impairment loss.

b. Impairment of financial assets

At the end of each reporting period, a loss allowance for expected credit loss is recognized for financial assets at amortized cost (including accounts receivable) and for investments in debt instruments that are measured at FVTOCI.

The loss allowance for accounts receivable is measured at an amount equal to lifetime expected credit losses. For financial assets at amortized cost and investments in debt instruments that are measured at FVTOCI, when the credit risk on the financial instrument has not increased significantly since initial recognition, a loss allowance is recognized at an amount equal to expected credit loss resulting from possible default events of a financial instrument within 12 months after the reporting date. If, on the other hand, there has been a significant increase in credit risk since initial recognition, a loss allowance is recognized at an amount equal to expected credit loss resulting from all possible default events over the expected life of a financial instrument.

The Company recognizes an impairment loss in profit or loss for all financial instruments with a corresponding adjustment to their carrying amount through a loss allowance account, except for investments in debt instruments that are measured at FVTOCI, for which the loss allowance is recognized in other comprehensive income and does not reduce the carrying amount of the financial asset.

c. **Derecognition of financial assets**

The Company derecognizes a financial asset only when the contractual rights to the cash flows from the financial asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership of the financial asset to another entity.

On derecognition of a financial asset at amortized cost in its entirety, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognized in profit or loss. On derecognition of an investment in a debt instrument at FVTOCI, the difference between the asset's carrying amount and the sum of the consideration received and receivable and the cumulative gain or loss that had been recognized in other comprehensive income is recognized in profit or loss. However, on derecognition of an investment in an equity instrument at FVTOCI, the cumulative gain or loss that had been recognized in other comprehensive income is transferred directly to retained earnings, without recycling through profit or loss.

Financial Liabilities and Equity Instruments

Classification as debt or equity

Debt and equity instruments issued by the Company are classified as either financial liabilities or as equity in accordance with the substance of the contractual arrangements and the definitions of a financial liability and an equity instrument.

Equity instruments

An equity instrument is any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities. Equity instruments issued by the Company are recognized at the proceeds received, net of direct issue costs.

Financial liabilities

Financial liabilities are subsequently measured either at amortized cost using effective interest method or at FVTPL.

Financial liabilities are classified as at fair value through profit or loss when the financial liability is either held for trading or is designated as at fair value through profit or loss.

Financial liabilities at fair value through profit or loss are stated at fair value, with any gains or losses arising on remeasurement recognized in profit or loss.

Financial liabilities other than those held for trading purposes and designated as at FVTPL are subsequently measured at amortized cost at the end of each reporting period.

Derecognition of financial liabilities

The Company derecognizes financial liabilities when, and only when, the Company's obligations are discharged, cancelled or they expire. The difference between the carrying amount of the financial liability derecognized and the consideration paid and payable is recognized in profit or loss.

Derivative Financial Instruments

Derivative financial instruments are initially recognized at fair value at the date the derivative contracts are entered into and are subsequently remeasured to their fair value at the end of each reporting period. The resulting gain or loss is recognized in profit or loss immediately unless the derivative financial instrument is designated and effective as a hedging instrument, in which event the timing of the recognition in profit or loss depends on the nature of the hedge relationship.

Hedge Accounting

a. **Fair value hedge**

The Company designates certain hedging instruments, such as interest rate futures contracts, to partially hedge against the fair value change caused by interest rates fluctuation in the Company's fixed income investments. Changes in the fair value of hedging instrument that are designated and qualify as fair value hedges are recognized in profit or loss immediately, together with any changes in the fair value of the hedged items that are attributable to the hedged risk.

b. Cash flow hedge

The Company designates certain hedging instruments, such as forward exchange contracts and foreign currency deposits, to partially hedge its foreign exchange rate risks associated with certain highly probable forecast transactions (capital expenditures). The effective portion of changes in the fair value of hedging instruments is recognized in other comprehensive income. When the forecast transactions actually take place, the associated gains or losses that were recognized in other comprehensive income are removed from equity and included in the initial cost of the hedged items. The gains or losses from hedging instruments relating to the ineffective portion are recognized immediately in profit or loss.

The Company prospectively discontinues hedge accounting only when the hedging relationship ceases to meet the qualifying criteria; for instance, when the hedging instrument expires or is sold, terminated or exercised.

Inventories

Inventories are stated at the lower of cost or net realizable value. Inventories are recorded at standard cost and adjusted to approximate weighted-average cost at the end of the reporting period. Net realizable value represents the estimated selling price of inventories less all estimated costs of completion and costs necessary to make the sale.

Investments Accounted for Using Equity Method

Investments accounted for using the equity method are investments in associates.

An associate is an entity over which the Company has significant influence and that is neither a subsidiary nor a joint venture. Significant influence is the power to participate in the financial and operating policy decisions of the investee but is not control or joint control over those policies.

The operating results and assets and liabilities of associates are incorporated in these consolidated financial statements using the equity method of accounting. Under the equity method, an investment in an associate is initially recognized in the consolidated statements of financial position at cost and adjusted thereafter to recognize the Company's share of profit or loss and other comprehensive income of the associate as well as the distribution received. The Company also recognizes its share in the changes in the equities of associates.

Any excess of the cost of acquisition over the Company's share of the net fair value of the identifiable assets, liabilities and contingent liabilities of an associate recognized at the date of acquisition is recognized as goodwill, which is included within the carrying amount of the investment. Any excess of the Company's share of the net fair value of the identifiable assets, liabilities and contingent liabilities over the cost of acquisition, after reassessment, is recognized immediately in profit or loss.

When necessary, the entire carrying amount of the investment (including goodwill) is tested for impairment as a single asset by comparing its recoverable amount (higher of value in use and fair value less costs to sell) with its carrying amount. Any impairment loss recognized forms part of the carrying amount of the investment. Any reversal of that impairment loss is recognized to the extent that the recoverable amount of the investment subsequently increases.

When the Company subscribes to additional shares in an associate at a percentage different from its existing ownership percentage, the resulting carrying amount of the investment differs from the amount of the Company's proportionate interest in the net assets of the associate. The Company records such a difference as an adjustment to investments with the corresponding amount charged or credited to capital surplus. If the Company's ownership interest is reduced due to the additional subscription to the shares of associate by other investors, the proportionate amount of the gains or losses previously recognized in other comprehensive income in relation to that associate shall be reclassified to profit or loss on the same basis as would be required if the associate had directly disposed of the related assets or liabilities.

When a consolidated entity transacts with an associate, profits and losses resulting from the transactions with the associate are recognized in the Company's consolidated financial statements only to the extent of interests in the associate that are not owned by the Company.

Property, Plant and Equipment

Property, plant and equipment are measured at cost less accumulated depreciation and accumulated impairment. Costs include any incremental costs that are directly attributable to the construction or acquisition of the item of property, plant and equipment.

Property, plant and equipment in the course of construction for production, supply or administrative purposes are carried at cost, less any recognized impairment loss. Such assets are classified to the appropriate categories of property, plant and equipment when completed and ready for intended use. Depreciation of these assets, on the same basis as other identical categories of property, plant and equipment, commences when the assets are available for their intended use.

Depreciation is recognized so as to write off the cost of the assets less their residual values over their useful lives, and it is computed using the straight-line method mainly over the following estimated useful lives: land improvements - 20 years; buildings (assets used by the Company and assets subject to operating leases) - 10 to 20 years; machinery and equipment (assets used by the Company and assets subject to operating leases) - 5 years; and office equipment - 5 years. The estimated useful lives, residual values and depreciation method are reviewed at the end of each reporting period, with the effect of any changes in estimates accounted for on a prospective basis. Land is not depreciated.

An item of property, plant and equipment is derecognized upon disposal or when no future economic benefits are expected to arise from the continued use of the assets. Any gain or loss arising on the disposal or retirement of an item of property, plant and equipment is determined as the difference between the sales proceeds and the carrying amount of the asset and is recognized in profit or loss.

Leases

2018

Leases are classified as finance lease whenever the terms of the lease transfer substantially all the risks and rewards of ownership to the lessee. All other leases are classified as operating leases.

The Company as lessor

Rental income from operating leases is recognized on a straight-line basis over the term of the lease.

The Company as lessee

Operating lease payments are recognized as an expense on a straight-line basis over the lease term.

2019 and 2020

For a contract that contains a lease component and non-lease component, the Company may elect to account for the lease and non-lease components as a single lease component.

The Company as lessor

Rental income from operating lease is recognized on a straight-line basis over the term of the lease.

The Company as lessee

Except for payments for low-value asset leases and short-term leases (leases of machinery and equipment and others) which are recognized as expenses on a straight-line basis, the Company recognizes right-of-use assets and lease liabilities for all leases at the commencement date of the lease.

Right-of-use assets are measured at cost. The cost of right-of-use assets comprises the initial measurement of lease liabilities adjusted for lease payments and initial direct costs made at or before the commencement date, plus an estimate of costs needed to restore the underlying assets. Subsequent measurement is calculated as cost less accumulated depreciation and accumulated impairment loss and adjusted for changes in lease liabilities as a result of lease term modifications or other related factors. Right-of-use assets are presented separately in the consolidated statements of financial position.

Right-of-use assets are depreciated using the straight-line method from the commencement dates to the earlier of the end of the useful lives of the right-of-use assets or the end of the lease terms. If the lease transfers ownership of the underlying assets to the Company by the end of the lease terms or if the cost of right-of-use assets reflects that the Company will exercise a purchase option, the Company depreciates the right-of-use assets from the commencement dates to the end of the useful lives of the underlying assets.

Lease liabilities are measured at the present value of the lease payments. Lease payments comprise fixed payments, variable lease payments which depend on an index or a rate and the exercise price of a purchase option if the Company is reasonably certain to exercise that option. The lease payments are discounted using the lessee's incremental borrowing rates.

Subsequently, lease liabilities are measured at amortized cost using the effective interest method, with interest expense recognized over the lease terms. When there is a change in a lease term, a change in future lease payments resulting from a change in an index or a rate used to determine those payments, or a change in the assessment of an option to purchase an underlying asset, the Company remeasures the lease liabilities with a corresponding adjustment to the right-of-use assets. Lease liabilities are presented on a separate line in the consolidated statements of financial position.

Variable lease payments that do not depend on an index or a rate are recognized as expenses in the periods in which they are incurred.

Intangible Assets

Goodwill

Goodwill arising on an acquisition of a business is carried at cost as established at the date of acquisition of the business less accumulated impairment losses, if any.

Other intangible assets

Other separately acquired intangible assets with finite useful lives are carried at cost less accumulated amortization and accumulated impairment losses. Amortization is recognized using the straight-line method over the following estimated useful lives: Technology license fees—the estimated life of the technology or the term of the technology transfer contract; software and system design costs—3 years or contract period; patent and others—the economic life or contract period. The estimated useful life and amortization method are reviewed at the end of each reporting period, with the effect of any changes in estimate being accounted for on a prospective basis.

Impairment of Tangible Assets, Right-of-use Assets and Intangible Assets

Goodwill

Goodwill is not amortized and instead is tested for impairment annually, or more frequently when there is an indication that the cash generating unit may be impaired. For the purpose of impairment testing, goodwill is allocated to each of the Company's cash-generating units or groups of cash-generating units that are expected to benefit from the synergies of the combination. If the recoverable amount of a cash-generating unit is less than its carrying amount, the difference is allocated first to reduce the carrying amount of any goodwill allocated to such cash generating unit and then to the other assets of the cash generating unit pro rata based on the carrying amount of each asset in the cash generating unit. Any impairment loss for goodwill is recognized directly in profit or loss. An impairment loss recognized for goodwill is not reversed in subsequent periods.

Tangible assets, right-of-use assets and other intangible assets

At the end of each reporting period, the Company reviews the carrying amounts of its tangible assets (property, plant and equipment), right-of-use assets and other intangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss. When it is not possible to estimate the recoverable amount of an individual asset, the Company estimates the recoverable amount of the cash-generating unit to which the asset belongs. When a reasonable and consistent basis of allocation can be identified, corporate assets are also allocated to individual cash-generating units, or otherwise they are allocated to the smallest group of cash-generating units for which a reasonable and consistent allocation basis can be identified.

Recoverable amount is the higher of fair value less costs to sell and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset for which the estimates of future cash flows have not been adjusted.

If the recoverable amount of an asset or cash-generating unit is estimated to be less than its carrying amount, the carrying amount of the asset or cash-generating unit is reduced to its recoverable amount. An impairment loss is recognized immediately in profit or loss.

When an impairment loss subsequently reverses, the carrying amount of the asset or a cash-generating unit is increased to the revised estimate of its recoverable amount, but the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognized for the asset or cash-generating unit in prior years. A reversal of an impairment loss is recognized immediately in profit or loss.

Guarantee Deposit

Guarantee deposit mainly consists of cash received under deposit agreements with customers to ensure they have access to the Company's specified capacity. Cash received from customers is recorded as guarantee deposit upon receipt. Guarantee deposits are refunded to customers when terms and conditions set forth in the deposit agreements have been satisfied.

Revenue Recognition

The Company recognizes revenue when performance obligations are satisfied. The performance obligations are satisfied when customers obtain control of the promised goods, which is generally when the goods are delivered to the customers' specified locations.

Revenue from sale of goods is measured at the fair value of the consideration received or receivable. Revenue is reduced for estimated customer returns, rebates and other similar allowances. Estimated sales returns and other allowances is generally made and adjusted based on historical experience and the consideration of varying contractual terms to recognize refund liabilities, which is classified under accrued expenses and other current liabilities.

In principle, payment term granted to customers is due 30 days from the invoice date or 30 days from the end of the month of when the invoice is issued. Due to the short term nature of the receivables from sale of goods with the immaterial discounted effect, the Company measures them at the original invoice amounts without discounting.

Employee Benefits

Short-term employee benefits

Liabilities recognized in respect of short-term employee benefits are measured at the undiscounted amount of the benefits expected to be paid in exchange for service rendered by employees.

Retirement benefits

For defined contribution retirement benefit plans, payments to the benefit plan are recognized as an expense when the employees have rendered service entitling them to the contribution. For defined benefit retirement benefit plans, the cost of providing benefit is recognized based on actuarial calculations.

Defined benefit costs (including service cost, net interest and remeasurement) under the defined benefit retirement benefit plans are determined using the Projected Unit Credit Method. Service cost (including current service cost), and net interest on the net defined benefit liability (asset) are recognized as employee benefits expense in the period they occur. Remeasurement, comprising actuarial gains and losses and the return on plan assets (excluding interest), is recognized in other comprehensive income in the period in which they occur. Remeasurement recognized in other comprehensive income is reflected immediately in retained earnings and will not be reclassified to profit or loss.

Net defined benefit liability represents the actual deficit in the Company's defined benefit plan.

Taxation

Income tax expense represents the sum of the tax currently payable and deferred tax.

Current tax

Income tax on unappropriated earnings (excluding earnings from foreign consolidated subsidiaries) is expensed in the year the earnings arise and adjusted to the extent that distributions are approved by the shareholders in the following year.

Adjustments of prior years' tax liabilities are added to or deducted from the current year's tax provision.

Deferred tax

Deferred tax is recognized on temporary differences between the carrying amounts of assets and liabilities in the consolidated financial statements and the corresponding tax bases used in the computation of taxable profit. Deferred tax liabilities are generally recognized for all taxable temporary differences. Deferred tax assets are generally recognized for all deductible temporary differences, net operating loss carryforwards and tax credits for research and development expenses to the extent that it is probable that taxable profits will be available against which those deductible temporary differences can be utilized.

Deferred tax liabilities are recognized for taxable temporary differences associated with investments in subsidiaries and associates, except where the Company is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. Deferred tax assets arising from deductible temporary differences associated with such investments are only recognized to the extent that it is probable that there will be sufficient taxable profits against which to utilize the benefits of the temporary differences and they are expected to reverse in the foreseeable future.

The carrying amount of deferred tax assets is reviewed at the end of each reporting period and reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow all or part of the deferred tax asset to be recovered. The deferred tax assets which originally not recognized is also reviewed at the end of each reporting period and recognized to the extent that it is probable that sufficient taxable profits will be available to allow all or part of the deferred tax asset to be recovered.

Deferred tax liabilities and assets are measured at the tax rates that are expected to apply in the year in which the liability is settled or the asset is realized, 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.

Current and deferred tax for the year

Current and deferred tax are recognized in profit or loss, except when they relate to items that are recognized in other comprehensive income or directly in equity, in which case, the current and deferred tax are also recognized in other comprehensive income or directly in equity, respectively.

Government Grants

Government grants are not recognized until there is reasonable assurance that the Company will comply with the conditions attaching to them and that the grants will be received.

Government grants whose primary condition is that the Company should purchase, construct or otherwise acquire noncurrent assets (mainly including land use right and depreciable assets) are recognized as a deduction from the carrying amount of the related assets and recognized as a reduced depreciation or amortization charge in profit or loss over the contract period or useful lives of the related assets. Government grants that are receivables as compensation for expenses already incurred are deducted from incurred expenses in the period in which they become receivables.

6. CRITICAL ACCOUNTING JUDGMENTS AND KEY SOURCES OF ESTIMATION AND UNCERTAINTY

The Company has considered the economic implications of COVID-19 on critical accounting estimates and will continue evaluating the impact on its financial position and financial performance as a result of the pandemic.

In the application of the aforementioned Company's accounting policies, the Company is required to make judgments, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the year in which the estimate is revised if the revision affects only that year, or in the year of the revision and future years if the revision affects both current and future years.

Critical Accounting Judgments

Revenue Recognition

The Company recognizes revenue when the conditions described in Note 5 are satisfied.

Commencement of Depreciation Related to Property, Plant and Equipment Classified as Equipment under Installation and Construction in Progress (EUI/CIP)

As described in Note 5, commencement of depreciation related to EUI/CIP involves determining when the assets are available for their intended use. The criteria the Company uses to determine whether EUI/CIP are available for their intended use involves subjective judgments and assumptions about the conditions necessary for the assets to be capable of operating in the intended manner.

Judgments on Lease Terms

In determining a lease term, the Company considers all facts and circumstances that create an economic incentive to exercise or not to exercise an option, including any expected changes in facts and circumstances from the commencement date until the exercise date of the option. Main factors considered include contractual terms and conditions covered by the optional periods, and the importance of the underlying asset to the lessee's operations, etc. The lease term is reassessed if a significant change in circumstances that are within the control of the Company occurs.

Key Sources of Estimation and Uncertainty

Estimation of Sales Returns and Allowances

Sales returns and other allowance is estimated and recorded based on historical experience and in consideration of different contractual terms. The amount is deducted from revenue in the same period the related revenue is recorded. The Company periodically reviews the reasonableness of the estimates.

Valuation of Inventory

Inventories are stated at the lower of cost or net realizable value, and the Company uses estimate to determine the net realizable value of inventory at the end of each reporting period.

The Company estimates the net realizable value of inventory for normal waste, obsolescence and unmarketable items at the end of reporting period and then writes down the cost of inventories to net realizable value. The net realizable value of the inventory is determined mainly based on assumptions of future demand within a specific time horizon.

Impairment of Tangible Assets, Right-of-use Assets and Intangible Assets Other than Goodwill

In the process of evaluating the potential impairment of tangible assets, right-of-use assets and intangible assets other than goodwill, the Company determines the independent cash flows, useful lives, expected future revenue and expenses related to the specific asset groups with the consideration of the nature of semiconductor industry. Any change in these estimates based on changed economic conditions or business strategies could result in significant impairment charges or reversal in future years.

Realization of Deferred Income Tax Assets

Deferred tax assets are recognized to the extent that it is probable that future taxable profits will be available against which those deferred tax assets can be utilized. Assessment of the realization of the deferred tax assets requires subjective judgment and estimate, including the future revenue growth and profitability, tax holidays, the amount of tax credits can be utilized and feasible tax planning strategies. Any changes in the global economic environment, the industry trends and relevant laws and regulations could result in significant adjustments to the deferred tax assets.

Determination of Lessees' Incremental Borrowing Rates

In determining a lessee's incremental borrowing rate used in discounting lease payments, the Company mainly takes into account the market risk-free rates, the estimated lessee's credit spreads and secured status in a similar economic environment.

7. CASH AND CASH EQUIVALENTS

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
Cash and deposits in banks	\$452,734.4	\$653,580.6
Government bonds	2,188.1	3,716.1
Repurchase agreements	—	1,750.4
Commercial paper	476.8	1,123.5
	<u>\$455,399.3</u>	<u>\$660,170.6</u>

Deposits in banks consisted of highly liquid time deposits that were readily convertible to known amounts of cash and were subject to an insignificant risk of changes in value.

8. FINANCIAL ASSETS AND LIABILITIES AT FAIR VALUE THROUGH PROFIT OR LOSS

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
<u>Financial assets</u>		
Mandatorily measured at FVTPL		
Forward exchange contracts	\$162.1	\$2,259.4
Convertible bonds	123.8	—
Agency mortgage-backed securities	40.9	—
	<u>\$326.8</u>	<u>\$2,259.4</u>
<u>Financial liabilities</u>		
Held for trading		
Forward exchange contracts	<u>\$982.3</u>	<u>\$ 94.1</u>

The Company entered into forward exchange contracts to manage exposures due to fluctuations of foreign exchange rates. These forward exchange contracts did not meet the criteria for hedge accounting. Therefore, the Company did not apply hedge accounting treatment for these forward exchange contracts.

Outstanding forward exchange contracts consisted of the following:

	<u>Maturity Date</u>	<u>Contract Amount (In Millions)</u>
<u>December 31, 2019</u>		
Sell NT\$	January 2020 to June 2020	NT\$108,428.0
Sell JPY	January 2020 to February 2020	JPY57,471.6
Sell US\$	January 2020 to March 2020	US\$529.2
<u>December 31, 2020</u>		
Sell NT\$	January 2021 to March 2021	NT\$144,698.0
Sell US\$	January 2021 to March 2021	US\$1,176.9

9. FINANCIAL ASSETS AT FAIR VALUE THROUGH OTHER COMPREHENSIVE INCOME

	<u>December 31, 2019</u>	<u>December 31, 2020</u>
	<u>NT\$ (In Millions)</u>	<u>NT\$ (In Millions)</u>
Investments in debt instruments at FVTOCI		
Corporate bonds	\$ 51,790.0	\$ 56,593.6
Agency bonds/Agency mortgage-backed securities	51,966.5	43,977.1
Government bonds	12,824.2	13,459.5
Asset-backed securities	10,815.9	8,368.3
	<u>127,396.6</u>	<u>122,398.5</u>
Investments in equity instruments at FVTOCI		
Non-publicly traded equity investments	4,124.3	4,514.9
Publicly traded stocks	—	50.0
	<u>4,124.3</u>	<u>4,564.9</u>
	<u>\$131,520.9</u>	<u>\$126,963.4</u>
Current	\$127,396.6	\$122,448.5
Noncurrent	4,124.3	4,514.9
	<u>\$131,520.9</u>	<u>\$126,963.4</u>

These investments in equity instruments are held for medium to long-term purposes and therefore are accounted for as FVTOCI. For dividends recognized from these investments, please refer to consolidated statements of cash flows. All the dividends are from investments held at the end of the reporting period.

For the years ended December 31, 2018, 2019 and 2020, as the Company adjusted its investment portfolio or the non-publicly traded investee was merged, equity investments designated at FVTOCI were divested for NT\$840.6 million, NT\$873.5 million and NT\$0.01 million, respectively. For the years ended December 31, 2018 and 2020, the related other equity-unrealized gain/loss on financial assets at FVTOCI of NT\$1,193.1 million and NT\$109.0 million were transferred to decrease retained earnings, respectively. For the year ended December 31, 2019, the related other equity-unrealized gain/loss on financial assets at FVTOCI of NT\$156.8 million was transferred to increase retained earnings.

As of December 31, 2019 and 2020, the cumulative loss allowance for expected credit loss of NT\$35.6 million and NT\$32.5 million were recognized under investments in debt instruments at FVTOCI, respectively. Refer to Note 33 for information relating to the credit risk management and expected credit loss.

10. FINANCIAL ASSETS AT AMORTIZED COST

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
Corporate bonds	\$7,651.7	\$10,977.3
Less: Allowance for impairment loss	(2.9)	(7.1)
	<u>\$7,648.8</u>	<u>\$10,970.2</u>
Current	\$ 299.9	\$ 6,598.0
Noncurrent	7,348.9	4,372.2
	<u>\$7,648.8</u>	<u>\$10,970.2</u>

Refer to Note 33 for information relating to credit risk management and expected credit loss for financial assets at amortized cost.

11. HEDGING FINANCIAL INSTRUMENTS

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
<u>Financial assets—current</u>		
Fair value hedges		
Interest rate futures contracts	\$22.4	\$0.1
Cash flow hedges		
Forward exchange contracts	3.5	—
	<u>\$25.9</u>	<u>\$0.1</u>
<u>Financial liabilities—current</u>		
Fair value hedges		
Interest rate futures contracts	\$ —	\$1.2
Cash flow hedges		
Forward exchange contracts	1.8	—
	<u>\$ 1.8</u>	<u>\$1.2</u>

Fair value hedge

The Company entered into interest rate futures contracts, which are used to partially hedge against the fair value changes caused by interest rate fluctuation in the Company's fixed income investments. The hedge ratio is adjusted in response to the changes in the financial market and capped at 100%.

On the basis of economic relationships, the Company expects that the value of the interest rate futures contracts and the value of the hedged financial assets will change in opposite directions in response to movements in interest rates.

The main source of hedge ineffectiveness in these hedging relationships is the credit risk of the hedged financial assets, which is not reflected in the fair value of the interest rate futures contracts. No other sources of ineffectiveness emerged from these hedging relationships during the hedging period. Amount of hedge ineffectiveness recognized in profit or loss is classified under other gains and losses.

The following tables summarize the information relating to the hedges of interest rate risk.

December 31, 2019

<u>Hedging Instruments</u>	<u>Contract Amount (US\$ in Millions)</u>	<u>Maturity</u>
Interest rate futures contracts— US Treasury bonds	US\$122.2	March 2020

<u>Hedged Items</u>	Asset Carrying Amount	Accumulated Amount of Fair Value Hedge Adjustments
	NT\$ (In Millions)	NT\$ (In Millions)
Financial assets at FVTOCI	\$7,364.7	\$(22.4)

December 31, 2020

<u>Hedging Instruments</u>	Contract Amount (US\$ in Millions)	Maturity
Interest rate futures contracts— US Treasury bonds	US\$88.7	March 2021

<u>Hedged Items</u>	Asset Carrying Amount	Accumulated Amount of Fair Value Hedge Adjustments
	NT\$ (In Millions)	NT\$ (In Millions)
Financial assets at FVTOCI	\$6,198.7	\$1.1

The effect for the years ended December 31, 2018, 2019 and 2020 is detailed below:

<u>Hedging Instruments/Hedged Items</u>	Increase (Decrease) in Value Used for Calculating Hedge Ineffectiveness		
	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Hedging Instruments			
Interest rate futures contracts—US Treasury bonds	\$ 11.5	\$(164.7)	\$(353.6)
Hedged Items			
Financial assets at FVTOCI	(13.8)	177.8	353.6
	<u>\$ (2.3)</u>	<u>\$ 13.1</u>	<u>\$ —</u>

Cash flow hedge

The Company entered into forward exchange contracts and foreign currency deposits to partially hedge foreign exchange rate risks associated with certain highly probable forecast transactions (capital expenditures). The hedge ratio is adjusted in response to the changes in the financial market and capped at 100%. The forward exchange contracts have maturities of 12 months or less.

On the basis of economic relationships, the Company expects that the value of forward exchange contracts and foreign currency deposits and the value of hedged transactions will change in opposite directions in response to movements in foreign exchange rates.

The main source of hedge ineffectiveness in these hedging relationships is driven by the effect of the counterparty's own credit risk on the fair value of forward exchange contracts. No other sources of ineffectiveness emerged from these hedging relationships. For the years ended December 31, 2018, 2019 and 2020, refer to Note 23(d) for gain or loss arising from changes in the fair value of hedging instruments and the amount transferred to initial carrying amount of hedged items.

The following tables summarize the information relating to the hedges for foreign currency risk.

December 31, 2019

<u>Hedging Instruments</u>	Contract Amount (In Millions)	Maturity	Balance in Other Equity (Continuing Hedges) NT\$ (In Millions)
Forward exchange contracts	Sell NT\$1,342.4	January 2020	\$(3.8)

The effect for the years ended December 31, 2018, 2019 and 2020 is detailed below:

<u>Hedging Instruments/Hedged Items</u>	Increase (Decrease) in Value Used for Calculating Hedge Ineffectiveness		
	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Hedging Instruments			
Forward exchange contracts	\$ 34.6	\$(109.6)	\$ 24.1
Foreign currency deposits	6.4	—	—
	<u>\$ 41.0</u>	<u>\$(109.6)</u>	<u>\$ 24.1</u>
Hedged Items			
Forecast transaction (capital expenditures)	<u>\$(41.0)</u>	<u>\$ 109.6</u>	<u>\$(24.1)</u>

12. NOTES AND ACCOUNTS RECEIVABLE, NET

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
At amortized cost		
Notes and accounts receivable	\$135,978.0	\$142,771.6
Less: Loss allowance	(325.3)	(246.6)
	135,652.7	142,525.0
At FVTOCI	3,255.9	2,955.3
	<u>\$138,908.6</u>	<u>\$145,480.3</u>

The Company signed a contract with the bank to sell certain accounts receivable without recourse and transaction cost required. These accounts receivable are classified as at FVTOCI because they are held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets.

In principle, the payment term granted to customers is due 30 days from the invoice date or 30 days from the end of the month when the invoice is issued. Aside from recognizing impairment loss for credit-impaired accounts receivable, the Company recognizes loss allowance based on the expected credit loss ratio of customers by different risk levels with consideration of factors of historical loss ratios and customers' financial conditions, competitiveness and business outlook. For accounts receivable past due over 90 days without collaterals or guarantees, the Company recognizes loss allowance at full amount.

Aging analysis of notes and accounts receivable

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
Not past due	\$126,134.8	\$140,933.6
Past due		
Past due within 30 days	13,082.1	4,784.4
Past due 31-60 days	12.8	8.7
Past due 61-120 days	1.0	0.1
Past due over 121 days	3.2	0.1
Less: Loss allowance	(325.3)	(246.6)
	<u>\$138,908.6</u>	<u>\$145,480.3</u>

All of the Company's accounts receivable classified as at FVTOCI were not past due.

Movements of the loss allowance for accounts receivable

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Balance, beginning of year	\$ 227.0	\$ 7.3	\$325.3
Provision (Reversal)	(219.7)	318.2	(78.5)
Effect of exchange rate changes	—	(0.2)	(0.2)
Balance, end of year	<u>\$ 7.3</u>	<u>\$325.3</u>	<u>\$246.6</u>

For the years ended December 31, 2018, 2019 and 2020, the changes in loss allowance were mainly due to the variations in the expected credit loss ratios and the balance of accounts receivable of different risk levels.

13. INVENTORIES

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
Finished goods	\$ 8,924.5	\$ 21,705.6
Work in process	51,969.1	91,672.9
Raw materials	16,552.3	14,716.0
Supplies and spare parts	5,535.3	9,258.9
	<u>\$82,981.2</u>	<u>\$137,353.4</u>

Write-down of inventories to net realizable value and reversal of write-down of inventories resulting from the increase in net realizable value were included in the cost of revenue, as illustrated below:

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Inventory losses (reversal of write-down of inventories)	<u>\$1,259.5</u>	<u>\$(1,983.0)</u>	<u>\$3,664.5</u>

The aforementioned inventory losses (reversal of write-down of inventories) for the years ended December 31, 2018 and 2019 excluded computer virus outbreak losses and wafer contamination losses. Please refer to related losses in Note 37.

14. INVESTMENTS ACCOUNTED FOR USING EQUITY METHOD

Associates consisted of the following:

Name of Associate	Principal Activities	Place of Incorporation and Operation	Carrying Amount		% of Ownership and Voting Rights Held by the Company	
			December 31, 2019	December 31, 2020	December 31, 2019	December 31, 2020
			NT\$ (In Millions)	NT\$ (In Millions)		
Vanguard International Semiconductor Corporation (VIS)	Manufacturing, selling, packaging, testing and computer-aided design of integrated circuits and other semiconductor devices and the manufacturing and design service of masks	Hsinchu, Taiwan	\$8,960.5	\$8,964.1	28%	28%
Systems on Silicon Manufacturing Company Pte Ltd. (SSMC)	Manufacturing and selling of integrated circuits and other semiconductor devices	Singapore	6,502.2	5,900.2	39%	39%
Xintec Inc. (Xintec) ..	Wafer level chip size packaging and wafer level post passivation interconnection service	Taoyuan, Taiwan	1,842.8	2,522.3	41%	41%
Global Unichip Corporation (GUC)	Researching, developing, manufacturing, testing and marketing of integrated circuits	Hsinchu, Taiwan	1,274.8	1,315.4	35%	35%
Mutual-Pak	Manufacturing of electronic parts, wholesaling and retailing of electronic materials, and researching, developing and testing of RFID	New Taipei, Taiwan	38.5	28.2	28%	28%
			<u>\$18,618.8</u>	<u>\$18,730.2</u>		

As of December 31, 2019 and 2020, no investments in associates are individually material to the Company. Please refer to the consolidated statements of profit or loss and other comprehensive income for recognition of share of both profit (loss) and other comprehensive income (loss) of associates that are not individually material.

The market prices of the investments accounted for using the equity method in publicly traded stocks calculated by the closing price at the end of the reporting period are summarized as follows. The closing price represents the quoted price in active markets, the level 1 fair value measurement.

Name of Associate	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
VIS	<u>\$36,812.9</u>	<u>\$53,849.9</u>
Xintec	<u>\$ 8,958.2</u>	<u>\$20,420.2</u>
GUC	<u>\$11,251.8</u>	<u>\$15,827.2</u>

15. PROPERTY, PLANT AND EQUIPMENT

2018

	Land and Land Improvements	Buildings	Machinery and Equipment	Office Equipment	Equipment under Installation and Construction in Progress	Total
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
<u>Cost</u>						
Balance at January 1, 2018	\$ 3,983.2	\$ 379,134.6	\$2,487,752.3	\$ 42,391.5	\$ 167,353.5	\$3,080,615.1
Additions	—	40,396.4	247,042.3	6,773.4	5,812.3	300,024.4
Disposals or retirements	—	(410.9)	(5,972.5)	(790.8)	—	(7,174.2)
Effect of exchange rate changes	28.2	(405.8)	(61.9)	8.1	(254.8)	(686.2)
Balance at December 31, 2018	\$ 4,011.4	\$ 418,714.3	\$2,728,760.2	\$ 48,382.2	\$ 172,911.0	\$3,372,779.1
<u>Accumulated depreciation and impairment</u>						
Balance at January 1, 2018	\$ 510.5	\$ 194,446.5	\$1,795,448.9	\$ 27,666.9	\$ —	\$2,018,072.8
Additions	20.9	24,293.4	258,195.3	5,615.3	—	288,124.9
Disposals or retirements	—	(399.0)	(4,773.6)	(790.0)	—	(5,962.6)
Impairment	—	—	423.5	—	—	423.5
Effect of exchange rate changes	19.2	33.2	(15.1)	32.9	—	70.2
Balance at December 31, 2018	\$ 550.6	\$ 218,374.1	\$2,049,279.0	\$ 32,525.1	\$ —	\$2,300,728.8
Carrying amounts at December 31, 2018	\$ 3,460.8	\$ 200,340.2	\$ 679,481.2	\$ 15,857.1	\$ 172,911.0	\$1,072,050.3

The significant part of the Company's buildings includes main plants, mechanical and electrical power equipment and clean rooms, and the related depreciation is calculated using the estimated useful lives of 20 years, 10 years and 10 years, respectively.

For the year ended December 31, 2018, the Company recognized an impairment loss of NT\$423.5 million for certain machinery and equipment that was assessed to have no future use, and the recoverable amount of certain machinery and equipment was nil. Such impairment loss was recognized in other operating income and expenses.

2019 and 2020

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
Assets used by the Company	\$1,352,313.9	\$1,554,585.9
Assets subject to operating leases	63.5	1,003.2
	<u>\$1,352,377.4</u>	<u>\$1,555,589.1</u>

a. Assets used by the Company

	<u>Land and Land Improvements</u>	<u>Buildings</u>	<u>Machinery and Equipment</u>	<u>Office Equipment</u>	<u>Equipment under Installation and Construction in Progress</u>	<u>Total</u>
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
<u>Cost</u>						
Balance at January 1, 2019	\$4,011.4	\$418,151.7	\$2,728,760.2	\$48,382.2	\$ 172,911.0	\$3,372,216.5
Additions	—	21,448.5	179,798.4	7,415.0	355,621.1	564,283.0
Disposals or retirements	—	(159.0)	(17,381.6)	(1,043.3)	—	(18,583.9)
Transfers from right-of-use assets	—	—	619.8	—	—	619.8
Effect of disposal of subsidiary	—	—	—	(0.5)	—	(0.5)
Effect of exchange rate changes	(19.6)	(1,366.2)	(5,173.8)	(142.0)	(237.0)	(6,938.6)
Balance at December 31, 2019	<u>\$3,991.8</u>	<u>\$438,075.0</u>	<u>\$2,886,623.0</u>	<u>\$54,611.4</u>	<u>\$ 528,295.1</u>	<u>\$3,911,596.3</u>
<u>Accumulated depreciation and impairment</u>						
Balance at January 1, 2019	\$ 550.6	\$217,899.2	\$2,049,279.0	\$32,525.1	\$ —	\$2,300,253.9
Additions	1.6	26,026.6	246,724.2	6,012.5	—	278,764.9
Disposals or retirements	—	(144.4)	(12,880.8)	(1,042.1)	—	(14,067.3)
Transfers from right-of-use assets	—	—	20.7	—	—	20.7
Reversal of impairment	—	—	(301.4)	—	—	(301.4)
Effect of disposal of subsidiary	—	—	—	(0.5)	—	(0.5)
Effect of exchange rate changes	(13.5)	(722.1)	(4,575.7)	(76.6)	—	(5,387.9)
Balance at December 31, 2019	<u>\$ 538.7</u>	<u>\$243,059.3</u>	<u>\$2,278,266.0</u>	<u>\$37,418.4</u>	<u>\$ —</u>	<u>\$2,559,282.4</u>
Carrying amounts at December 31, 2019	<u>\$3,453.1</u>	<u>\$195,015.7</u>	<u>\$ 608,357.0</u>	<u>\$17,193.0</u>	<u>\$ 528,295.1</u>	<u>\$1,352,313.9</u>
<u>Cost</u>						
Balance at January 1, 2020	\$3,991.8	\$438,075.0	\$2,886,623.0	\$54,611.4	\$ 528,295.1	\$3,911,596.3
Additions (deductions)	—	84,882.5	729,943.3	15,112.9	(304,218.0)	525,720.7
Disposals or retirements	—	(41.5)	(6,397.3)	(734.1)	—	(7,172.9)
Transfers from assets subject to operating leases	—	23.1	—	—	—	23.1
Transfers to assets subject to operating leases	—	—	(1,199.0)	—	—	(1,199.0)
Effect of exchange rate changes	(49.2)	(491.7)	(1,964.3)	(127.5)	(111.7)	(2,744.4)
Balance at December 31, 2020	<u>\$3,942.6</u>	<u>\$522,447.4</u>	<u>\$3,607,005.7</u>	<u>\$68,862.7</u>	<u>\$ 223,965.4</u>	<u>\$4,426,223.8</u>
<u>Accumulated depreciation and impairment</u>						
Balance at January 1, 2020	\$ 538.7	\$243,059.3	\$2,278,266.0	\$37,418.4	\$ —	\$2,559,282.4
Additions	1.5	29,209.1	285,393.6	7,216.9	—	321,821.1
Disposals or retirements	—	(27.9)	(6,012.9)	(732.4)	—	(6,773.2)
Transfers from assets subject to operating leases	—	8.2	—	—	—	8.2
Transfers to assets subject to operating leases	—	—	(202.6)	—	—	(202.6)
Impairment	—	—	10.2	—	—	10.2
Effect of exchange rate changes	(34.1)	(449.2)	(1,924.3)	(100.6)	—	(2,508.2)
Balance at December 31, 2020	<u>\$ 506.1</u>	<u>\$271,799.5</u>	<u>\$2,555,530.0</u>	<u>\$43,802.3</u>	<u>\$ —</u>	<u>\$2,871,637.9</u>
Carrying amounts at December 31, 2020	<u>\$3,436.5</u>	<u>\$250,647.9</u>	<u>\$1,051,475.7</u>	<u>\$25,060.4</u>	<u>\$ 223,965.4</u>	<u>\$1,554,585.9</u>

The significant part of the Company's buildings includes main plants, mechanical and electrical power equipment and clean rooms, and the related depreciation is calculated using the estimated useful lives of 20 years, 10 years and 10 years, respectively.

In the first quarter of 2019, the Company recognized a reversal of impairment loss of NT\$301.4 million due to redeployment of certain idle machinery and equipment. Such reversal of impairment loss was recognized in other operating income and expenses.

b. Assets subject to operating leases

	<u>Buildings</u> NT\$ (In Millions)	<u>Machinery and Equipment</u> NT\$ (In Millions)	<u>Total</u> NT\$ (In Millions)
<u>Cost</u>			
Balance at January 1, 2019	\$ 562.6	\$ —	\$ 562.6
Balance at December 31, 2019	<u>\$ 562.6</u>	<u>\$ —</u>	<u>\$ 562.6</u>
<u>Accumulated depreciation</u>			
Balance at January 1, 2019	\$ 474.9	\$ —	\$ 474.9
Additions	24.2	—	24.2
Balance at December 31, 2019	<u>\$ 499.1</u>	<u>\$ —</u>	<u>\$ 499.1</u>
Carrying amounts at December 31, 2019	<u>\$ 63.5</u>	<u>\$ —</u>	<u>\$ 63.5</u>
<u>Cost</u>			
Balance at January 1, 2020	\$ 562.6	\$ —	\$ 562.6
Disposals or retirements	(311.9)	—	(311.9)
Transfers to assets used by the Company	(23.1)	—	(23.1)
Transfers from assets used by the Company	—	1,199.0	1,199.0
Balance at December 31, 2020	<u>\$ 227.6</u>	<u>\$ 1,199.0</u>	<u>\$ 1,426.6</u>
<u>Accumulated depreciation</u>			
Balance at January 1, 2020	\$ 499.1	\$ —	\$ 499.1
Additions	16.3	19.4	35.7
Disposals or retirements	(305.8)	—	(305.8)
Transfers to assets used by the Company	(8.2)	—	(8.2)
Transfers from assets used by the Company	—	202.6	202.6
Balance at December 31, 2020	<u>\$ 201.4</u>	<u>\$ 222.0</u>	<u>\$ 423.4</u>
Carrying amounts at December 31, 2020	<u>\$ 26.2</u>	<u>\$ 977.0</u>	<u>\$ 1,003.2</u>

Operating leases relate to leases of buildings and leases of machinery and equipment with lease terms approximately between 1 to 5 years. The lessees do not have purchase options to acquire the assets at the expiry of the lease periods.

The maturity analysis of operating lease payments receivable from the buildings and machinery and equipment is as follows:

	<u>December 31, 2019</u> NT\$ (In Millions)	<u>December 31, 2020</u> NT\$ (In Millions)
Year 1	\$18.4	\$149.1
Year 2	17.0	17.0
Year 3	17.0	—
	<u>\$52.4</u>	<u>\$166.1</u>

16. LEASE ARRANGEMENTS

2018

The Company's major operating leases are arrangements on several parcels of land, machinery and equipment and office premises.

The Company expensed the lease payments as follows:

	Year Ended December 31, 2018
	NT\$ (In Millions)
Minimum lease payments	\$4,243.1

Future minimum lease payments under the above non-cancellable operating leases are as follows:

	December 31, 2018
	NT\$ (In Millions)
Not later than 1 year	\$ 5,824.1
Later than 1 year and not later than 5 years	5,834.9
Later than 5 years	9,190.6
	<u>\$20,849.6</u>

2019 and 2020

a. Right-of-use assets

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
<u>Carrying amounts</u>		
Land	\$14,064.0	\$25,141.9
Buildings	2,351.8	2,544.8
Machinery and equipment	775.8	—
Office equipment	40.8	41.8
	<u>\$17,232.4</u>	<u>\$27,728.5</u>

	Years Ended December 31	
	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)
Additions to right-of-use assets	<u>\$1,033.0</u>	<u>\$13,481.2</u>
Depreciation of right-of-use assets		
Land	\$ 957.1	\$ 1,312.9
Buildings	458.8	569.5
Machinery and equipment	1,184.4	775.8
Office equipment	22.4	23.4
	<u>\$2,622.7</u>	<u>\$ 2,681.6</u>
Income from subleasing right-of-use assets (classified under other operating income and expenses, net)	<u>\$ 55.0</u>	<u>\$ 79.6</u>

b. Lease liabilities

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
<u>Carrying amounts</u>		
Current portion (classified under accrued expenses and other current liabilities)	\$ 2,275.1	\$ 1,828.0
Noncurrent portion	15,041.8	20,560.6
	<u>\$17,316.9</u>	<u>\$22,388.6</u>

Ranges of discount rates for lease liabilities are as follows:

	<u>December 31, 2019</u>	<u>December 31, 2020</u>
Land	0.67%-2.14%	0.48%-2.14%
Buildings	0.67%-3.88%	0.54%-3.88%
Machinery and equipment	3.24%	—
Office equipment	0.64%-3.88%	0.28%-3.88%

c. Material terms of right-of-use assets

The Company leases land and buildings mainly for the use of plants and offices with lease terms of 1 to 36 years. The lease contracts for land located in the R.O.C. specify that lease payments will be adjusted every 2 years on the basis of changes in announced land value prices. The Company does not have purchase options to acquire the leasehold land and buildings at the end of the lease terms.

The Company leases machinery and equipment for use in operation with lease terms of 2 years. The Company has purchase options to acquire leasehold machinery and equipment at the end of the lease terms. As of September 30, 2020, the aforementioned lease contract has been expired.

d. Subleases

The Company subleases the right to use its buildings and machinery and equipment under operating leases with lease terms of 1 to 6 years.

The maturity analysis of lease payments receivable under operating subleases is as follows:

	<u>December 31, 2019</u>	<u>December 31, 2020</u>
	NT\$ (In Millions)	NT\$ (In Millions)
Year 1	\$58.6	\$144.1
Year 2	1.9	—
	<u>\$60.5</u>	<u>\$144.1</u>

e. Other lease information

	<u>Years Ended December 31</u>	
	<u>2019</u>	<u>2020</u>
	NT\$ (In Millions)	NT\$ (In Millions)
Expenses relating to short-term leases	<u>\$5,007.1</u>	<u>\$3,153.5</u>
Expenses relating to low-value asset leases	<u>\$ 0.5</u>	<u>\$ 0.3</u>
Expenses relating to variable lease payments not included in the measurement of lease liabilities	<u>\$ 195.1</u>	<u>\$ 257.0</u>
	<u>Years Ended December 31</u>	
	<u>2019</u>	<u>2020</u>
	NT\$ (In Millions)	NT\$ (In Millions)
Total cash outflow for leases	<u>\$7,724.4</u>	<u>\$6,354.6</u>

17. INTANGIBLE ASSETS

	Goodwill	Technology License Fees	Software and System Design Costs	Patent and Others	Total
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
<u>Cost</u>					
Balance at January 1, 2018	\$5,648.7	\$10,443.3	\$25,186.3	\$ 5,716.0	\$46,994.3
Additions	—	533.7	4,601.9	1,969.4	7,105.0
Disposals or retirements	—	—	(186.7)	(31.2)	(217.9)
Effect of exchange rate changes	146.8	(2.5)	(6.9)	2.1	139.5
Balance at December 31, 2018	<u>\$5,795.5</u>	<u>\$10,974.5</u>	<u>\$29,594.6</u>	<u>\$ 7,656.3</u>	<u>\$54,020.9</u>
<u>Accumulated amortization and impairment</u>					
Balance at January 1, 2018	\$ —	\$ 7,694.9	\$20,376.7	\$ 4,747.5	\$32,819.1
Additions	—	1,063.6	2,835.3	522.5	4,421.4
Disposals or retirements	—	—	(186.6)	(31.2)	(217.8)
Effect of exchange rate changes	—	(2.5)	(1.7)	0.3	(3.9)
Balance at December 31, 2018	<u>\$ —</u>	<u>\$ 8,756.0</u>	<u>\$23,023.7</u>	<u>\$ 5,239.1</u>	<u>\$37,018.8</u>
Carrying amounts at December 31, 2018	<u>\$5,795.5</u>	<u>\$ 2,218.5</u>	<u>\$ 6,570.9</u>	<u>\$ 2,417.2</u>	<u>\$17,002.1</u>
<u>Cost</u>					
Balance at January 1, 2019	\$5,795.5	\$10,974.5	\$29,594.6	\$ 7,656.3	\$54,020.9
Additions	—	4,879.6	3,710.4	647.8	9,237.8
Disposals or retirements	—	—	(260.9)	—	(260.9)
Effect of exchange rate changes	(102.1)	0.9	(20.1)	(1.2)	(122.5)
Balance at December 31, 2019	<u>\$5,693.4</u>	<u>\$15,855.0</u>	<u>\$33,024.0</u>	<u>\$ 8,302.9</u>	<u>\$62,875.3</u>
<u>Accumulated amortization and impairment</u>					
Balance at January 1, 2019	\$ —	\$ 8,756.0	\$23,023.7	\$ 5,239.1	\$37,018.8
Additions	—	1,066.9	3,747.3	658.2	5,472.4
Disposals or retirements	—	—	(258.6)	—	(258.6)
Effect of exchange rate changes	—	0.9	(10.3)	(0.9)	(10.3)
Balance at December 31, 2019	<u>\$ —</u>	<u>\$ 9,823.8</u>	<u>\$26,502.1</u>	<u>\$ 5,896.4</u>	<u>\$42,222.3</u>
Carrying amounts at December 31, 2019	<u>\$5,693.4</u>	<u>\$ 6,031.2</u>	<u>\$ 6,521.9</u>	<u>\$ 2,406.5</u>	<u>\$20,653.0</u>
<u>Cost</u>					
Balance at January 1, 2020	\$5,693.4	\$15,855.0	\$33,024.0	\$ 8,302.9	\$62,875.3
Additions	—	6,308.9	3,275.8	2,974.8	12,559.5
Disposals or retirements	—	—	(60.5)	—	(60.5)
Effect of exchange rate changes	(256.8)	(2.2)	(0.3)	(0.1)	(259.4)
Balance at December 31, 2020	<u>\$5,436.6</u>	<u>\$22,161.7</u>	<u>\$36,239.0</u>	<u>\$11,277.6</u>	<u>\$75,114.9</u>
<u>Accumulated amortization and impairment</u>					
Balance at January 1, 2020	\$ —	\$ 9,823.8	\$26,502.1	\$ 5,896.4	\$42,222.3
Additions	—	2,404.5	3,669.2	1,112.5	7,186.2
Disposals or retirements	—	—	(59.9)	—	(59.9)
Effect of exchange rate changes	—	(2.1)	0.3	—	(1.8)
Balance at December 31, 2020	<u>\$ —</u>	<u>\$12,226.2</u>	<u>\$30,111.7</u>	<u>\$ 7,008.9</u>	<u>\$49,346.8</u>
Carrying amounts at December 31, 2020	<u>\$5,436.6</u>	<u>\$ 9,935.5</u>	<u>\$ 6,127.3</u>	<u>\$ 4,268.7</u>	<u>\$25,768.1</u>

The Company's goodwill has been tested for impairment at the end of the annual reporting period and the recoverable amount is determined based on the value in use. The value in use was calculated based on the cash flow forecast from the financial budgets covering the future five-year period, and the Company used annual discount rates of 8.0% in both years in its test of impairment as of December 31, 2019 and 2020, to reflect the relevant specific risk in the cash-generating unit.

For the years ended December 31, 2018, 2019 and 2020, the Company did not recognize any impairment loss on goodwill.

18. SHORT-TERM LOANS

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
Unsecured loans		
Amount	\$ 118,522.3	\$ 88,559.0
Loan content		
US\$ (in millions)	\$ 2,370.0	\$ 200.0
EUR (in millions)	1,410.0	2,398.0
Annual interest rate	0.01%-2.22%	(0.54)%-0.33%
Maturity date	Due by May 2020	Due by February 2021

19. BONDS PAYABLE

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
Domestic unsecured bonds	\$ 56,900.0	\$173,197.0
Overseas unsecured bonds	—	84,291.0
Less: Discounts on bonds payable	—	(782.9)
Less: Current portion	(31,800.0)	(2,600.0)
	<u>\$ 25,100.0</u>	<u>\$254,105.1</u>

The major terms of domestic unsecured bonds are as follows:

Issuance	Tranche	Issuance Period	Total Amount NT\$ (In Millions)	Coupon Rate	Repayment and Interest Payment
NT\$ unsecured bonds					
100-2	B	January 2012 to January 2019	\$ 7,000.0	1.46%	Bullet repayment; interest payable annually
101-1	B	August 2012 to August 2019	9,000.0	1.40%	The same as above
101-2	B	September 2012 to September 2019	9,000.0	1.39%	Bullet repayment; interest payable annually
101-3	—	October 2012 to October 2022	4,400.0	1.53%	The same as above
101-4	B	January 2013 to January 2020	10,000.0	1.35%	The same as above
	C	January 2013 to January 2023	3,000.0	1.49%	The same as above
102-1	B	February 2013 to February 2020	11,600.0	1.38%	The same as above
	C	February 2013 to February 2023	3,600.0	1.50%	The same as above
102-2	A	July 2013 to July 2020	10,200.0	1.50%	The same as above
	B	July 2013 to July 2023	3,500.0	1.70%	The same as above
102-3	B	August 2013 to August 2019	8,500.0	1.52%	The same as above

(Continued)

<u>Issuance</u>	<u>Tranche</u>	<u>Issuance Period</u>	<u>Total Amount NT\$ (In Millions)</u>	<u>Coupon Rate</u>	<u>Repayment and Interest Payment</u>
102-4	C	September 2013 to March 2019	\$ 1,400.0	1.60%	Bullet repayment; interest payable annually (interest for the six months prior to maturity will accrue on the basis of actual days and be repayable at maturity)
	D	September 2013 to March 2021	2,600.0	1.85%	The same as above
	E	September 2013 to March 2023	5,400.0	2.05%	The same as above
	F	September 2013 to September 2023	2,600.0	2.10%	Bullet repayment; interest payable annually
109-1	A	March 2020 to March 2025	3,000.0	0.58%	The same as above
	B	March 2020 to March 2027	10,500.0	0.62%	The same as above
	C	March 2020 to March 2030	10,500.0	0.64%	The same as above
109-2	A	April 2020 to April 2025	5,900.0	0.52%	The same as above
	B	April 2020 to April 2027	10,400.0	0.58%	The same as above
	C	April 2020 to April 2030	5,300.0	0.60%	The same as above
109-3	A	May 2020 to May 2025	4,500.0	0.55%	The same as above
	B	May 2020 to May 2027	7,500.0	0.60%	The same as above
109-3	C	May 2020 to May 2030	2,400.0	0.64%	Bullet repayment; interest payable annually
109-4	A	July 2020 to July 2025	5,700.0	0.58%	Two equal installments in last two years; interest payable annually
	B	July 2020 to July 2027	6,300.0	0.65%	The same as above
	C	July 2020 to July 2030	1,900.0	0.67%	The same as above
109-5	A	September 2020 to September 2025	4,800.0	0.50%	The same as above
	B	September 2020 to September 2027	8,000.0	0.58%	The same as above
	C	September 2020 to September 2030	2,800.0	0.60%	The same as above
109-6 (green bond)	A	December 2020 to December 2025	1,600.0	0.40%	The same as above
	B	December 2020 to December 2027	5,600.0	0.44%	The same as above
	C	December 2020 to December 2030	4,800.0	0.48%	The same as above
109-7	A	December 2020 to December 2025	1,900.0	0.36%	The same as above
	B	December 2020 to December 2027	10,200.0	0.41%	The same as above
	C	December 2020 to December 2030	6,400.0	0.45%	The same as above

(Concluded)

<u>Issuance</u>	<u>Tranche</u>	<u>Issuance Period</u>	<u>Total Amount US\$ (In Millions)</u>	<u>Coupon Rate</u>	<u>Repayment and Interest Payment</u>
US\$ unsecured bonds					
109-1	—	September 2020 to September 2060	US\$1,000.0	2.70%	Bullet repayment (callable on the 5th anniversary of the issue date and every anniversary thereafter); interest payable annually

The major terms of overseas unsecured bonds are as follows:

<u>Issuance Period</u>	<u>Total Amount US\$ (In Millions)</u>	<u>Coupon Rate</u>	<u>Repayment and Interest Payment</u>
September 2020 to September 2025	US\$1,000.0	0.75%	Bullet repayment (callable at any time, in whole or in part, at the relevant redemption price according to relevant agreements); interest payable semi-annually
September 2020 to September 2027	750.0	1.00%	The same as above
September 2020 to September 2030	1,250.0	1.375%	The same as above

20. LONG-TERM BANK LOANS

	<u>December 31, 2020</u>
	<u>NT\$</u>
	<u>(In Millions)</u>
Unsecured loans	\$2,000.0
Less: Discounts on government grants	(32.4)
	<u>\$1,967.6</u>
Loan content	
Annual interest rate	0.4%
Maturity date	Due by September 2025

The long-term bank loans of the Company are with preferential interest rates subsidized by the government, and the loan proceeds are used to fund qualifying capital expenditure.

21. RETIREMENT BENEFIT PLANS

a. Defined contribution plans

The plan under the R.O.C. Labor Pension Act (the "Act") is deemed a defined contribution plan. Pursuant to the Act, TSMC and VisEra Tech have made monthly contributions equal to 6% of each employee's monthly salary to employees' pension accounts. Furthermore, TSMC North America, TSMC China, TSMC Nanjing, TSMC Europe, TSMC Canada and TSMC Technology also make monthly contributions at certain percentages of the basic salary of their employees. Accordingly, the Company recognized expenses of NT\$2,568.9 million, NT\$2,609.7 million and NT\$2,809.5 million for the years ended December 31, 2018, 2019 and 2020, respectively.

b. Defined benefit plans

TSMC has defined benefit plans under the R.O.C. Labor Standards Law that provide benefits based on an employee's length of service and average monthly salary for the six-month period prior to retirement. The Company contributes an amount equal to 2% of salaries paid each month to their respective pension funds (the Funds), which are administered by the Labor Pension Fund Supervisory Committee (the Committee) and deposited in the Committee's name in the Bank of Taiwan. Before the end of each year, the Company assesses the balance in the Funds. If the amount of the balance in the Funds is inadequate to pay retirement benefits for employees who conform to retirement requirements in the next year, the Company is required to fund the difference in one appropriation that should be made before the end of March of the next year. The Funds are operated and managed by the government's designated authorities; as such, the Company does not have any right to intervene in the investments of the Funds.

Amounts recognized in respect of these defined benefit plans were as follows:

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Current service cost	\$ 137.7	\$ 135.6	\$ 123.3
Net interest expense	144.1	124.0	81.6
Components of defined benefit costs recognized in profit or loss	281.8	259.6	204.9
Remeasurement on the net defined benefit liability:			
Return on plan assets (excluding amounts included in net interest expense)	(71.3)	(124.4)	(139.2)
Actuarial loss (gain) arising from experience adjustments	334.7	(438.0)	494.1
Actuarial gain arising from changes in demographic assumptions	—	(233.2)	—
Actuarial loss arising from changes in financial assumptions	597.8	541.7	3,161.9
Components of defined benefit costs recognized in other comprehensive income	861.2	(253.9)	3,516.8
Total	<u>\$1,143.0</u>	<u>\$ 5.7</u>	<u>\$3,721.7</u>

The pension costs of the aforementioned defined benefit plans were recognized in profit or loss by the following categories:

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Cost of revenue	\$177.8	\$157.8	\$126.3
Research and development expenses	79.1	72.7	57.3
General and administrative expenses	20.6	25.1	18.2
Marketing expenses	4.3	4.0	3.1
	<u>\$281.8</u>	<u>\$259.6</u>	<u>\$204.9</u>

The amounts arising from the defined benefit obligation of the Company were as follows:

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
Present value of defined benefit obligation	\$13,484.1	\$ 16,980.3
Fair value of plan assets	(4,301.6)	(5,066.2)
Net defined benefit liability	<u>\$ 9,182.5</u>	<u>\$ 11,914.1</u>

Movements in the present value of the defined benefit obligation were as follows:

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Balance, beginning of year	\$ 12,774.6	\$ 13,662.7	\$ 13,484.1
Current service cost	137.7	135.6	123.3
Interest expense	207.8	175.4	118.8
Remeasurement:			
Actuarial loss (gain) arising from experience adjustments	334.7	(438.0)	494.1
Actuarial gain arising from changes in demographic assumptions	—	(233.2)	—
Actuarial loss arising from changes in financial assumptions	597.8	541.7	3,161.9
Benefits paid from plan assets	(274.3)	(344.1)	(399.0)
Benefits paid directly by the Company	(115.6)	(16.0)	(2.9)
Balance, end of year	<u>\$ 13,662.7</u>	<u>\$ 13,484.1</u>	<u>\$ 16,980.3</u>

Movements in the fair value of the plan assets were as follows:

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Balance, beginning of year	\$ 3,923.9	\$ 4,011.3	\$ 4,301.6
Interest income	63.7	51.4	37.2
Remeasurement:			
Return on plan assets (excluding amounts included in net interest expense)	71.3	124.4	139.2
Contributions from employer	226.7	458.6	987.2
Benefits paid from plan assets	(274.3)	(344.1)	(399.0)
Balance, end of year	<u>\$ 4,011.3</u>	<u>\$ 4,301.6</u>	<u>\$ 5,066.2</u>

The fair value of the plan assets by major categories at the end of reporting period was as follows:

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
Cash	\$ 713.2	\$ 632.8
Equity instruments	2,313.8	2,926.7
Debt instruments	1,274.6	1,506.7
	<u>\$ 4,301.6</u>	<u>\$ 5,066.2</u>

The actuarial valuations of the present value of the defined benefit obligation were carried out by qualified actuaries. The principal assumptions of the actuarial valuation were as follows:

	Measurement Date	
	December 31, 2019	December 31, 2020
Discount rate	0.90%	0.40%
Future salary increase rate	3.00%	3.00% (Note)

Note: The Company has an additional 20 percent pay raise in 2021.

Through the defined benefit plans under the R.O.C. Labor Standards Law, the Company is exposed to the following risks:

- 1) Investment risk: The pension funds are invested in equity and debt securities, bank deposits, etc. The investment is conducted at the discretion of the government's designated

authorities or under the mandated management. However, under the R.O.C. Labor Standards Law, the rate of return on assets shall not be less than the average interest rate on a two-year time deposit published by the local banks and the government is responsible for any shortfall in the event that the rate of return is less than the required rate of return.

- 2) Interest risk: A decrease in the government bond interest rate will increase the present value of the defined benefit obligation; however, this will be partially offset by an increase in the return on the debt investments of the plan assets.

Assuming a hypothetical decrease in interest rate at the end of the reporting period contributed to a decrease of 0.5% (and not below 0.0%) in the discount rate and all other assumptions were held constant, the present value of the defined benefit obligation would increase by NT\$725.0 million and NT\$694.7 million as of December 31, 2019 and 2020, respectively.

- 3) Salary risk: The present value of the defined benefit obligation is calculated by reference to the future salaries of plan participants. As such, an increase in the salary of the plan participants will increase the present value of the defined benefit obligation.

Assuming the expected salary rate increases by 0.5% at the end of the reporting period and all other assumptions were held constant, the present value of the defined benefit obligation would increase by NT\$706.5 million and NT\$836.0 million as of December 31, 2019 and 2020 respectively.

The sensitivity analysis presented above may not be representative of the actual change in the defined benefit obligation as it is unlikely that the change in assumptions would occur in isolation of one another as some of the assumptions may be correlated.

Furthermore, in presenting the above sensitivity analysis, the present value of the defined benefit obligation has been calculated using the projected unit credit method at the end of the reporting period, which is the same as that applied in calculating the defined benefit obligation liability.

The Company expects to make contributions of NT\$229.9 million to the defined benefit plans in the next year starting from December 31, 2020. The weighted average duration of the defined benefit obligation is 9 years.

22. GUARANTEE DEPOSITS

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
Capacity guarantee	\$ 1,499.4	\$ —
Others	230.5	350.0
	<u>\$ 1,729.9</u>	<u>\$ 350.0</u>
Current portion (classified under accrued expenses and other current liabilities)	\$ 1,553.0	\$ 84.4
Noncurrent portion	176.9	265.6
	<u>\$ 1,729.9</u>	<u>\$ 350.0</u>

Some of guarantee deposits were refunded to customers by offsetting related accounts receivable.

23. EQUITY

a. Capital stock

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
Authorized shares	28,050.0	28,050.0
Authorized capital	<u>\$280,500.0</u>	<u>\$280,500.0</u>
Issued and paid shares	25,930.3	25,930.3
Issued capital	<u>\$259,303.8</u>	<u>\$259,303.8</u>

A holder of issued common shares with par value of NT\$10 per share is entitled to vote and to receive dividends.

The authorized shares include 500.0 million shares allocated for the exercise of employee stock options.

As of December 31, 2020, 1,064.4 million ADSs of TSMC were traded on the NYSE. The number of common shares represented by the ADSs was 5,321.8 million shares (one ADS represents five common shares).

b. Capital surplus

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
Additional paid-in capital	\$24,185.0	\$24,185.0
From merger	22,804.5	22,804.5
From convertible bonds	8,892.9	8,892.9
From share of changes in equities of subsidiaries	121.8	121.8
From share of changes in equities of associates	302.2	302.5
Donations	33.3	40.5
	<u>\$56,339.7</u>	<u>\$56,347.2</u>

Under the R.O.C. relevant laws, the capital surplus generated from donations and the excess of the issuance price over the par value of capital stock (including the stock issued for new capital, mergers and convertible bonds) may be used to offset a deficit; in addition, when the Company has no deficit, such capital surplus may be distributed as cash dividends or stock dividends up to a certain percentage of TSMC's paid-in capital. The capital surplus from share of changes in equities of subsidiaries and associates and dividend of a claim extinguished by a prescription may be used to offset a deficit; however, when generated from issuance of restricted shares for employees, such capital surplus may not be used for any purpose.

c. Retained earnings and dividend policy

The amendments to TSMC's Articles of Incorporation had been approved by TSMC's shareholders in its meeting held on June 5, 2019, which stipulate that earnings distribution may be made on a quarterly basis after the close of each quarter. Distribution of earnings by way of cash dividends should be approved by TSMC's Board of Directors and reported to TSMC's shareholders in its meeting.

TSMC's amended Articles of Incorporation provide that, when allocating earnings, TSMC shall first estimate and reserve the taxes to be paid, offset its losses, set aside a legal capital reserve at 10% of the remaining earnings (until the accumulated legal capital reserve equals TSMC's paid-in capital), then set aside a special capital reserve in accordance with relevant laws or regulations or as requested by the authorities in charge. Any balance left over shall be allocated according to relevant laws and the TSMC's Articles of Incorporation.

TSMC's Articles of Incorporation also provide that profits of TSMC may be distributed by way of cash dividend and/or stock dividend. However, distribution of earnings shall be made preferably by way of cash dividend. Distribution of earnings may also be made by way of stock dividend, provided that the ratio for stock dividend shall not exceed 50% of the total distribution.

The reserve may be used to offset a deficit, or be distributed as dividends in cash or stocks for the portion in excess of 25% of the paid-in capital if the Company incurs no loss.

Pursuant to existing regulations, the Company is required to set aside additional special capital reserve equivalent to the net debit balance of the other components of stockholders' equity, such as the accumulated balance of foreign currency translation reserve, unrealized valuation gain or loss from fair value through other comprehensive income financial assets, gain or loss from changes in fair value of hedging instruments in cash flow hedges, etc. For the subsequent decrease in the deduction amount to stockholders' equity, any special reserve appropriated may be reversed to the extent that the net debit balance reverses.

The appropriation of 2018 earnings has been approved by TSMC's shareholders in its meeting held on June 5, 2019. The appropriation and cash dividends per share were as follows:

	<u>Appropriation of Earnings</u>	<u>Cash Dividends</u>
	NT\$ (In Millions)	Per Share (NT\$)
Legal capital reserve	\$ 35,113.1	
Special capital reserve	\$ (11,459.5)	
Cash dividends to shareholders	<u>\$207,443.0</u>	\$8.0

The appropriations of 2019 and 2020 quarterly earnings have been approved by TSMC's Board of Directors in its meeting, respectively. The appropriations and cash dividends per share were as follows:

	<u>First Quarter of 2019</u>	<u>Second Quarter of 2019</u>	<u>Third Quarter of 2019</u>	<u>Fourth Quarter of 2019</u>
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Resolution date of TSMC's Board of Directors in its meeting	June 5, 2019	August 13, 2019	November 12, 2019	February 11, 2020
Special capital reserve	\$ (4,724.0)	\$ (3,338.2)	\$ 3,289.2	\$ 16,893.0
Cash dividends to shareholders	\$ 51,860.8	\$ 64,826.0	\$ 64,826.0	\$ 64,826.0
Cash dividends per share (NT\$)	\$ 2.0	\$ 2.5	\$ 2.5	\$ 2.5

	<u>First Quarter of 2020</u>	<u>Second Quarter of 2020</u>	<u>Third Quarter of 2020</u>	<u>Fourth Quarter of 2020</u>
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Resolution date of TSMC's Board of Directors in its meeting	May 12, 2020	August 11, 2020	November 10, 2020	February 9, 2021
Special capital reserve	\$ (2,694.8)	\$ 11,884.5	\$ 5,501.3	\$ 12,420.7
Cash dividends to shareholders	\$ 64,826.0	\$ 64,826.0	\$ 64,826.0	\$ 64,826.0
Cash dividends per share (NT\$)	\$ 2.5	\$ 2.5	\$ 2.5	\$ 2.5

The special capital reserve for 2020 is to be presented for approval in the TSMC's shareholders' meeting to be held on June 8, 2021 (expected).

d. Others

Changes in others were as follows:

Year Ended December 31, 2018					
	Foreign Currency Translation Reserve	Unrealized Gain (Loss) on Financial Assets at FVTOCI	Gain (Loss) on Hedging Instruments	Unearned Stock-Based Employee Compensation	Total
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Balance, beginning of year (IFRS 9)	\$(26,697.7)	\$ (524.9)	\$ 4.2	\$(10.3)	\$(27,228.7)
Exchange differences arising on translation of foreign operations	14,562.0	—	—	—	14,562.0
Unrealized gain (loss) on financial assets at FVTOCI					
Equity instruments	—	(3,311.6)	—	—	(3,311.6)
Debt instruments	—	(1,858.0)	—	—	(1,858.0)
Cumulative unrealized gain (loss) of equity instruments transferred to retained earnings due to disposal	—	1,193.1	—	—	1,193.1
Cumulative unrealized gain (loss) of debt instruments transferred to profit or loss due to disposal	—	989.1	—	—	989.1
Loss allowance adjustments from debt instruments	—	(2.0)	—	—	(2.0)
Gain (loss) arising on changes in the fair value of hedging instruments	—	—	41.0	—	41.0
Transferred to initial carrying amount of hedged items	—	—	(22.2)	—	(22.2)
Share of other comprehensive income (loss) of associates	93.3	(6.8)	—	—	86.5
Share of unearned stock-based employee compensation of associates	—	—	—	8.5	8.5
Income tax effect	—	91.8	0.6	—	92.4
Balance, end of year	<u>\$(12,042.4)</u>	<u>\$(3,429.3)</u>	<u>\$ 23.6</u>	<u>\$ (1.8)</u>	<u>\$(15,449.9)</u>

Year Ended December 31, 2019					
	Foreign Currency Translation Reserve	Unrealized Gain (Loss) on Financial Assets at FVTOCI	Gain (Loss) on Hedging Instruments	Unearned Stock-Based Employee Compensation	Total
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Balance, beginning of year	\$(12,042.4)	\$(3,429.3)	\$ 23.6	\$(1.8)	\$(15,449.9)
Exchange differences arising on translation of foreign operations	(14,693.5)	—	—	—	(14,693.5)
Unrealized gain (loss) on financial assets at FVTOCI					
Equity instruments	—	334.5	—	—	334.5
Debt instruments	—	3,097.3	—	—	3,097.3
Cumulative unrealized gain (loss) of equity instruments transferred to retained earnings due to disposal	—	(162.1)	—	—	(162.1)
Cumulative unrealized gain (loss) of debt instruments transferred to profit or loss due to disposal	—	(537.8)	—	—	(537.8)
Loss allowance adjustments from debt instruments	—	6.9	—	—	6.9
Gain (loss) arising on changes in the fair value of hedging instruments	—	—	(109.6)	—	(109.6)
Other comprehensive income transferred to profit or loss due to disposal of subsidiary	4.6	—	—	—	4.6
Transferred to initial carrying amount of hedged items	—	—	82.3	—	82.3
Share of other comprehensive income (loss) of associates	(140.1)	(11.8)	(0.1)	—	(152.0)
Share of unearned stock-based employee compensation of associates	—	—	—	1.6	1.6
Income tax effect	—	9.4	—	—	9.4
Balance, end of year	<u>\$(26,871.4)</u>	<u>\$(692.9)</u>	<u>\$ (3.8)</u>	<u>\$(0.2)</u>	<u>\$(27,568.3)</u>

Year Ended December 31, 2020

	Foreign Currency Translation Reserve	Unrealized Gain (Loss) on Financial Assets at FVTOCI	Gain (Loss) on Hedging Instruments	Unearned Stock-Based Employee Compensation	Total
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Balance, beginning of year	\$(26,871.4)	\$ (692.9)	\$ (3.8)	\$(0.2)	\$(27,568.3)
Exchange differences arising on translation of foreign operations	(29,846.8)	—	—	—	(29,846.8)
Unrealized gain (loss) on financial assets at FVTOCI					
Equity instruments	—	423.2	—	—	423.2
Debt instruments	—	3,907.0	—	—	3,907.0
Cumulative unrealized gain (loss) of equity instruments transferred to retained earnings due to disposal	—	108.7	—	—	108.7
Cumulative unrealized gain (loss) of debt instruments transferred to profit or loss due to disposal	—	(1,439.4)	—	—	(1,439.4)
Loss allowance adjustments from debt instruments	—	(0.9)	—	—	(0.9)
Gain (loss) arising on changes in the fair value of hedging instruments	—	—	24.1	—	24.1
Transferred to initial carrying amount of hedged items	—	—	(20.3)	—	(20.3)
Share of other comprehensive income (loss) of associates	(283.4)	15.5	—	—	(267.9)
Share of unearned stock-based employee compensation of associates	—	—	—	0.2	0.2
Income tax effect	—	0.6	—	—	0.6
Balance, end of year	<u>\$(57,001.6)</u>	<u>\$ 2,321.8</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$(54,679.8)</u>

The aforementioned other equity includes the changes in other equities of TSMC and TSMC's share of its subsidiaries and associates.

24. NET REVENUE

a. Disaggregation of revenue from contracts with customers

Product	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Wafer	\$ 911,296.4	\$ 927,317.3	\$1,178,456.3
Others	120,177.2	142,668.1	160,798.5
	<u>\$1,031,473.6</u>	<u>\$1,069,985.4</u>	<u>\$1,339,254.8</u>

Geography	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Taiwan	\$ 78,260.8	\$ 84,255.2	\$ 129,082.9
United States	632,821.5	634,713.0	817,911.0
China	175,794.2	208,101.4	233,783.3
Europe, the Middle East and Africa	71,068.5	67,568.2	70,213.4
Japan	58,125.9	57,468.6	63,299.2
Others	15,402.7	17,879.0	24,965.0
	<u>\$1,031,473.6</u>	<u>\$1,069,985.4</u>	<u>\$1,339,254.8</u>

The Company categorized the net revenue mainly based on the countries where the customers are headquartered.

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Platform			
Smartphone	\$ 466,452.3	\$ 523,612.9	\$ 645,303.6
High Performance Computing	341,910.2	315,822.3	439,810.0
Internet of Things	65,091.3	86,342.7	110,355.2
Automotive	51,709.8	47,914.5	44,367.5
Digital Consumer Electronics	58,470.2	53,733.4	54,555.7
Others	47,839.8	42,559.6	44,862.8
	<u>\$1,031,473.6</u>	<u>\$1,069,985.4</u>	<u>\$1,339,254.8</u>

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Resolution			
5-nanometer	\$ —	\$ —	\$ 90,934.5
7-nanometer	81,680.7	249,548.1	394,837.0
10-nanometer	96,989.5	23,266.4	3,403.1
16-nanometer	187,370.6	186,700.9	197,959.0
20-nanometer	23,618.4	9,535.8	8,450.9
28-nanometer	178,440.4	149,578.7	149,367.7
40/45-nanometer	101,801.0	93,366.3	103,176.5
65-nanometer	76,122.3	69,250.0	61,226.7
90-nanometer	36,652.1	25,624.2	29,380.4
0.11/0.13 micron	20,677.7	22,947.3	33,197.1
0.15/0.18 micron	81,182.6	77,564.5	86,008.5
0.25 micron and above	26,761.1	19,935.1	20,514.9
Wafer revenue	<u>\$911,296.4</u>	<u>\$927,317.3</u>	<u>\$1,178,456.3</u>

Starting the first quarter of 2019, the Company reported its net revenue breakdown by platform, instead of by application. The Company believes this change better represents the Company's results.

b. Contract balances

	January 1, 2019	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Contract liabilities (classified under accrued expenses and other current liabilities)	<u>\$4,684.0</u>	<u>\$6,784.3</u>	<u>\$13,775.1</u>

The changes in the contract liability balances primarily result from the timing difference between the satisfaction of performance obligation and the customer's payment.

The Company recognized revenue from the beginning balance of contract liability, which amounted to NT\$31,770.0 million, NT\$3,876.6 million and NT\$4,737.9 million for the years ended December 31, 2018, 2019 and 2020, respectively.

c. Refund liabilities

Estimated sales returns and other allowances is made and adjusted based on historical experience and the consideration of varying contractual terms, which amounted to NT\$55,406.0 million, NT\$36,211.4 million and NT\$40,453.1 million for the years ended December 31, 2018, 2019 and 2020, respectively. As of December 31, 2019 and 2020, the aforementioned refund liabilities amounted to NT\$19,620.2 million and NT\$33,194.8 million (classified under accrued expenses and other current liabilities), respectively.

25. INTEREST INCOME

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Interest income			
Bank deposits	\$10,310.7	\$11,454.0	\$5,139.1
Financial assets at FVTPL	382.7	339.5	2.5
Financial assets at FVTOCI	3,078.6	3,476.2	3,121.9
Financial assets at amortized cost	922.4	919.7	754.9
	<u>\$14,694.4</u>	<u>\$16,189.4</u>	<u>\$9,018.4</u>

26. FINANCE COSTS

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Interest expense			
Corporate bonds	\$1,633.8	\$1,139.9	\$1,337.3
Bank loans	1,417.3	1,869.4	500.9
Lease liabilities	—	240.9	227.8
Others	0.1	0.7	15.5
	<u>\$3,051.2</u>	<u>\$3,250.9</u>	<u>\$2,081.5</u>

27. OTHER GAINS AND LOSSES, NET

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Gain (loss) on disposal of financial assets, net			
Investments in debt instruments at FVTOCI	\$ (989.1)	\$ 537.8	\$ 1,439.4
Loss on disposal of subsidiaries	—	(4.6)	—
Gain (loss) on financial instruments at FVTPL, net			
Mandatorily measured at FVTPL	(2,293.9)	(2,360.7)	8,244.5
Gain (loss) arising from fair value hedges, net	(2.3)	13.1	—
The reversal (accrual) of expected credit loss of financial assets			
Investments in debt instruments at FVTOCI	2.0	(6.9)	0.9
Financial assets at amortized cost	0.4	5.2	(4.6)
Other gains (losses), net	(127.9)	665.1	426.2
	<u>\$(3,410.8)</u>	<u>\$(1,151.0)</u>	<u>\$10,106.4</u>

28. INCOME TAX

a. Income tax expense recognized in profit or loss

Income tax expense consisted of the following:

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Current income tax expense			
Current tax expense recognized in the current year	\$ 60,584.3	\$ 47,135.5	\$87,452.7
Income tax adjustments on prior years	(21,753.0)	(10,193.8)	(7,589.4)
Other income tax adjustments	152.9	(41.5)	150.2
	<u>38,984.2</u>	<u>36,900.2</u>	<u>80,013.5</u>
Deferred income tax benefit			
Effect of tax rate changes	(1,474.8)	—	—
The origination and reversal of temporary differences . . .	(3,072.5)	(1,065.1)	(6,275.2)
	<u>(4,547.3)</u>	<u>(1,065.1)</u>	<u>(6,275.2)</u>
Income tax expense recognized in profit or loss	<u>\$ 34,436.9</u>	<u>\$ 35,835.1</u>	<u>\$73,738.3</u>

A reconciliation of income before income tax and income tax expense recognized in profit or loss was as follows:

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Income before tax	<u>\$397,543.1</u>	<u>\$389,862.1</u>	<u>\$584,746.3</u>
Income tax expense at the statutory rate	\$ 80,872.5	\$ 79,056.5	\$118,831.3
Tax effect of adjusting items:			
Nondeductible (deductible) items in determining taxable income	2,533.4	(4,183.5)	1,015.9
Tax-exempt income	(54,543.5)	(39,808.1)	(65,988.1)
Additional income tax under the Alternative Minimum Tax Act . . .	21,455.9	10,367.9	18,872.8
Additional income tax on unappropriated earnings	16,294.5	7,628.1	14,747.3
Effect of tax rate changes on deferred income tax	(1,474.8)	—	—
The origination and reversal of temporary differences	(3,072.6)	(1,065.1)	(6,275.2)
Income tax credits	(6,028.4)	(5,925.4)	(26.5)
	<u>56,037.0</u>	<u>46,070.4</u>	<u>81,177.5</u>
Income tax adjustments on prior years	(21,753.0)	(10,193.8)	(7,589.4)
Other income tax adjustments	152.9	(41.5)	150.2
Income tax expense recognized in profit or loss	<u>\$ 34,436.9</u>	<u>\$ 35,835.1</u>	<u>\$ 73,738.3</u>

In 2018, the Income Tax Law in the R.O.C. was amended and, starting from 2018, the corporate income tax rate was adjusted from 17% to 20%. In addition, the tax rate for 2018 unappropriated earnings was reduced from 10% to 5%.

Under the amendment to the R.O.C Statute of Industrial Innovation in 2019, the amounts of unappropriated earnings in 2018 and thereafter used for building or purchasing specific assets or technologies can qualify for deduction when computing the income tax on unappropriated earnings.

The income tax adjustments on prior years were primarily due to the difference between the actual and estimated income tax on unappropriated earnings.

For other jurisdictions, taxes are calculated using the applicable tax rate for each individual jurisdiction.

b. Income tax expense recognized in other comprehensive income

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Deferred income tax benefit (expense)			
Related to remeasurement of defined benefit obligation	\$103.3	\$(30.4)	\$422.1
Related to unrealized gain/loss on investments in equity instruments at FVTOCI	91.8	9.4	0.6
Related to gain/loss on cash flow hedges	0.6	—	—
	<u>\$195.7</u>	<u>\$(21.0)</u>	<u>\$422.7</u>

c. Deferred income tax balance

The analysis of deferred income tax assets and liabilities was as follows:

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
<u>Deferred income tax assets</u>		
Temporary differences		
Depreciation	\$13,547.2	\$19,354.4
Refund liability	2,150.4	3,755.1
Net defined benefit liability	1,016.3	1,342.1
Unrealized loss on inventories	469.4	858.5
Deferred compensation cost	323.1	330.3
Investments in equity instruments at FVTOCI	65.7	66.3
Others	356.3	251.5
	<u>\$17,928.4</u>	<u>\$25,958.2</u>
<u>Deferred income tax liabilities</u>		
Temporary differences		
Unrealized exchange gains	(333.6)	(866.5)
Others	(10.8)	(863.4)
	<u>\$ (344.4)</u>	<u>\$ (1,729.9)</u>

	Year Ended December 31, 2018				
	Balance, Beginning of Year	Recognized in			Balance, End of Year
		Profit or Loss	Other Comprehensive Income	Effect of Exchange Rate Changes	
NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	
<u>Deferred income tax assets</u>					
Temporary differences					
Depreciation	\$ 8,401.3	\$3,430.4	\$ —	\$ 7.5	\$11,839.2
Refund liability	1,637.7	955.0	—	1.3	2,594.0
Net defined benefit liability	975.3	6.3	103.3	—	1,084.9
Unrealized loss on inventories	629.5	120.5	—	1.0	751.0
Deferred compensation cost	266.5	(4.7)	—	9.9	271.7
Investments in equity instruments at FVTOCI	—	—	56.2	—	56.2
Others	195.2	7.1	—	7.1	209.4
	<u>\$12,105.5</u>	<u>\$4,514.6</u>	<u>\$159.5</u>	<u>\$26.8</u>	<u>\$16,806.4</u>
<u>Deferred income tax liabilities</u>					
Temporary differences					
Unrealized exchange gains	\$ (169.5)	\$ 107.8	\$ —	\$ —	\$ (61.7)
Investments in equity instruments at FVTOCI	(95.4)	—	95.4	—	—
Others	(37.3)	(75.1)	(59.2)	—	(171.6)
	<u>\$ (302.2)</u>	<u>\$ 32.7</u>	<u>\$ 36.2</u>	<u>\$ —</u>	<u>\$ (233.3)</u>

	Year Ended December 31, 2019					
	Balance, Beginning of Year	Recognized in			Effect of Exchange Rate Changes	Balance, End of Year
		Profit or Loss	Other Comprehensive Income			
		NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)		
<u>Deferred income tax assets</u>						
Temporary differences						
Depreciation	\$11,839.2	\$1,727.8	\$ —	\$(19.8)	\$13,547.2	
Refund liability	2,594.0	(443.2)	—	(0.4)	2,150.4	
Net defined benefit liability	1,084.9	(38.2)	(30.4)	—	1,016.3	
Unrealized loss on inventories	751.0	(280.8)	—	(0.8)	469.4	
Deferred compensation cost	271.7	59.4	—	(8.0)	323.1	
Investments in equity instruments at FVTOCI	56.2	0.1	9.4	—	65.7	
Others	209.4	151.1	—	(4.2)	356.3	
	<u>\$16,806.4</u>	<u>\$1,176.2</u>	<u>\$(21.0)</u>	<u>\$(33.2)</u>	<u>\$17,928.4</u>	
<u>Deferred income tax liabilities</u>						
Temporary differences						
Unrealized exchange gains	\$ (61.7)	\$ (271.9)	\$ —	\$ —	\$ (333.6)	
Others	(171.6)	160.8	—	—	(10.8)	
	<u>\$ (233.3)</u>	<u>\$ (111.1)</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ (344.4)</u>	

	Year Ended December 31, 2020					
	Balance, Beginning of Year	Recognized in			Effect of Exchange Rate Changes	Balance, End of Year
		Profit or Loss	Other Comprehensive Income			
		NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)		
<u>Deferred income tax assets</u>						
Temporary differences						
Depreciation	\$13,547.2	\$ 5,824.0	\$ —	\$(16.8)	\$19,354.4	
Refund liability	2,150.4	1,606.1	—	(1.4)	3,755.1	
Net defined benefit liability	1,016.3	(96.3)	422.1	—	1,342.1	
Unrealized loss on inventories	469.4	391.1	—	(2.0)	858.5	
Deferred compensation cost	323.1	27.4	—	(20.2)	330.3	
Investments in equity instruments at FVTOCI	65.7	—	0.6	—	66.3	
Others	356.3	(91.6)	—	(13.2)	251.5	
	<u>\$17,928.4</u>	<u>\$ 7,660.7</u>	<u>\$422.7</u>	<u>\$(53.6)</u>	<u>\$25,958.2</u>	
<u>Deferred income tax liabilities</u>						
Temporary differences						
Unrealized exchange gains	\$ (333.6)	\$ (532.9)	\$ —	\$ —	\$ (866.5)	
Others	(10.8)	(852.6)	—	—	(863.4)	
	<u>\$ (344.4)</u>	<u>\$(1,385.5)</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ (1,729.9)</u>	

- d. The deductible temporary differences for which no deferred income tax assets have been recognized

As of December 31, 2019 and 2020, the aggregate deductible temporary differences for which no deferred income tax assets have been recognized amounted to NT\$33,445.5 million and NT\$55,521.0 million, respectively.

e. Unused tax-exemption information

As of December 31, 2020, the profits generated from the following projects of TSMC are exempt from income tax for a five-year period:

	Tax-exemption Period
Construction and expansion of 2009 by TSMC	2018 to 2022

f. The information of unrecognized deferred income tax liabilities associated with investments

As of December 31, 2019 and 2020, the aggregate taxable temporary differences associated with investments in subsidiaries not recognized as deferred income tax liabilities amounted to NT\$131,085.7 million and NT\$152,827.4 million, respectively.

g. Income tax examination

The tax authorities have examined income tax returns of TSMC through 2018. All investment tax credit adjustments assessed by the tax authorities have been recognized accordingly.

29. EARNINGS PER SHARE

	Years Ended December 31		
	2018 (NT\$)	2019 (NT\$)	2020 (NT\$)
Basic EPS	\$ 14.00	\$ 13.65	\$ 19.70
Diluted EPS	\$ 14.00	\$ 13.65	\$ 19.70

EPS is computed as follows:

	Amounts (Numerator) NT\$ (In Millions)	Number of Shares (Denominator) (In Millions)	EPS (NT\$)
<u>Year Ended December 31, 2018</u>			
Basic/Diluted EPS			
Net income available to common shareholders of the parent	\$363,052.7	25,930.3	\$14.00
<u>Year Ended December 31, 2019</u>			
Basic/Diluted EPS			
Net income available to common shareholders of the parent	\$353,948.0	25,930.3	\$13.65
<u>Year Ended December 31, 2020</u>			
Basic/Diluted EPS			
Net income available to common shareholders of the parent	\$510,744.0	25,930.3	\$19.70

30. ADDITIONAL INFORMATION OF EXPENSES BY NATURE

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
a. Depreciation of property, plant and equipment and right-of-use assets			
Recognized in cost of revenue	\$264,804.7	\$256,530.9	\$299,311.4
Recognized in operating expenses	23,292.3	24,856.7	25,191.3
Recognized in other operating income and expenses	27.9	24.2	35.7
	<u>\$288,124.9</u>	<u>\$281,411.8</u>	<u>\$324,538.4</u>
b. Amortization of intangible assets			
Recognized in cost of revenue	\$ 2,073.5	\$ 3,069.9	\$ 4,837.7
Recognized in operating expenses	2,347.9	2,402.5	2,348.5
	<u>\$ 4,421.4</u>	<u>\$ 5,472.4</u>	<u>\$ 7,186.2</u>
c. Employee benefits expenses			
Post-employment benefits			
Defined contribution plans	\$ 2,568.9	\$ 2,609.7	\$ 2,809.5
Defined benefit plans	281.8	259.6	204.9
	2,850.7	2,869.3	3,014.4
Other employee benefits	105,364.2	107,115.3	137,803.0
	<u>\$108,214.9</u>	<u>\$109,984.6</u>	<u>\$140,817.4</u>
Employee benefits expense summarized by function			
Recognized in cost of revenue	\$ 63,597.7	\$ 64,702.0	\$ 83,099.0
Recognized in operating expenses	44,617.2	45,282.6	57,718.4
	<u>\$108,214.9</u>	<u>\$109,984.6</u>	<u>\$140,817.4</u>

According to TSMC's Articles of Incorporation, TSMC shall allocate compensation to directors and profit sharing bonus to employees of TSMC not more than 0.3% and not less than 1% of annual profits during the period, respectively.

TSMC accrued profit sharing bonus to employees based on a percentage of net income before income tax, profit sharing bonus to employees and compensation to directors during the period; compensation to directors was expensed based on estimated amount payable. If there is a change in the proposed amounts after the annual consolidated financial statements are authorized for issue, the differences are recorded as a change in accounting estimate. Accrued profit sharing bonus to employees is illustrated below:

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Profit sharing bonus to employees	\$23,570.0	\$23,165.7	\$34,753.2

TSMC's profit sharing bonus to employees and compensation to directors for 2018, 2019 and 2020 had been approved by the Board of Directors of TSMC, as illustrated below:

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Resolution Date of TSMC's Board of Directors in its meeting	February 19, 2019	February 11, 2020	February 9, 2021
Profit sharing bonus to employees	<u>\$23,570.0</u>	<u>\$23,165.7</u>	<u>\$34,753.2</u>
Compensation to directors	<u>\$ 349.3</u>	<u>\$ 360.4</u>	<u>\$ 509.8</u>

There is no significant difference between the aforementioned approved amounts and the amounts charged against earnings of 2018, 2019 and 2020, respectively

31. CASH FLOW INFORMATION

a. Non-cash transactions

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Additions of financial assets at FVTOCI	\$100,759.6	\$ 257,824.5	\$268,653.5
Conversion of convertible bonds into equity securities	(23.8)	—	(120.5)
Changes in accrued expenses and other current liabilities	(4,323.0)	(266.3)	(5,895.5)
Payments for acquisition of financial assets at FVTOCI	\$ 96,412.8	\$ 257,558.2	\$262,637.5
Disposal of financial assets at FVTOCI	\$ 90,545.1	\$ 229,525.1	\$269,011.8
Changes in other financial assets	(3,905.8)	919.4	(2,079.9)
Proceeds from disposal of financial assets at FVTOCI	\$ 86,639.3	\$ 230,444.5	\$266,931.9
Additions of property, plant and equipment	\$300,024.4	\$ 564,283.0	\$525,720.7
Changes in other financial assets	1,555.4	472.5	584.7
Exchange of assets	—	(3,287.1)	(1.1)
Changes in payables to contractors and equipment suppliers	13,979.9	(100,963.9)	(19,085.9)
Transferred to initial carrying amount of hedged items	22.2	(82.3)	20.3
Payments for acquisition of property, plant and equipment	\$315,581.9	\$ 460,422.2	\$507,238.7
Additions of intangible assets	\$ 7,105.0	\$ 9,237.7	\$ 12,559.5
Changes in other financial assets	22.8	22.2	10.5
Changes in account payable	(27.5)	70.0	191.4
Changes in accrued expenses and other current liabilities	—	—	(3,219.0)
Payments for acquisition of intangible assets	\$ 7,100.3	\$ 9,329.9	\$ 9,542.4

b. Reconciliation of liabilities arising from financing activities

	Balance as of January 1, 2018 NT\$ (In Millions)	Financing Cash Flow NT\$ (In Millions)	Non-cash changes		Balance as of December 31, 2019 NT\$ (In Millions)
			Foreign Exchange Movement NT\$ (In Millions)	Other Changes (Note) NT\$ (In Millions)	
			Short-term loans	\$ 63,766.8	
Bonds payable	150,201.1	(58,024.9)	(382.9)	6.7	91,800.0
Guarantee deposits	16,080.6	(279.2)	423.5	(6,035.9)	10,189.0
Total	\$230,048.5	\$(34,381.1)	\$1,105.5	\$(6,029.2)	\$190,743.7

	Balance as of January 1, 2019 NT\$ (In Millions)	Financing Cash Flow NT\$ (In Millions)	Foreign Exchange Movement NT\$ (In Millions)	Non-cash changes		Balance as of December 31, 2019 NT\$ (In Millions)
				Leases Modifications NT\$ (In Millions)	Other Changes (Note) NT\$ (In Millions)	
				Short-term loans	\$ 88,754.7	
Bonds payable	91,800.0	(34,900.0)	—	—	—	56,900.0
Lease liabilities	19,903.6	(3,174.0)	(73.3)	419.7	240.9	17,316.9
Guarantee deposits	10,189.0	(639.1)	4.5	—	(7,824.5)	1,729.9
Total	\$210,647.3	\$(6,908.8)	\$(2,105.5)	\$419.7	\$(7,583.6)	\$194,469.1

	Non-cash changes					Balance as of December 31, 2020
	Balance as of January 1, 2020	Financing Cash Flow	Foreign Exchange Movement	Leases Modifications	Other Changes (Note)	
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	
Short-term loans	\$118,522.3	\$ (31,571.6)	\$ 1,608.3	\$ —	\$ —	\$ 88,559.0
Bonds payable	56,900.0	204,535.0	(4,758.6)	—	28.7	256,705.1
Long-term bank loans	—	2,000.0	—	—	(32.4)	1,967.6
Lease liabilities	17,316.9	(2,819.7)	(78.5)	7,742.2	227.7	22,388.6
Guarantee deposits	1,729.9	129.5	1.8	—	(1,511.2)	350.0
Total	\$194,469.1	\$172,273.2	\$(3,227.0)	\$7,742.2	\$(1,287.2)	\$369,970.3

Note: Other changes include amortization of bonds payable, amortization of long-term bank loan interest subsidy, financial cost of lease liabilities and guarantee deposits refunded to customers by offsetting related accounts receivable.

32 CAPITAL MANAGEMENT

The Company requires significant amounts of capital to build and expand its production facilities and acquire additional equipment. In consideration of the industry dynamics, the Company manages its capital in a manner to ensure that it has sufficient and necessary financial resources to fund its working capital needs, capital asset purchases, research and development activities, dividend payments, debt service requirements and other business requirements associated with its existing operations over the next 12 months.

33. FINANCIAL INSTRUMENTS

a. Categories of financial instruments

	December 31, 2019	December 31, 2020
	NT\$ (In Millions)	NT\$ (In Millions)
Financial assets		
FVTPL (Note 1)	\$ 326.8	\$ 2,259.4
FVTOCI (Note 2)	134,776.8	129,918.7
Hedging financial assets	25.9	0.1
Amortized cost (Note 3)	612,740.6	826,293.6
	<u>\$747,870.1</u>	<u>\$958,471.8</u>
Financial liabilities		
FVTPL (Note 4)	\$ 982.3	\$ 94.1
Hedging financial liabilities	1.8	1.2
Amortized cost (Note 5)	533,581.7	748,129.3
	<u>\$534,565.8</u>	<u>\$748,224.6</u>

Note 1: Financial assets mandatorily measured at FVTPL.

Note 2: Including notes and accounts receivable (net), equity and debt investments.

Note 3: Including cash and cash equivalents, financial assets at amortized cost, notes and accounts receivable (including related parties), other receivables and refundable deposits.

Note 4: Held for trading.

Note 5: Including short-term loans, accounts payable (including related parties), payables to contractors and equipment suppliers, cash dividends payable, accrued expenses and other current liabilities, bonds payable, long-term bank loans and guarantee deposits.

b. Financial risk management objectives

The Company manages its exposure to foreign currency risk, interest rate risk, equity price risk, credit risk and liquidity risk with the objective to reduce the potentially adverse effects the market uncertainties may have on its financial performance.

The plans for material treasury activities are reviewed by Audit Committees and/or Board of Directors in accordance with procedures required by relevant regulations or internal controls. During the implementation of such plans, the Company must comply with certain treasury procedures that provide guiding principles for overall financial risk management and segregation of duties.

c. Market risk

The Company is exposed to the financial market risks, primarily changes in foreign currency exchange rates, interest rates and equity investment prices. A portion of these risks is hedged.

Foreign currency risk

The majority of the Company's revenue is denominated in U.S. dollar and over one-half of its capital expenditures are denominated in currencies other than NT dollar, primarily in U.S. dollar, Japanese yen and Euro. As a result, any significant fluctuations to its disadvantage in exchanges rate of NT dollar against such currencies, in particular a weakening of U.S. dollar against NT dollar, would have an adverse impact on the revenue and operating profit as expressed in NT dollar. The Company uses foreign currency derivative contracts, such as currency forwards or currency swaps, to protect against currency exchange rate risks associated with non-NT dollar-denominated assets and liabilities and certain forecasted transactions. These hedges reduce, but do not entirely eliminate, the effect of foreign currency exchange rate movements on the assets and liabilities

Based on a sensitivity analysis performed on the Company's total monetary assets and liabilities for the years ended December 31, 2018, 2019 and 2020, a hypothetical adverse foreign currency exchange rate change of 10% would have decreased its net income by NT\$506.4 million, NT\$2,137.3 million and NT\$897.7 million, respectively, and decreased its other comprehensive income by NT\$315.6 million, NT\$107.7 million for the years ended December 2018 and 2019, after taking into account hedges and offsetting positions.

Interest rate risk

The Company is exposed to interest rate risks primarily related to its investment portfolio and outstanding debt. Changes in interest rates affect the interest earned on the Company's cash and cash equivalents and fixed income securities, the fair value of those securities, as well as the interest paid on its debt.

The Company's cash and cash equivalents as well as fixed income investments in both fixed- and floating-rate securities carry a degree of interest rate risk. The majority of the Company's fixed income investments are fixed-rate securities, which are classified as financial assets at FVTOCI, and may have their fair value adversely affected due to a rise in interest rates. At the same time, if interest rates fall, cash and cash equivalents as well as floating-rate securities may generate less interest income than expected. The Company has entered and may in the future enter into interest rate futures to partially hedge the interest rate risk on its fixed income investments. However, these hedges can offset only a small portion of the financial impact from movements in interest rates.

Based on a sensitivity analysis performed on the Company's fixed income investments at the end of the reporting period, interest rates increase of 100 basis points (1.00%) across all maturities would have decreased the fair value by NT\$2,697.8million, NT\$3,517.4 million and NT\$3,143.6 million for the years ended December 31, 2018, 2019 and 2020, respectively. The decreases were composed of NT\$2,450.0 million decrease, NT\$3,516.6 million decrease and NT\$3,143.6 million decrease in other comprehensive income for the years ended December 31, 2018, 2019, and 2020, respectively, and NT\$247.8 million decrease and NT\$0.8 million decrease in net income for the years ended December 31, 2018 and 2019, respectively.

The majority of the Company's short-term debt is floating-rate, hence a rise in interest rates may result in higher interest expense than predicted. The majority of the Company's long-term debt is fixed-rate and measured at amortized cost and as such, changes in interest rates would not affect the future cash flows and the carrying amount.

Other price risk

The Company is exposed to equity price risk arising from financial assets at FVTOCI.

Assuming a hypothetical decrease of 10% in prices of the equity investments at the end of the reporting period for the years ended December 31, 2018, 2019 and 2020, the other comprehensive income would have decreased by NT\$427.1 million, NT\$401.9 million and NT\$446.5 million, respectively.

d. Credit risk management

Credit risk refers to the risk that a counterparty will default on its contractual obligations resulting in financial losses to the Company. The Company is exposed to credit risks from operating activities, primarily accounts receivable, and from investing activities, primarily deposits, fixed-income investments and other financial instruments with banks. Credit risk is managed separately for business related and financial related exposures. As of the end of the reporting period, the Company's maximum credit risk exposure is equal to the carrying amount of financial assets.

Business related credit risk

The Company's accounts receivable is from its customers worldwide. The majority of the Company's outstanding accounts receivable are not covered by collaterals or guarantees. While the Company has procedures to monitor and manage credit risk exposure on accounts receivable, there is no assurance such procedures will effectively eliminate losses resulting from its credit risk. This risk is heightened during periods when economic conditions worsen.

As of December 31, 2019 and 2020, the Company's ten largest customers accounted for 79% of accounts receivable in both years. The Company considers the concentration of credit risk for the remaining accounts receivable not material.

Financial credit risk

The Company mitigates its financial credit risk by selecting counterparties with investment grade credit ratings and by limiting the exposure to any individual counterparty. The Company regularly monitors and reviews the limit applied to counterparties and adjusts the limit according to market conditions and the credit standing of the counterparties.

The objective of the Company's investment policy is to achieve a return that will allow the Company to preserve principal and support liquidity requirements. The policy generally requires securities to be investment grade and limits the amount of credit exposure to any one issuer. The Company assesses whether there has been a significant increase in credit risk in the invested securities since initial recognition by reviewing changes in external credit ratings, financial market conditions and material information of the issuers.

The Company assesses the 12-month expected credit loss and lifetime expected credit loss based on the probability of default and loss given default provided by external credit rating agencies. The current credit risk assessment policies are as follows:

<u>Category</u>	<u>Description</u>	<u>Basis for Recognizing Expected Credit Loss</u>	<u>Expected Credit Loss Ratio</u>
Performing	Credit rating is investment grade on valuation date	12 months expected credit loss	0-0.1%
Doubtful	Credit rating is non-investment grade on valuation date	Lifetime expected credit loss-not credit impaired	—
In default	Credit rating is CC or below on valuation date	Lifetime expected credit loss-credit impaired	—
Write-off	There is evidence indicating that the debtor is in severe financial difficulty and the Company has no realistic prospect of recovery	Amount is written off	—

For the years ended December 31, 2018, 2019 and 2020, the expected credit loss decreases NT\$1.1 million, increases NT\$0.6 million and increases NT\$1.1 million, respectively. The changes are mainly due to investment portfolio adjustment and changes in credit rating of investment securities.

e. Liquidity risk management

The objective of liquidity risk management is to ensure the Company has sufficient liquidity to fund its business operations over the next 12 months. The Company manages its liquidity risk by maintaining adequate cash and cash equivalents, fixed income investments at FVTPL, financial assets at FVTOCI-current, financial assets at amortized cost-current and sufficient cost-efficient funding.

The table below summarizes the maturity profile of the Company's financial liabilities based on contractual undiscounted payments, including principal and interest.

	<u>Less Than 1 Year</u>	<u>1-3 Years</u>	<u>3-5 Years</u>	<u>More Than 5 Years</u>	<u>Total</u>
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
<u>December 31, 2019</u>					
<u>Non-derivative financial liabilities</u>					
Short-term loans	\$ 118,562.6	\$ —	\$ —	\$ —	\$ 118,562.6
Accounts payable (including related parties)	40,206.0	—	—	—	40,206.0
Payables to contractors and equipment suppliers	140,810.7	—	—	—	140,810.7
Accrued expenses and other current liabilities	45,760.9	—	—	—	45,760.9
Bonds payable	32,338.9	7,777.7	18,203.6	—	58,320.2
Lease liabilities (including those classified under accrued expenses and other current liabilities)	2,475.1	2,782.9	2,484.5	10,947.7	18,690.2
Guarantee deposits (including those classified under accrued expenses and other current liabilities)	1,553.0	121.0	55.5	0.4	1,729.9
	<u>381,707.2</u>	<u>10,681.6</u>	<u>20,743.6</u>	<u>10,948.1</u>	<u>424,080.5</u>
<u>Derivative financial instruments</u>					
<u>Forward exchange contracts</u>					
Outflows	141,450.8	—	—	—	141,450.8
Inflows	(141,128.9)	—	—	—	(141,128.9)
	<u>321.9</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>321.9</u>
	<u>\$ 382,029.1</u>	<u>\$10,681.6</u>	<u>\$20,743.6</u>	<u>\$10,948.1</u>	<u>\$ 424,402.4</u>

(Continued)

	<u>Less Than 1 Year</u>	<u>1-3 Years</u>	<u>3-5 Years</u>	<u>More Than 5 Years</u>	<u>Total</u>
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
<u>December 31, 2020</u>					
<u>Non-derivative financial liabilities</u>					
Short-term loans	\$ 88,557.5	\$ —	\$ —	\$ —	\$ 88,557.5
Accounts payable (including related parties)	41,095.0	—	—	—	41,095.0
Payables to contractors and equipment suppliers	157,805.0	—	—	—	157,805.0
Accrued expenses and other current liabilities	71,995.7	—	—	—	71,995.7
Bonds payable	5,328.0	27,631.6	59,986.8	207,152.1	300,098.5
Long-term bank loans	8.0	847.4	1,170.9	—	2,026.3
Lease liabilities (including those classified under accrued expenses and other current liabilities)	2,024.2	3,566.7	3,198.8	15,067.9	23,857.6
Guarantee deposits (including those classified under accrued expenses and other current liabilities)	84.4	113.5	151.8	0.3	350.0
	<u>366,897.8</u>	<u>32,159.2</u>	<u>64,508.3</u>	<u>222,220.3</u>	<u>685,785.6</u>
<u>Derivative financial instruments</u>					
<u>Forward exchange contracts</u>					
Outflows	177,764.2	—	—	—	177,764.2
Inflows	(181,458.0)	—	—	—	(181,458.0)
	<u>(3,693.8)</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>(3,693.8)</u>
	<u>\$ 363,204.0</u>	<u>\$32,159.2</u>	<u>\$64,508.3</u>	<u>\$222,220.3</u>	<u>\$ 682,091.8</u>

(Concluded)

Information about the maturity analysis for lease liabilities more than 5 years:

	<u>5-10 Years</u>	<u>10-15 Years</u>	<u>15-20 Years</u>	<u>More Than 20 Years</u>	<u>Total</u>
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
<u>December 31, 2019</u>					
Lease liabilities	<u>\$5,581.1</u>	<u>\$3,691.3</u>	<u>\$1,600.9</u>	<u>\$ 74.4</u>	<u>\$10,947.7</u>
<u>December 31, 2020</u>					
Lease liabilities	<u>\$7,402.0</u>	<u>\$5,253.9</u>	<u>\$2,255.2</u>	<u>\$156.8</u>	<u>\$15,067.9</u>

f. Fair value of financial instruments

1) Fair value measurements recognized in the consolidated statements of financial position

Fair value measurements are grouped into Levels 1 to 3 based on the degree to which the fair value is observable:

- Level 1 fair value measurements are those derived from quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2 fair value measurements are those derived from 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); and
- Level 3 fair value measurements are those derived from valuation techniques that include inputs for the asset or liability that are not based on observable market data (unobservable inputs).

The timing of transfers between levels within the fair value hierarchy is at the end of reporting period.

2) Fair value of financial instruments that are measured at fair value on a recurring basis

Fair value hierarchy

The following table presents the Company's financial assets and liabilities measured at fair value on a recurring basis:

	December 31, 2019			
	Level 1	Level 2	Level 3	Total
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
<u>Financial assets at FVTPL</u>				
<u>Mandatorily measured at FVTPL</u>				
Forward exchange contracts	\$ —	\$ 162.1	\$ —	\$ 162.1
Convertible bonds	—	—	123.8	123.8
Agency mortgage-backed securities	—	40.9	—	40.9
	<u>\$ —</u>	<u>\$ 203.0</u>	<u>\$ 123.8</u>	<u>\$ 326.8</u>
<u>Financial assets at FVTOCI</u>				
<u>Investments in debt instruments</u>				
Agency bonds/Agency mortgage-backed securities	\$ —	\$ 51,966.5	\$ —	\$ 51,966.5
Corporate bonds	—	51,790.0	—	51,790.0
Government bonds	12,678.1	146.1	—	12,824.2
Asset-backed securities	—	10,815.9	—	10,815.9
<u>Investments in equity instruments</u>				
Non-publicly traded equity investments	—	39.2	4,085.1	4,124.3
Notes and accounts receivable, net	—	3,255.9	—	3,255.9
	<u>\$12,678.1</u>	<u>\$118,013.6</u>	<u>\$4,085.1</u>	<u>\$134,776.8</u>
<u>Hedging financial assets</u>				
<u>Fair value hedges</u>				
Interest rate futures contracts	\$ 22.4	\$ —	\$ —	\$ 22.4
<u>Cash flow hedges</u>				
Forward exchange contracts	—	3.5	—	3.5
	<u>\$ 22.4</u>	<u>\$ 3.5</u>	<u>\$ —</u>	<u>\$ 25.9</u>
<u>Financial liabilities at FVTPL</u>				
<u>Held for trading</u>				
Forward exchange contracts	\$ —	\$ 982.3	\$ —	\$ 982.3
<u>Hedging financial liabilities</u>				
<u>Cash flow hedges</u>				
Forward exchange contracts	\$ —	\$ 1.8	\$ —	\$ 1.8

	December 31, 2020			
	Level 1	Level 2	Level 3	Total
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
<u>Financial assets at FVTPL</u>				
<u>Mandatorily measured at FVTPL</u>				
Forward exchange contracts	\$ —	\$ 2,259.4	\$ —	\$ 2,259.4
<u>Financial assets at FVTOCI</u>				
<u>Investments in debt instruments</u>				
Corporate bonds	\$ —	\$ 56,593.6	\$ —	\$ 56,593.6
Agency bonds/Agency mortgage-backed securities	—	43,977.1	—	43,977.1
Government bonds	13,279.2	180.3	—	13,459.5
Asset-backed securities	—	8,368.3	—	8,368.3
<u>Investments in equity instruments</u>				
Non-publicly traded equity investments	—	—	4,514.9	4,514.9
Publicly traded stocks	50.0	—	—	50.0
Notes and accounts receivable, net	—	2,955.3	—	2,955.3
	<u>\$13,329.2</u>	<u>\$112,074.6</u>	<u>\$4,514.9</u>	<u>\$129,918.7</u>
<u>Hedging financial assets</u>				
<u>Fair value hedges</u>				
Interest rate futures contracts	\$ 0.1	\$ —	\$ —	\$ 0.1
<u>Financial liabilities at FVTPL</u>				
<u>Held for trading</u>				
Forward exchange contracts	\$ —	\$ 94.1	\$ —	\$ 94.1
<u>Hedging financial liabilities</u>				
<u>Fair value hedges</u>				
Interest rate futures contracts	\$ 1.2	\$ —	\$ —	\$ 1.2

The transfer from Level 2 to Level 1 is because quoted prices (unadjusted) in active markets became available for such equity investment.

Reconciliation of Level 3 fair value measurements of financial assets

The financial assets measured at Level 3 fair value were financial assets at FVTPL and equity investments classified as financial assets at FVTOCI. Reconciliations for the years ended December 31, 2018, 2019 and 2020 were as follows:

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Balance, beginning of year	\$ 5,841.4	\$3,910.7	\$4,208.9
Additions	212.5	372.3	175.2
Recognized in profit or loss	—	—	(3.8)
Recognized in other comprehensive income	(2,141.4)	129.5	409.0
Disposals and proceeds from return of capital of investments	(175.8)	(76.5)	(51.1)
Transfers out of level 3 (Note)	—	(43.6)	—
Effect of exchange rate changes	174.0	(83.5)	(223.3)
Balance, end of year	<u>\$ 3,910.7</u>	<u>\$4,208.9</u>	<u>\$4,514.9</u>

Note: The transfer from Level 3 to Level 2 is because observable market data became available for such equity investment.

Valuation techniques and assumptions used in Level 2 fair value measurement

The fair values of financial assets and financial liabilities are determined as follows:

- The fair values of corporate bonds, agency bonds, agency mortgage-backed securities, asset-backed securities, government bonds and non-publicly traded equity investments—equity

investments trading on the Emerging Stock Board are determined by quoted market prices provided by third party pricing services.

- Forward exchange contracts are measured using forward exchange rates and discount rates derived from quoted market prices.
- The fair value of accounts receivable classified as at FVTOCI is determined by the present value of future cash flows based on the discount rate that reflects the credit risk of counterparties.

Valuation techniques and assumptions used in Level 3 fair value measurement

The fair values of non-publicly traded equity investments (excluding those trading on the Emerging Stock Board) are mainly determined by using the asset approach and market approach.

The asset approach takes into account the net asset value measured at the fair value by independent parties. On December 31, 2019 and 2020, the Company uses unobservable inputs derived from discount for lack of marketability by 10%. When other inputs remain equal, the fair value will decrease by NT\$34.8 million and NT\$39.0 million if discounts for lack of marketability increase by 1%.

For the remaining few investments, the market approach is used to arrive at their fair values, for which the recent financing activities of investees, the market transaction prices of the similar companies and market conditions are considered.

In addition, the fair values of convertible bonds are determined by the present value of future cash flow based on a discount rate reflecting issuer's credit spread and market conditions, combined with the fair value of conversion option estimated by the option pricing model considering recent financing activities of the investee and market transaction prices of the similar companies.

3) Fair value of financial instruments that are not measured at fair value

Except as detailed in the following table, the Company considers that the carrying amounts of financial instruments in the consolidated financial statements that are not measured at fair value approximate their fair values.

Fair value hierarchy

The table below sets out the fair value hierarchy for the Company's financial assets and liabilities which are not required to measure at fair value:

	<u>December 31, 2019</u>	
	<u>Carrying Amount</u>	<u>Level 2 Fair Value</u>
	<u>NT\$</u> <u>(In Millions)</u>	<u>NT\$</u> <u>(In Millions)</u>
<u>Financial assets</u>		
<u>Financial assets at amortized costs</u>		
Corporate bonds	\$ 7,648.8	\$ 7,718.7
<u>Financial liabilities</u>		
<u>Financial liabilities at amortized costs</u>		
Bonds payable	\$56,900.0	\$57,739.1

	December 31, 2020	
	Carrying Amount	Level 2 Fair Value
	NT\$ (In Millions)	NT\$ (In Millions)
<u>Financial assets</u>		
Financial assets at amortized costs		
Corporate bonds	\$ 10,970.2	\$ 11,053.6
<u>Financial liabilities</u>		
Financial liabilities at amortized costs		
Bonds payable	\$256,705.1	\$257,551.2

Valuation techniques and assumptions used in Level 2 fair value measurement

The fair values of corporate bonds and the Company's bonds payable are determined by quoted market prices provided by third party pricing services.

34. RELATED PARTY TRANSACTIONS

Intercompany balances and transactions between TSMC and its subsidiaries, which are related parties of TSMC, have been eliminated upon consolidation; therefore, those items are not disclosed in this note. The following is a summary of significant transactions between the Company and other related parties:

a. Related party name and categories

<u>Related Party Name</u>	<u>Related Party Categories</u>
GUC	Associates
VIS	Associates
SSMC	Associates
Xintec	Associates
TSMC Education and Culture Foundation	Other related parties
TSMC Charity Foundation	Other related parties

b. Net revenue

<u>Item</u>	<u>Related Party Categories</u>	Years Ended December 31		
		2018	2019	2020
		NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Net revenue from sale of goods ..	Associates	\$8,980.1	\$6,253.9	\$8,129.8
	Other related parties	0.3	—	—
		<u>\$8,980.4</u>	<u>\$6,253.9</u>	<u>\$8,129.8</u>
Net revenue from royalties	Associates	<u>\$ 362.3</u>	<u>\$ 183.6</u>	<u>\$ 195.1</u>

c. Purchases

<u>Related Party Categories</u>	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Associates	<u>\$8,809.5</u>	<u>\$6,301.4</u>	<u>\$7,606.4</u>

d. Receivables from related parties

Item	Related Party Name/Categories	December 31, 2019	December 31, 2020
		NT\$ (In Millions)	NT\$ (In Millions)
Receivables from related parties	GUC	\$741.9	\$370.6
	Xintec	120.2	187.5
		<u>\$862.1</u>	<u>\$558.1</u>
Other receivables from related parties	SSMC	\$ 46.5	\$ 45.3
	VIS	3.9	4.3
	Other associates	1.2	1.0
	<u>\$ 51.6</u>	<u>\$ 50.6</u>	

e. Payables to related parties

Item	Related Party Name/Categories	December 31, 2019	December 31, 2020
		NT\$ (In Millions)	NT\$ (In Millions)
Payables to related parties	Xintec	\$ 736.9	\$1,358.6
	SSMC	487.9	400.8
	VIS	154.0	311.4
	Other associates	56.1	36.9
	<u>\$1,434.9</u>	<u>\$2,107.7</u>	

f. Others

Item	Related Party Categories	Years Ended December 31		
		2018	2019	2020
		NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Manufacturing expenses	Associates	<u>\$2,974.6</u>	<u>\$2,823.0</u>	<u>\$5,440.0</u>
Research and development expenses	Associates	<u>\$ 83.1</u>	<u>\$ 163.4</u>	<u>\$ 256.5</u>
General and administrative expenses	Other related parties	<u>\$ 120.8</u>	<u>\$ 120.0</u>	<u>\$ 120.0</u>

The sales prices and payment terms to related parties were not significantly different from those of sales to third parties. For other related party transactions, price and terms were determined in accordance with mutual agreements.

The Company leased factory and office from associates. The lease terms and prices were both determined in accordance with mutual agreements. The rental expenses were paid to associates monthly; the related expenses were both classified under manufacturing expenses.

g. Compensation of key management personnel

The compensation to directors and other key management personnel were as follows:

	Years Ended December 31		
	2018	2019	2020
	NT\$ (In Millions)	NT\$ (In Millions)	NT\$ (In Millions)
Short-term employee benefits	\$2,004.9	\$1,922.2	\$2,666.7
Post-employment benefits	3.4	2.7	2.3
	<u>\$2,008.3</u>	<u>\$1,924.9</u>	<u>\$2,669.0</u>

The compensation to directors and other key management personnel were determined by the Compensation Committee of TSMC in accordance with the individual performance and the market trends.

35. PLEDGED ASSETS

The Company provided certificate of deposits recorded in other financial assets as collateral mainly for building lease agreements. As of December 31, 2019 and 2020, the aforementioned other financial assets amounted to NT\$114.5 million and NT\$135.4 million, respectively.

36. SIGNIFICANT CONTINGENT LIABILITIES AND UNRECOGNIZED COMMITMENTS

Significant contingent liabilities and unrecognized commitments of the Company as of the end of the reporting period, excluding those disclosed in other notes, were as follows:

- a. Under a technical cooperation agreement with Industrial Technology Research Institute, the R.O.C. Government or its designee approved by TSMC can use up to 35% of TSMC's capacity provided TSMC's outstanding commitments to its customers are not prejudiced. The term of this agreement is for five years beginning from January 1, 1987 and is automatically renewed for successive periods of five years unless otherwise terminated by either party with one year prior notice. As of December 31, 2020, the R.O.C. Government did not invoke such right.
- b. Under a Shareholders Agreement entered into with Philips and EDB Investments Pte Ltd. on March 30, 1999, the parties formed a joint venture company, SSMC, which is an integrated circuit foundry in Singapore. TSMC's equity interest in SSMC was 32%. Nevertheless, in September 2006, Philips spun-off its semiconductor subsidiary which was renamed as NXP B.V. Further, TSMC and NXP B.V. purchased all the SSMC shares owned by EDB Investments Pte Ltd. pro rata according to the Shareholders Agreement on November 15, 2006. After the purchase, TSMC and NXP B.V. currently own approximately 39% and 61% of the SSMC shares, respectively. TSMC and NXP B.V. are required, in the aggregate, to purchase at least 70% of SSMC's capacity, but TSMC alone is not required to purchase more than 28% of the capacity. If any party defaults on the commitment and the capacity utilization of SSMC falls below a specific percentage of its capacity, the defaulting party is required to compensate SSMC for all related unavoidable costs. There was no default from the aforementioned commitment as of December 31, 2020.
- c. On September 28, 2017, TSMC was contacted by the European Commission (the "Commission"), which asked us for information and documents concerning alleged anti-competitive practices in relation to semiconductor sales. We cooperated continuously with the Commission to provide the requested information and documents. The Commission subsequently decided to close the investigation in May 2020.
- d. TSMC entered into long-term purchase agreements of materials and supplies with multiple suppliers. The relative minimum purchase quantity and price are specified in the agreements.
- e. TSMC entered into a long-term purchase agreement of equipment. The relative purchase quantity and price are specified in the agreement.
- f. TSMC entered into long-term energy purchase agreements with multiple suppliers. The relative purchase period, quantity and price are specified in the agreements.
- g. Amounts available under unused letters of credit as of December 31, 2019 and 2020 were NT\$60.0 million and NT\$56.2 million, respectively.

37. SIGNIFICANT OPERATION LOSSES

The Company experienced a computer virus outbreak on August 3, 2018, which affected a number of computer systems and fab tools, and consequently impacted wafer production in Taiwan. All the impacted tools have been recovered by August 6, 2018. The Company recognized a loss of NT\$2,596.0 million related to this incident for the three months ended September 30, 2018, which was included in cost of revenue.

On January 19, 2019, the Company discovered a wafer contamination issue in a fab in Taiwan caused by a batch of unqualified photoresist materials. After investigation, the Company immediately stopped using the unqualified materials. An estimated loss of NT\$3,400.0 million related to this event was recognized in cost of revenue for the three months ended March 31, 2019.

38. OPERATING SEGMENTS INFORMATION

a. Operating segments, segment revenue and operating results

TSMC's chief operating decision makers periodically review operating results, focusing on operating income generated by foundry segment. Operating results are used for resource allocation and/or performance assessment. As a result, the Company has only one operating segment, the foundry segment. The foundry segment engages mainly in the manufacturing, selling, packaging, testing and computer-aided design of integrated circuits and other semiconductor devices and the manufacturing of masks.

The basis for the measurement of income from operations is the same as that for the preparation of financial statements. Please refer to the consolidated statements of comprehensive income for the related segment revenue and operating results.

b. Geographic and major customers' information were as follows:

1) Geographic information

	December 31, 2019	December 31, 2020
	NT\$	NT\$
Noncurrent Assets	(In Millions)	(In Millions)
Taiwan	\$1,344,352.6	\$1,569,080.4
United States	8,850.1	9,455.5
China	38,586.6	34,456.4
Europe, the Middle East and Africa	186.2	174.2
Japan	27.1	327.2
Others	3.1	3.0
	<u>\$1,392,005.7</u>	<u>\$1,613,496.7</u>

Noncurrent assets include property, plant and equipment, right-of-use assets, intangible assets and other noncurrent assets.

2) Major customers representing at least 10% of net revenue

	Years Ended December 31					
	2018		2019		2020	
	Amount	%	Amount	%	Amount	%
	NT\$ (In Millions)		NT\$ (In Millions)		NT\$ (In Millions)	
Customer A	\$224,690.7	22	\$247,213.3	23	\$336,775.5	25
Customer B	83,885.6	8	152,876.9	14	167,390.8	12

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