UNITED MICROELECTRONICS CORP
Form 20-F
April 25, 2019
Table of Contents

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 20-F

(Mark One)

REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2018

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Date of event requiring this shell company report _____

For the transition period from _____ to _____

Commission file number 001-15128

United Microelectronics Corporation

(Exact name of Registrant as specified in its charter)

N/A

(Translation of Registrant s name into English)

Taiwan, Republic of China

(Jurisdiction of incorporation or organization)

No. 3 Li-Hsin Road II, Hsinchu Science Park,

Hsinchu City, Taiwan, Republic of China

(Address of principal executive offices)

Chitung Liu, +886-2-2658-9168, chitung_liu@umc.com,

8F, No. 68, Section 1, Neihu Road., Taipei 11493, Taiwan R.O.C.

(Name, Telephone, E-mail and/or Facsimile number and Address of Company Contact Person)

Securities registered or to be registered pursuant to Section 12(b) of the Act.

Title of each class	Name of each exchange on which registered
American Depositary Shares, as evidenced by American Depositary Receipts, each representing 5 Common Shares	New York Stock Exchange

Securities registered or to be registered pursuant to Section 12(g) of the Act.

None

(Title of Class)

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act.

None

(Title of Class)

Indicate the number of outstanding shares of each of the issuer s classes of capital or common stock as of the close of the period covered by the annual report.

12,424,318,715 Common Shares of Registrant issued as of December 31, 2018 (including 480,000,000 treasury shares)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or an emerging growth company. See definition of large accelerated filer, accelerated filer, and emerging growth company in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer

Non-accelerated filer Emerging growth company

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

The term new or revised financial accounting standard refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP | International Financial Reporting Standards as issued by the International Accounting Standards Board | Other

If Other has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow. Item 17 Item 18

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Securities Exchange Act of 1934). Yes No

(APPLICABLE ONLY TO ISSUERS INVOLVED IN BANKRUPTCY PROCEEDINGS DURING THE PAST FIVE YEARS)

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Sections 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court. Yes No

Table of Contents

UNITED MICROELECTRONICS CORPORATION

FORM 20-F ANNUAL REPORT

FISCAL YEAR ENDED DECEMBER 31, 2018

Table of Contents

Table of Contents

SUPPLEMENTAL INFORMATION

The references to United Microelectronics , we , us , our , our company and the Company in this annual report r United Microelectronics Corporation and its consolidated subsidiaries, unless the context suggests otherwise. The references to Taiwan and R.O.C. refer to Taiwan, Republic of China. The references to China and PRC refer to People s Republic of China. The references to shares and common shares refer to our common shares, par value NT$10 per share, and ADSs refers to our American depositary shares, each representing five common shares. The ADSs are issued under the Deposit Agreement, dated as of October 21, 2009, as amended, supplemented or modified from time to time, among United Microelectronics, JPMorgan Chase Bank, N.A. and the holders and beneficial owners from time to time of American Depositary Receipts issued thereunder. The references to TIFRSs refers to the Taiwan International Financial Reporting Standards as issued by the Financial Supervisory Commission in the Republic of China, IFRSs refers to International Financial Reporting Standards as issued by the International Accounting Standards Board, or IASB, and U.S. GAAP refers to the generally accepted accounting principles in the United States. Any discrepancies in any table between totals and sums of the amounts listed are due to rounding.

We publish our financial statements in New Taiwan dollars, the lawful currency of the R.O.C. In this annual report, NT$ and NT dollars mean New Taiwan dollars, $, US$ and U.S. dollars mean United States dollars, ¥ means Yen, RMB¥ means Renminbi and means EURO.

FORWARD-LOOKING STATEMENTS IN THIS ANNUAL REPORT MAY NOT BE REALIZED

Our disclosure and analysis in this annual report contain or incorporate by reference some forward-looking statements. Our forward-looking statements contain information regarding, among other things, our financial condition, future expansion plans and business strategy. We have based these forward-looking statements on our current expectations and projections about future events. You can identify these statements by the fact that they do not relate strictly to historical or current facts. Although we believe that these expectations and projections are reasonable, such forward-looking statements are inherently subject to risks, uncertainties and assumptions about us, including, among other things:

- our dependence on frequent introduction of new product services and technologies based on the latest developments;
- the intensely competitive semiconductor, communications, consumer electronics and computer industries and markets;
- risks associated with our international business activities;
- our dependence on key personnel;
- general economic and political conditions, including those related to the semiconductor, communications, consumer electronics and computer industries;

natural disasters, such as earthquakes and droughts, which are beyond our control;

possible disruptions in commercial activities caused by natural and human-induced disasters, and outbreaks of contagious diseases;

fluctuations in foreign currency exchange rates;

additional disclosures we make in our previous and future Form 20-F annual reports and Form 6-K periodic reports to the U.S. Securities and Exchange Commission, or the U.S. SEC; and

those other risks identified in the Item 3. Key Information-D. Risk Factors section of this annual report.

Table of Contents

The words may , will , is/are likely to , anticipate , believe , estimate , expect , intend , plan and similar ex intended to identify a number of these forward-looking statements. We do not and will not undertake the obligation to update or revise any forward-looking statements contained in this annual report whether as a result of new information, future events or otherwise. In light of these risks, uncertainties and assumptions, the forward-looking events discussed in this annual report might not occur and our actual results could differ materially from those anticipated in these forward-looking statements.

GLOSSARY

ASIC	Application Specific Integrated Circuit. A custom-designed integrated circuit that performs specific functions which would otherwise require a number of off-the-shelf integrated circuits to perform.
BCD	Bipolar- Complementary Metal Oxide Semiconductor (CMOS)- Double Diffused Metal Oxide Semiconductor (DMOS). An integrated circuit and is one of the most important components for power management integration circuits.
BSI-CSI	Back-Side Illuminated CMOS Image Sensor, which is recently used for mobile product image sensor with better performance and thinner chip.
Cell	Semiconductor structure in an electrical state which can store a bit of information, mainly used as the building block of memory array.
Die	A piece of a semiconductor wafer containing the circuitry of an unpackaged single chip.
DRAM	Dynamic Random Access Memory. A type of volatile memory product that is used in electronic systems to store data and program instructions. It is the most common type of RAM and must be refreshed with electricity hundreds of times per second or else it will fade away.
eFlash	Embedded Flash Nonvolatile Memory. Used for most SoC (System-on-Chip) applications and has faster speed and enhanced security.
eHV	Embedded High Voltage Device. Used for Liquid Crystal Display (LCD) driver circuit to drive LCD devices.
EUV Lithography	Extreme Ultraviolet Lithography.
FinFET	Fin Field-Effect Transistor.
FPGA	Field Programmable Gate Array. A programmable integrated circuit.
Integrated Circuit	Entire electronic circuit built on a single piece of solid substrate and enclosed in a small package. The package is equipped with leads needed to electrically integrate the integrated circuit with a larger electronic system. Monolithic and hybrid integrated circuits are distinguished by the type of substrate used.
Interconnect	The conductive path made from copper or aluminum that is required to achieve connection from one circuit element to the other circuit elements within a circuit.
Mask or Photomask	A piece of glass on which an integrated circuit circuitry design is laid out.

Table of Contents

MCU	Microcontroller unit, a small computer on a single integrated circuit, containing one or more central processing units along with memory and programmable input/output peripherals.
Memory	A group of integrated circuits that a computer uses to store data and programs, such as ROM, RAM, DRAM and SRAM.
Micron	A unit of spatial measurement that is one-millionth of a meter.
MRAM	Magnetic Random Access Memory
Nanometer	A unit of spatial measurement that is one-billionth of a meter.
PC	Personal computer.
RAM	Random Access Memory. A type of volatile memory forming the main memory of a computer where applications and files are run.
ReRAM	Resistive Random Access Memory
RF-SOI	Radio Frequency Silicon on Insulator
ROM	Read-Only Memory. Memory that is programmed by the manufacturer and cannot be changed. Typically, ROM is used to provide start-up data when a computer is first turned on.
Scanner	A photolithography tool used in the production of semiconductor devices. This camera-like step-and-scan tool projects the image of a circuit from a master image onto a photosensitized silicon wafer.
Semiconductor	A material with electrical conducting properties in between those of metals and insulators. Essentially, semiconductors transmit electricity only under certain circumstances, such as when given a positive or negative electric charge. Therefore, a semiconductor s ability to conduct can be turned on or off by manipulating those charges and this allows the semiconductor to act as an electric switch. The most common semiconductor material is silicon, used as the base of most semiconductor chips today because it is relatively inexpensive and easy to create.
SoC	System-on-Chip. A chip that incorporates functions currently performed by several chips on a cost effective basis.
SOI	Silicon-On-Insulator. Silicon wafer consisting of a thin layer of oxide, on top of which semiconductor devices are built.
SRAM	Static Random Access Memory. A type of volatile memory product that is used in electronic systems to store data and program instructions. Unlike the more common DRAM, it does not need to be refreshed.
Transistor	Tri-terminal semiconductor device in which input signal (voltage or current depending on the type of transistor) controls output current. An individual circuit that can amplify or switch electric current. This is the building block of all integrated circuits.

Table of Contents

Volatile memory	Memory products which lose their data content when the power supply is switched off.
Wafer	Thin, round, flat piece of silicon that is the base of most integrated circuits.
8-inch wafer equivalents	Standard unit describing the equivalent amount of 8-inch wafers produced after conversion, used to quantify levels of wafer production for purposes of comparison. Figures of 8-inch wafer equivalents are derived by converting the number of wafers of all dimensions (e.g., 6-inch, 8-inch and 12-inch) into their equivalent figures for 8-inch wafers. 100 6-inch wafers are equivalent to 56.25 8-inch wafers. 100 12-inch wafers are equivalent to 225 8-inch wafers.

PART I.

ITEM 1. IDENTITY OF DIRECTORS, SENIOR MANAGEMENT AND ADVISERS

Not applicable.

ITEM 2. OFFER STATISTICS AND EXPECTED TIMETABLE

Not applicable.

ITEM 3. KEY INFORMATION

A. Selected Financial Data

The selected consolidated balance sheets data as of December 31, 2017 and 2018 and the selected consolidated statements of comprehensive income data for the years ended December 31, 2016, 2017 and 2018 are derived from our audited consolidated financial statements included elsewhere in this annual report. In accordance with the requirements of the Taiwan Financial Supervisory Commission, or FSC, beginning on January 1, 2013, we have adopted Taiwan-IFRSs, which is translated and published by Accounting Research and Development Foundation, or ARDF, referred to as TIFRSs for reporting our annual and interim consolidated financial statements in the R.O.C. At the same time, we have adopted IFRSs as issued by the IASB for our annual reports on Form 20-F with the U.S. SEC beginning with the year ended December 31, 2013. However, since January 1, 2013, we only prepare our interim unaudited quarterly financial statements under TIFRSs, which are furnished to the SEC on Form 6-K. The selected consolidated balance sheet data as of December 31, 2014, 2015 and 2016 and the selected consolidated statements of comprehensive income data for the years ended December 31, 2014 and 2015 are derived from our audited consolidated financial statements not included in this annual report.

In accordance with rule amendments adopted by the U.S. SEC for foreign private issuers reporting under IFRSs, we are not required to provide reconciliations to U.S. GAAP in this annual report following our adoption of IFRSs.

The selected financial data set forth below should be read in conjunction with Item 5. Operating and Financial Review and Prospects and our consolidated financial statements and the notes to those statements included in this annual report.

	Years Ended December 31,					
	2014	2015	2016	2017	2018	
	NT$	NT$	NT$	NT$	NT$	US$
	(in millions, except per share and per ADS data)					
Consolidated Statements of Comprehensive Income Data						
Operating revenues	140,012	144,830	147,870	149,285	151,253	4,941
Operating costs	(108,159)	(113,061)	(117,491)	(122,227)	(128,413)	(4,195)
Gross profit	31,853	31,769	30,379	27,058	22,840	746
Operating expenses	(21,238)	(19,969)	(23,922)	(22,143)	(22,277)	(727)
Net other operating income and expenses	(539)	(964)	(263)	1,653	5,117	167
Operating income	10,076	10,836	6,194	6,568	5,680	186
Non-operating income and expenses	3,496	2,833	(1,473)	1,104	(3,562)	(117)

Table of Contents

	Years Ended December 31,					
	2014	2015	2016	2017	2018	
	NT$	NT$	NT$	NT$	NT$	US$
	(in millions, except per share and per ADS data)					
Income from continuing operations before income tax	13,572	13,669	4,721	7,672	2,118	69
Income tax benefit (expense)	(3,125)	(1,028)	(553)	(993)	1,130	37
Net income	10,447	12,641	4,168	6,679	3,248	106
Total other comprehensive income (loss), net of tax	6,069	(1,065)	(4,024)	(4,815)	835	27
Total comprehensive income	16,516	11,576	144	1,864	4,083	133
Net income attributable to:						
Stockholders of the parent	11,109	13,254	8,621	9,676	7,678	251
Non-controlling interests	(662)	(613)	(4,453)	(2,997)	(4,430)	(145)
Total comprehensive income attributable to:						
Stockholders of the parent	17,035	12,251	4,629	4,973	8,617	281
Non-controlling interests	(519)	(675)	(4,485)	(3,109)	(4,534)	(148)
Earnings per share: [1]						
Basic	0.90	1.07	0.71	0.81	0.65	0.02
Diluted [2]	0.89	1.02	0.67	0.75	0.60	0.02
Common shares used in earnings per share calculation:						
Basic	12,334	12,336	12,099	11,995	11,890	11,890
Diluted [2]	12,719	13,171	13,350	13,273	13,271	13,271
Earnings per ADS equivalent:						
Basic	4.50	5.37	3.56	4.03	3.23	0.11
Diluted [2]	4.44	5.10	3.33	3.75	3.00	0.10

	As of December 31,					
	2014	2015	2016	2017	2018	
	NT$	NT$	NT$	NT$	NT$	US$
Consolidated Balance Sheets Data						
Total assets	310,648	335,354	384,227	391,132	362,597	11,846
Total liabilities	90,309	110,502	169,281	181,511	158,200	5,168
Stockholders equity	220,339	224,852	214,946	209,621	204,397	6,678
Capital stock [3]	127,303	127,581	126,243	126,243	124,243	4,059
Dividends declared per share [4]	0.50	0.55	0.55	0.50	0.70	0.02

	Years Ended December 31,					
	2014	2015	2016	2017	2018	
	NT$	NT$	NT$	NT$	NT$	US$
Segment Data [5]						
Operating revenues						

Wafer fabrication	129,954	141,705	147,444	148,940	151,024	4,934
New business	10,058	3,125	426	345	229	7
Net income (loss) [6]						
Wafer fabrication	12,311	13,570	4,219	6,729	2,688	88
New business	(2,354)	(1,731)	(1,662)	(666)	(603)	(20)

(1) Earnings per share is calculated by dividing net income by the weighted-average number of common shares outstanding during the year.
(2) Diluted securities include convertible bonds, employee stock options and employees compensation, if any.
(3) Changes to the number of the capital common shares are primarily caused by the share-based payment transactions and the cancellation of treasury stocks, if any.
(4) Dividends declared per share are in connection with earnings and accumulated additional paid-in capital and would be adjusted for the outstanding common shares changed due to employee stock options exercised, treasury stock repurchased, cancelled and transferred to employees, if any.
(5) Since 2016, certain of our previous new business operation was reclassified as part of wafer fabrication operation resulting in retrospective reclassification of segmentation data.
(6) There are adjustments for intragroup elimination and GAAP differences between segment data and consolidated data.

Table of Contents

Currency Translations and Exchange Rates

In portions of this annual report, we have translated New Taiwan dollar amounts into U.S. dollars for the convenience of readers. The rate we used for the translations was NT$30.61 to US$1.00, which was the foreign exchange rate on December 31, 2018 as released by the Board of Governors of the Federal Reserve System. The translation does not mean that New Taiwan dollars could actually be converted into U.S. dollars at that rate.

B. Capitalization and Indebtedness

Not applicable.

C. Reasons for the Offer and Use of Proceeds

Not applicable.

D. Risk Factors

Our business and operations are subject to various risks, many of which are beyond our control. If any of the risks described below actually occurs, our business, financial condition or results of operations could be seriously harmed.

Risks Related to Our Business and Financial Condition

Any global systemic political, economic and financial crisis or catastrophic natural disasters (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 economic and financial crises and natural disasters negatively affected global business, banking and financial sectors, including the semiconductor industry and markets. These types of crises cause turmoil in global markets that often result in declines in electronic products sales from which we generate our income through our goods and services. In addition, these crises may cause a number of indirect effects such as undermining the ability of our customers to remain competitive when faced with the financial and economic challenges created by insolvent countries and companies still struggling to survive in the wake of these crises. For example, there could be in the future knock-on effects from these types of crises on our business, including significant decreases in orders from our customers; insolvency of key suppliers resulting in product delays; inability of customers to obtain credit to finance purchases of our products; customer insolvencies; and counterparty failures negatively impacting our treasury operations. Any future systemic political, economic or financial crises or catastrophic natural disasters (as well as the indirect effects flowing from these crises or disasters) could cause revenues for the semiconductor industry as a whole to decline dramatically, and if the economic conditions or financial condition of our customers were to deteriorate, additional accounting related allowances may be required in the future and such additional allowances could increase our operating expenses and therefore reduce our operating income and net income. Thus, any future global economic crisis or catastrophic natural disaster (and their indirect effects) could materially and adversely affect our results of operations. Any disruption in global trade conditions such as the increase in tariffs or the escalation of regional trade tension will indirectly impact global business environment which may adversely impact our business, results of operations and financial condition.

6

Table of Contents

Historically, we recognized impairment for our investments in solar energy and LED industries made through our subsidiary, namely UMC New Business Investment Corporation, or NBI. If the solar energy and LED industries continue to encounter significant downturns or significant reductions of government subsidies, our investments made through NBI will be adversely affected which could adversely affect our results of operations.

The seasonality and cyclical nature of the semiconductor industry and periodic overcapacity make us particularly vulnerable to significant and sometimes prolonged economic downturns.

The semiconductor industry has historically been highly cyclical and, at various times, has experienced significant downturns. Since most of our customers operate in semiconductor-related industries, variations in order levels from our customers can result in volatility in our revenues and earnings. Because our business is, and will continue to be, largely dependent on the requirements of semiconductor companies for our services, downturns in the semiconductor industry will lead to reduced demand for our services.

Our operating revenues are also typically affected by seasonal variations in market conditions that contribute to the fluctuations of the average selling price of semiconductor services and products. The seasonal sales trends for semiconductor services and products closely mirror those for consumer electronics, communication and computer sales. We generally experience seasonal lows in the demand for semiconductor services and products during the first half of the year, primarily as a result of inventory correction by our customers. Any change in the general seasonal variations, which we cannot anticipate, may result in materially adverse effects on our revenues, operations and businesses.

Our operating results fluctuate from quarter to quarter, which makes it difficult to predict our future performance.

Our revenues, expenses and results of operations have varied significantly in the past and may fluctuate significantly from quarter to quarter in the future due to a number of factors, many of which are beyond our control. Our business and operations have at times in the past been negatively affected by, and are expected to continue to be subject to the risk of the following factors:

- the seasonality and cyclical nature of both the semiconductor industry and the markets served by our customers;
- our customers adjustments in their inventory;
- the loss of a key customer or the postponement of orders from a key customer;
- the rescheduling and cancellation of large orders;
- our ability to obtain equipment, raw materials, electricity, water and other required utilities on a timely and economic basis;

outbreaks of contagious diseases, including but not limited to severe acute respiratory syndrome, avian flu, swine flu and Zika virus;

environmental events, such as fires and earthquakes, or industrial accidents; and

technological changes.

Table of Contents

Due to the factors noted above and other risks discussed in this section, many of which are beyond our control, you should not rely on quarter-to-quarter comparisons to predict our future performance. Unfavorable changes in any of the above factors may seriously harm our business, financial condition and results of operations. In addition, our operating results may be below the expectations of public market analysts and investors in some future periods. In this event, the price of the common shares or ADSs may underperform or fall.

A decrease in demand for or selling prices of communication devices, consumer electronics and computer goods may decrease the demand for our services and reduce our margins.

Our customers generally use the semiconductors produced in our fabs in a wide variety of applications. We derive a significant percentage of our operating revenues from customers who use our manufacturing services to make semiconductors for communication devices, consumer electronics, PCs and other computers. The semiconductor industry experienced several downturns due to recent major financial crises and natural disasters. These downturns resulted in a reduced demand for our services and hence decreased our revenues and earnings. Any significant decrease in the demand for communication devices, consumer electronics, PCs or other computers may further decrease the demand for our services. In addition, if the average selling price of communication devices, consumer electronics, PCs or other computers decline significantly, we will be pressured to further reduce our selling prices, which may reduce our revenues and, therefore, reduce our margins significantly. As demonstrated by downturns in demand for high technology products in the past, market conditions can change rapidly, without apparent warning or advance notice. In such instances, our customers will experience inventory buildup and/or difficulties in selling their products and, in turn, will reduce or cancel orders for wafers from us. The timing, severity and recovery of these downturns cannot be predicted accurately or at all. When they occur, our business, profitability and price of the common shares and ADSs are likely to suffer.

Overcapacity in the semiconductor industry may reduce our revenues, earnings and margins.

The prices that we can charge our customers for our services are significantly related to the overall worldwide supply of integrated circuits and semiconductor products. The overall supply of semiconductor products is based in part on the capacity of other companies, which is outside of our control. For example, in light of the current market conditions, some companies, including our largest competitors, have announced plans to increase capacity expenditures significantly. We believe such plans, if carried out as planned, will increase the industry-wide capacity and are likely to result in overcapacity in the future. In periods of overcapacity, if we are unable to offset the adverse effects of overcapacity through, among other things, our technology and product mix, we may have to lower the prices we charge our customers for our services and/or we may have to operate at significantly less than full capacity. Such actions could reduce our margin and weaken our financial condition and results of operations. We cannot give any assurance that an increase in the demand for foundry services in the future will not lead to overcapacity in the near future, which could materially adversely affect our revenues, earnings and margins.

Any problem in the semiconductor outsourcing infrastructure can adversely affect our operating revenues and profitability.

Many of our customers depend on third parties to provide mask tooling, assembly and test services. If these customers cannot timely obtain these services on reasonable terms, they may not order any foundry services from us. This may significantly reduce our operating revenues and negatively affect our profitability.

We may be unable to implement new technologies as they become available, which may result in the decrease of our profitability and the loss of customers and market share.

The semiconductor industry is developing rapidly and the related technology is constantly evolving. If we do not anticipate the technology evolution and rapidly adopt new and innovative technology, we may not be able to produce sufficiently advanced services at competitive prices. There is a risk that our competitors may adopt new technology before we do, resulting in our loss of market share. If we are unable to begin offering advanced services and processes on a competitive and timely basis, we may lose customers to our competitors providing similar technologies, which may cause our operating revenues to decline unless we can replace lost customers with new customers. In addition, the market prices for advanced technology and services tend to fall over time. As a result, if we are unable to offer new advanced services and processes on a competitive and timely basis, we need to decrease the prices that we set for our existing services and processes, which would have a negative effect on our profitability. We also depend upon the introduction of new technologies on a timely basis in order to benefit from the relatively higher prices such new technologies offer in the earlier stages of their life cycles. If we are unable to introduce new technologies on a timely and competitive basis, we may not be able to benefit from the relatively higher prices for new technologies, and our average selling price and profits would decrease accordingly.

Table of Contents

We may be unable to provide leading technology to our customers if we lose the support of our technology partners.

Enhancing our manufacturing process technologies is critical to our ability to provide services for our customers. We intend to continue to advance our process technologies through internal research and development and alliances with other companies. Although we have an internal research and development team focused on developing new and improved semiconductor manufacturing process technologies, we are also dependent on some of our technology partners to advance certain process technology portfolios. In addition, we currently have patent cross-licensing agreements with several companies, including International Business Machines Corporation, or IBM. Some mask and equipment vendors also supply our technology development teams with masks and equipment needed to develop more advanced processing technologies. If we are unable to continue any of our joint development arrangements, patent cross-licensing agreements and other agreements, on mutually beneficial economic terms, if we re-evaluate the technological and economic benefits of such relationships, if we are unable to enter into new technology alliances and arrangements with other leading and specialty semiconductor companies, or if we fail to secure masks and equipment from our vendors in a timely manner sufficient to support our ongoing technology development, we may be unable to continue providing our customers with leading edge mass-producible process technologies and may, as a result, lose important customers, which would have a materially adverse effect on our businesses, results of operations and financial condition.

In addition, some of our customers rely upon third-party vendors, or intellectual property (IP) vendors, for the IP they embed into their designs. Although we work and collaborate with IP vendors with respect to such matters, there can be no guarantee that we will be successful or that the vendors will deliver according to our requirements or the needs of our customers. Failures to meet the targets or to deliver on a timely basis could cause customers to cancel orders and/or shift capacity to other suppliers.

Our business may suffer if we cannot compete successfully in our industry.

The worldwide semiconductor foundry industry is highly competitive. We compete with dedicated foundry service providers such as Taiwan Semiconductor Manufacturing Company Limited, Semiconductor Manufacturing International (Shanghai) Corporation and Globalfoundries Inc., as well as the foundry operation services of some integrated device manufacturers, such as IBM, Intel, Samsung Electronics, or Samsung, and Toshiba Corporation, or Toshiba. Integrated device manufacturers principally manufacture and sell their own proprietary semiconductor products, but may also offer foundry services. Other competitors such as DongbuAnam Semiconductor, Grace Semiconductor Manufacturing Corp., X-FAB Semiconductors Foundries AG and Silterra Malaysia Sdn. Bhd. have initiated efforts to expand and develop substantial additional foundry capacity. New entrants and consolidations in the foundry business are likely to initiate a trend of competitive pricing and create potential overcapacity in legacy technology. Some of our competitors have greater access to capital and substantially greater production, research and development, marketing and other resources than we do. As a result, these companies may be able to compete more aggressively over a longer period of time than we can.

The principal elements of competition in the wafer foundry market include:

- technical competence;
- time-to-volume production and cycle time;

time-to-market;

research and development quality;

available capacity;

Table of Contents

manufacturing yields;

customer service and design support;

price;

management expertise; and

strategic alliances.

Our ability to compete successfully also depends on factors partially outside of our control, including product availability, IP, including cell libraries that our customers embed in their product designs, and industry and general economic trends.

We may not be able to implement our planned growth if we are unable to obtain the financing necessary to fund the substantial capital expenditures we expect to incur.

Our business and the nature of our industry require us to make substantial capital expenditures leading to a high level of fixed costs. The costs of facilities, tools and equipment to make semiconductors with advanced technology continue to rise, with each generation typically significantly more expensive than the larger-in-size more mature technologies which preceded. We expect to incur significant capital expenditures in connection with our growth plans. These capital expenditures will be made in advance of any additional sales to be generated by new or upgraded fabs as a result of these expenditures. Given the fixed-cost nature of our business, we have in the past incurred, and may in the future incur, operating losses if our revenues do not adequately offset our capital expenditures. Additionally, our actual expenditures may exceed our planned expenditures for a variety of reasons, including changes in:

our growth plan;

our process technology;

our research and development efforts and patent license arrangements;

market conditions;

interest rates;

exchange rate fluctuations; and

prices of equipment.

We cannot assure you that additional financing will be available on satisfactory terms, if at all. If adequate funds are not available on satisfactory terms, we may be forced to curtail our expansion plans or delay the deployment of our services, which could result in a loss of customers and limit the growth of our business.

We depend on a small number of customers for a significant portion of our operating revenues and any loss of these customers would result in significant declines in our operating revenues.

We have been largely dependent on a small number of customers for a substantial portion of our business. In 2018, our top ten customers accounted for 51.3% of our operating revenues. We expect that we will continue to depend upon a relatively limited number of customers for a significant portion of our operating revenues. We cannot assure you that our operating revenues generated from these customers, individually or in the aggregate, will reach or exceed historical levels in any future period. Loss or cancellation of business from significant changes in scheduled deliveries to, or decreases in the prices of services sold to any of these customers could significantly reduce our operating revenues.

Table of Contents

Our customers generally do not place purchase orders far in advance, which makes it difficult for us to predict our future revenues, adjust production costs and allocate capacity efficiently on a timely basis. In addition, due to the cyclical nature of the semiconductor industry, our customers purchase orders have varied significantly from period to period. As a result, we do not typically operate with any significant backlog, except in periods of extreme capacity shortage. The lack of significant backlog and the unpredictable length and timing of semiconductor cycles make it difficult for us to forecast our revenues in future periods. Moreover, our expense levels are based in part on our expectations of future revenues, and we may be unable to adjust costs in a timely manner to compensate for revenue shortfalls. We expect that in the future our operating revenues in any quarter will continue to be substantially dependent upon purchase orders received in that quarter.

Moreover, the increasing trend in mergers and acquisitions activities in the semiconductor industry could decrease total available customer base, which could potentially result in a loss of customers.

Our operations and business will suffer if we lose one or more of our key personnel without adequate replacements.

Our future success to a large extent depends on the continued services of our Chairman and key executive officers. We do not carry key person insurance on any of our personnel. If we lose the services of any of our Chairman or key executive officers, it could be difficult to find and integrate replacement personnel in a short period of time, which could harm our operations and the growth of our business.

We may have difficulty attracting and retaining skilled employees, who are critical to our future success.

The success of our business depends upon attracting and retaining experienced executives, engineers and other employees to implement our strategy. The competition for skilled employees is intense. We expect demand for personnel in Taiwan to increase in the future as new wafer fabrication facilities and other businesses are established in Taiwan. We also expect demand for experienced personnel in other locations to increase significantly as our competitors establish and expand their operations. Some of our competitors are willing to offer better compensation than that we do to our executives, engineers and other employees. We do not have long-term employment contracts with any of our employees. If we were unable to retain our existing personnel or attract, assimilate and recruit new experienced personnel in the future, it could seriously disrupt our operations and delay or restrict the growth of our business.

Our transactions with affiliates and stockholders may hurt our profitability and competitive position.

We have provided foundry services to several of our affiliates and stockholders. We currently do not provide any preferential treatment to any of these affiliates and stockholders. However, we may in the future reserve or allocate our production capacity to these companies if there is a shortage of foundry services in the market to enable these companies to maintain their operations and/or to protect our investments in them. This reservation or allocation may reduce our capacity available for our other customers, which may damage our relationships with other customers and discourage them from using our services. This may hurt our profitability and competitive position.

If we fail to maintain an effective system of internal control over financial reporting, we may be unable to accurately report our financial results or prevent fraud, and investor confidence in our company may be adversely affected.

We are required to comply with the R.O.C and the U.S. securities laws and regulations in connection with internal controls. As a public company in the United States, our management is required to assess the effectiveness of our

internal control over financial reporting using the criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), or the COSO criteria, as required by Section 404 of the Sarbanes-Oxley Act of 2002.

Table of Contents

However, although effective internal controls can provide reasonable assurance with respect to the preparation and fair presentation of financial statements, they 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. 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 our common shares and ADSs.

The trend of adopting protectionist measures in certain countries, including the United States, could have a material adverse impact on our results of operations and financial condition.

Governments in the United States, PRC and certain other countries have implemented fiscal and monetary programs to stimulate economic growth as a result of the recent economic downturn, and many of these programs include protectionist measures that encourage the use of domestic products and labor. Recent policy developments by the governments in US, China and elsewhere also suggest an increased unwillingness to allow international companies to invest in or acquire local businesses. Since many of our direct customers and other downstream customers in the supply chain are located in or have operations in the countries where protectionist measures were adopted, such protectionist measures may have a material adverse effect on demand for our manufacturing services.

Any future outbreak of contagious diseases may materially and adversely affect our business and operations, as well as our financial condition and results of operations.

Any future outbreak of contagious diseases, including but not limited to Zika virus, Ebola virus, avian or swine influenza or severe acute respiratory syndrome, may disrupt our ability to adequately staff our business and may generally disrupt our operations. If any of our employees is suspected of having contracted any contagious disease, we may under certain circumstances be required to quarantine such employees and the affected areas of our premises. Therefore, we may have to temporarily suspend part of or all of our operations. Furthermore, any future outbreak may restrict the level of economic activities in affected regions, including Taiwan, and affect the willingness and ability of our employees and customers to travel, which may also adversely affect our business and prospects. As a result, we cannot assure you that any future outbreak of contagious diseases would not have a material adverse effect on our financial condition and results of operations.

Currency fluctuations could increase our costs relative to our revenues, which could adversely affect our profitability.

More than half of our operating revenues are denominated in currencies other than New Taiwan dollars, primarily in U.S. dollars. On the other hand, more than half of our costs of direct labor, raw materials and overhead are incurred in New Taiwan dollars. Although historically we hedged a portion of the resulting net foreign exchange position through the use of foreign exchange spot transactions, or currency forward contracts, we are still affected by fluctuations in foreign exchange rates among the U.S. dollar, the New Taiwan dollar and other currencies. Any significant fluctuation in exchange rates may impact on our financial condition and the U.S. dollar value of the ADSs and the U.S. dollar value of any cash dividends we distributed, which could have a corresponding effect on the market price of the ADSs.

Risks Relating to Manufacturing

Our manufacturing processes are highly complex, costly and potentially vulnerable to impurities and other disruptions that can significantly increase our costs and delay product shipments to our customers.

Our manufacturing processes are highly complex, require advanced and costly equipment and are continuously being modified to improve manufacturing yields and product performance. Impurities or other difficulties in the manufacturing process or defects with respect to equipment or supporting facilities can lower manufacturing yields, interrupt production or result in losses of products in process. As system complexity has increased and process technology has become more advanced, manufacturing tolerances have been reduced and requirements for precision have become even more demanding. Although we have been enhancing our manufacturing capabilities and efficiency, from time to time we have experienced production difficulties that have caused delivery delays and quality control problems, as is common in the semiconductor industry. In the past we have encountered the following problems:

- capacity constraints due to changes in product mix or the delayed delivery of equipment critical to our production, including scanners, steppers and chemical stations;

- construction delays during expansions of our clean rooms and other facilities;

Table of Contents

difficulties in upgrading or expanding existing facilities;

manufacturing execution system or automatic transportation system failure;

unexpected breakdowns in our manufacturing equipment and/or related facilities;

changing or upgrading our process technologies;

raw materials shortages and impurities; and

delays in delivery and shortages of spare parts and in maintenance for our equipment and tools.

Should these problems repeat, we may suffer delays in delivery and/or loss of business and revenues. In addition, we cannot guarantee that we will be able to increase our manufacturing capacity and efficiency in the future to the same extent as in the past.

Our profit margin may substantially decline if we are unable to continuously improve our manufacturing yields, maintain high capacity utilization and optimize the technology mix of our silicon wafer production.

Our ability to maintain our profitability depends, in part, on our ability to:

maintain high capacity utilization, which is defined as the ratio of the wafer-out quantity of 8-inch wafer equivalents divided by our estimated total 8-inch equivalent capacity in a specified period. The estimated capacity figures may vary depending upon equipment delivery schedules, pace of migration to more advanced processing technologies and other factors affecting production ramp-ups;

maintain or improve our manufacturing yields, which is defined as the percentage of usable devices manufactured on a wafer; and

optimize the technology mix of our production by increasing the number of wafers manufactured by utilizing different processing technologies.

Our manufacturing yields directly affect our ability to attract and retain customers, as well as the price of our services. Our capacity utilization affects our operating results because a large percentage of our operating costs are fixed. Our technology mix affects utilization of our equipment and process technologies, as well as the prices we can charge, either of which can affect our margins. If we are unable to continuously improve our manufacturing yields, maintain high capacity utilization or optimize the technology mix of our wafer production, our profit margin may substantially decline.

We may have difficulty in ramping up production in accordance with our schedule, which could cause delays in product deliveries and decreases in manufacturing yields.

As is common in the semiconductor industry, we have from time to time experienced difficulties in ramping up production at new or existing facilities or effecting transitions to new manufacturing processes. As a result, we have suffered delays in product deliveries or reduced manufacturing yields. We may encounter similar difficulties in connection with:

- the migration to more advanced process technologies, such as 45/40 and 28-nanometer and more advanced process technology;

- the joint development with vendors for more powerful tools (both in production and inspection) needed in the future to meet advanced process technology requirements; and

- the adoption of new materials in our manufacturing processes.

Table of Contents

We may face construction delays, interruptions, infrastructure failure and delays in upgrading or expanding existing facilities, or changing our process technologies, any of which might adversely affect our production schedule. Our failure to achieve our production schedule could delay the time required to recover our investments and seriously affect our profitability.

Our production schedules could be delayed and we may lose customers if we are unable to obtain raw materials and equipment in a timely manner.

We depend on our suppliers for raw materials. To maintain competitive manufacturing operations, we must obtain from our suppliers, in a timely manner, sufficient quantities of quality materials at acceptable prices. Although we source our raw materials from several suppliers, a small number of these suppliers account for a substantial amount of our supply of raw materials because of the consistent quality of their products. For example, in 2016, 2017 and 2018, we purchased a majority of our silicon wafers from four makers, Shin-Etsu Handotai Corporation, or Shin-Etsu, GlobalWafers, Siltronic and Sumco Group (including Sumco Corporation and Formosa Sumco Technology Corporation). We may have long-term contracts with most of our suppliers if necessary. From time to time, our suppliers have extended lead time or limited the supply of required materials to us because of capacity constraints. Consequently, from time to time, we have experienced difficulty in obtaining the quantities of raw materials we need on a timely basis.

In addition, from time to time we may reject materials that do not meet our specifications, resulting in declines in output or manufacturing yields. We cannot assure you that we will be able to obtain sufficient quantities of raw materials and other supplies in a timely manner. If the supply of materials is substantially diminished or if there are significant increases in the costs of raw materials, we may be forced to incur additional costs to acquire sufficient quantities of raw materials to sustain our operations, which may increase our marginal costs and reduce profitability.

We also depend on a limited number of manufacturers and vendors that make and maintain the complex equipment we use in our manufacturing processes. We also rely on these manufacturers and vendors to improve our technology to meet our customers demands as technology improves. In periods of unpredictable and highly diversified market demand, the lead time from order to delivery of this equipment can be as long as six to twelve months. If there are delays in the delivery of equipment or in the availability or performance of necessary maintenance, or if there are increases in the cost of equipment, it could cause us to delay our introduction of new manufacturing capacity or technologies and delay product deliveries, which may result in the loss of customers and revenues.

We may be subject to the risk of loss due to fire because the materials we use in our manufacturing processes are highly flammable.

We use highly flammable materials such as silane and hydrogen in our manufacturing processes and may therefore be subject to the risk of loss arising from fires. The risk of fire associated with these materials cannot be completely eliminated. We maintain insurance policies to reduce losses caused by fire, including business interruption insurance. While we believe that our insurance coverage for damage to our property and business interruption due to fire is consistent with semiconductor industry practice, our insurance coverage is subject to deductibles and self-insured retention and may not be sufficient to cover all of our potential losses. If any of our fabs were to be damaged or cease operations as a result of a fire, it would temporarily reduce manufacturing capacity and reduce revenues.

Table of Contents

We and many of our customers and suppliers are vulnerable to natural disasters and other events outside of our control, which may seriously disrupt our operations.

Most of our assets and many of our customers and suppliers are located in certain parts of Taiwan. Our operations and the operations of our customers and suppliers are vulnerable to earthquakes, floods, droughts, power losses and similar events that affect the locations of our operations. The occurrence of any of these events could interrupt our services and cause severe damages to wafers in process, or cause significant business disruptions. For example, in early 2016, we experienced a severe earthquake which adversely affected our wafer manufacturing operations at our 300mm Fab 12A in Taiwan. Although we had adopted practices in compliance with ISO 22301 business continuity standards which ensured the safety of our employees and minimized supply disruptions resulting from the earthquake and we had settled our insurance policies which partially recovered the losses resulting for this earthquake, there is no guarantee that our business continuity practices will always be effective and any future damages or business loss from severe natural disasters will be covered by such insurance, that we will be able to collect from our insurance carriers, should we choose to claim under our insurance policies, or that such coverage will be sufficient. In addition, our manufacturing facilities have occasionally experienced insufficient power supplies, and our operations have been disrupted.

Our operations may be delayed or interrupted and our business could suffer if we violate environmental, safety and health, or ESH, regulations.

The semiconductor manufacturing process requires the use of various gases, chemicals, hazardous materials and other substances such as solvents and sulfuric acid which may have an impact on the environment. We are always subject to ESH regulations, and a failure to manage the use, storage, transportation, emission, discharge, recycling or disposal of raw materials or to comply with these ESH regulations could result in (i) regulatory penalties, fines and other legal liabilities, (ii) suspension of production or delays in operation and capacity expansion, (iii) a decrease in our sales, (iv) an increase in pollution cleaning fees and other operation costs, or (v) damage to our public image, any of which could harm our business. In addition, as ESH regulations are becoming more comprehensive and stringent, we may incur a greater amount of capital expenditures in technology innovation and materials substitution in order to comply with such regulations, which may adversely affect our results of operations.

Climate change may negatively affect our business.

There is increasing concern that climate change is occurring and may have dramatic effects on human activity without aggressive remediation steps. A modest change in temperature would result in increased coastal flooding, changing precipitation patterns and increasing risk of extinction for the world s species. Public expectations for reductions in greenhouse gas emissions could result in increased energy, transportation and raw material costs.

Scientific examination of, political attention to and rules and regulations on issues surrounding the existence and extent of climate change may result in an increase in the cost of production due to increase in the prices of energy and introduction of energy or carbon tax. Various regulatory developments have been introduced that focus on restricting or managing emissions of carbon dioxide, methane and other greenhouse gases. Enterprises may need to purchase at higher costs emission credits, new equipment or raw materials with lower carbon footprints. These developments and further legislation that is likely to be enacted could affect our operations negatively. Changes in environmental regulations, such those on the use of perfluorinated compounds, could increase our production costs, which could adversely affect our results of operation and financial condition.

We have a state-of-the-art 12-inch wafer fab in Singapore. The Singapore government announced that it will introduce a carbon tax from 2019 onwards, making it the first country in Southeast Asia to promote this measure. In Taiwan,

there are draft amendments to the Greenhouse Gas Reduction and Management Law and the Regulations on the Development of Renewable Energy Resources, which respectively imposes a fine for any portion of the greenhouse gas emissions in excess of a stipulated quantity and making a mandated purchase of green energy vouchers to cover the inadequacy of green electricity or a mandatory surcharge payment. We have transformed the carbon emissions into potential carbon costs based on the analysis of the carbon risk scenarios of each fab, and have actively carried out a phased greenhouse gas reduction plan. The measures for the use of clean energy include the reduction of raw materials, setting of high-efficiency greenhouse gas breakdown equipment, etc., and building solar energy systems. We take an aggressive stance in reducing the impact of carbon emissions and taxes, enhancing its operational competitive advantage.

Table of Contents

In addition, more frequent droughts and floods, extreme weather conditions and rising sea levels could occur due to climate change. The impact of such changes could be significant as most of our factories are located in islands including Taiwan, Singapore and Xiamen in Fujian Province in China. For example, transportation suspension caused by extreme weather conditions could harm the distribution of our products. Similarly, our operations depend upon adequate supplies of water, and extended or serious droughts may affect our ability to obtain adequate supplies of water and threaten our production.

Disruptions in the international trading environment may seriously decrease our international sales.

A substantial portion of our operating revenues is derived from sales to customers located in countries other than the countries where our fabs are located. In 2016, 2017 and 2018, we operated fabs in Taiwan, Singapore and China. For the years ended December 31, 2016, 2017 and 2018, we generated approximately 41.2%, 33.9% and 35.0% of our operating revenues, respectively, from countries other than those where our fabs are located. We expect sales to customers from countries outside of Taiwan, Singapore and China will continue to represent a significant portion of our operating revenues. The success and profitability of our international activities depend on certain factors beyond our control, such as general economic conditions, labor conditions, political stability, tax laws, import duties and foreign exchange controls of the countries in which we sell our products, and the political and economic relationships between these countries. As a result, our manufacturing services will continue to be vulnerable to disruptions in the international trading environment, including adverse changes in foreign government regulations, political unrest and international economic downturns.

These disruptions in the international trading environment affect the demand for our manufacturing services and change the terms upon which we provide our manufacturing services overseas, which could seriously decrease our international sales.

Political, Economic and Regulatory Risks

We face substantial political risks associated with doing business in Taiwan, particularly due to the tense relationship between the R.O.C. and the People s Republic of China, or the PRC, that could negatively affect the value of your investment.

Our principal executive offices and most of our assets and operations are located in Taiwan. Accordingly, our business, financial condition and results of operations and the market price of our common shares and the ADSs may be affected by changes in R.O.C. governmental policies, taxation, inflation or interest rates and by social instability and diplomatic and social developments in or affecting Taiwan which are outside of our control. Taiwan has a unique international political status. Since 1949, Taiwan and the Chinese mainland have been separately governed. The PRC claims that it is the sole government in China and that Taiwan is part of China. Although significant economic and cultural relations have been established between the R.O.C. and the PRC in the past few years, such as the adoption of the Economic Cooperation Framework Agreement and memorandum regarding cross-strait financial supervision, we cannot assure you that relations between the R.O.C. and PRC will not become strained again. For example, the PRC government has refused to renounce the use of military force to gain control over Taiwan and, in March 2005, passed an Anti-Secession Law that authorized non-peaceful means and other necessary measures should Taiwan move to gain independence from the PRC. Past developments in relations between the R.O.C. and the PRC have on occasions depressed the market prices of the securities of companies in the R.O.C. Such initiatives and actions are commonly viewed as having a detrimental effect to reunification efforts between the R.O.C. and the PRC. Relations between the R.O.C. and the PRC and other factors affecting military, political or economic conditions in Taiwan could materially and adversely affect our financial condition and results of operations, as well as the market price and the liquidity of our securities.

16

Table of Contents

Our business depends on the support of the R.O.C. government, and a decrease in this support may decrease our net income.

We, like many R.O.C. technology companies, have benefited from substantial tax incentives provided by the R.O.C. government. Among the incentives broadly enjoyed by R.O.C. technology companies, various tax benefits granted under Chapter 2 and Article 70-1 of the Statute for Upgrading Industries expired on December 31, 2009. Despite the fact that we can still enjoy the tax holidays for the relevant investment plans approved by the R.O.C. tax authority until 2020 under the grandfather clause of the Statute for Upgrading Industries, if more incentives are curtailed or eliminated, our net income may decrease significantly.

Our future tax obligations may adversely affect our net income.

We operate in various jurisdictions, which involve different tax regimes and application of tax regulations. Applicable taxes for which we make provisions could increase significantly as a result of changes in applicable tax laws in the countries where we operate. On February 7, 2018, the amendments to the Income Tax Act of the R.O.C. were promulgated with retrospective effect from January 1, 2018. According to the amendments, the corporate income tax rate is raised from 17% to 20%, and 10% undistributed earnings tax is lowered to 5%. The change of corporate income tax rate could increase our future tax obligation and have an adverse effect on our net income.

Compliance with laws such as the U.S. Conflict Minerals Law may affect our ability or the ability of our suppliers to purchase raw materials at an effective cost.

Many industries rely on materials which are subject to regulations concerning certain minerals sourced from the Democratic Republic of Congo, or the DRC, or adjoining countries, including: Sudan; Uganda; Rwanda; Burundi; United Republic of Tanzania; Zambia; Angola; Congo; and Central African Republic. These minerals are commonly referred to as conflict minerals. Conflict minerals which may be used in our industry or by our suppliers include Columbite-tantalite (derivative of tantalum [Ta]), Cassiterite (derivative of tin [Sn]), gold [Au], Wolframite (derivative of tungsten [W]), and Cobalt [Co]. Under present U.S. regulations, we and our customers are required to survey and disclose whether our processes or products use or rely on conflict materials. On August 22, 2012, the U.S. SEC adopted the final rule for disclosing the use of conflict minerals that require companies similar to us to make a report in a type and format similar to Form SD to disclose the use of conflict materials on an annual basis on or prior to May 31 each year. We have filed the conflict mineral disclosure report every year since 2014. In order to comply with the aforementioned rules and regulations promulgated by the U.S. SEC, we will continue to verify the relevant information with our vendors and file the required report. Although we expect that we and our vendors will be able to comply with the requirements of the U.S. Conflict Minerals law and any new related regulations promulgated by the U.S. SEC, we cannot assure you that we will be able to gather all the information required to comply with such regulations. While we believe our suppliers do not rely on such conflict materials, we cannot assure you that we will continue to be able to obtain adequate supplies of materials needed in our production from supply chains outside the DRC and adjoining countries. The failure to obtain necessary information or to maintain adequate supplies of materials from supply chains outside the DRC and adjoining countries may delay our production, increasing the risk of losing customers and business.

Similarly, many jurisdictions have promulgated regulations with the intention to deter disregard and contempt for human rights within supply chains. Although our own operations comply with the relevant requirements under the laws of the jurisdictions where we have operations, possible violation by our suppliers may not be known to us and beyond our control. While we believe our suppliers comply with applicable human rights requirements, there can be no guarantee that they will continue to do so, or that we will be able to obtain the necessary information on their activities to comply with whatever future requirements may be enacted.

Data security and data privacy considerations and regulations may adversely affect our operations.

Our operations depend upon reliable and uninterrupted information technology services, including the integrity of our web-based and electronic customer service systems. Although we have put in place what we believe are reasonable precautions to prevent accidental and/or malicious disruption of these services, there can be no assurance that our preventive measures will preclude failure of the information technology, web-based and electronic customer service systems upon which our business depends. Disruption of these systems could adversely affect our ability to manufacture and to serve our customers.

Table of Contents

In addition, in the course of our operations, we receive confidential information from and about our customers, vendors, partners and employees. Although we take what we believe are reasonable precautions to protect such information from disclosure to or interruption, there are no guarantees our precautions will prevent accidental or malicious access to such information. In the event of such access, our reputation could be adversely affected, customers and others may hesitate to entrust us with their confidential information, which would negatively affect our operations, and we would incur costs to remedy the breach.

Moreover, many jurisdictions have proposed regulations concerning data privacy. Although we have taken measures to comply with existing law and regulations in this regard, future laws may impose requirements that make our operations more expensive and/or less efficient. In addition, should we experience a breakdown in our systems or failure in our precautions that results in a violation of such regulations, we may suffer adverse customer reaction and face governmental penalties.

Risks Related to the Common Shares and ADSs and Our Trading Markets

Restrictions on the ability to deposit common shares into our ADS program may adversely affect the liquidity and price of the ADSs.

The ability to deposit common shares into our ADS program is restricted by R.O.C. law. Under current R.O.C. law, no person or entity, including you and us, may deposit common shares into our ADS program without specific approval of the R.O.C. FSC except for the deposit of the common shares into our ADS program and for the issuance of additional ADSs in connection with:

(A) distribution of share dividends or free distribution of our common shares;

(B) exercise of the preemptive rights of ADS holders applicable to the common shares evidenced by ADSs in the event of capital increases for cash; or

(C) delivery of our common shares which are purchased in the domestic market in Taiwan directly by the investor or through the depositary or are already in the possession of the investor to the custodian for deposit into our ADS program, subject to the following conditions: (a) the re-issuance is permitted under the deposit agreement and custody agreement, (b) the depositary may accept deposit of those common shares and issue the corresponding number of ADSs with regard to such deposit only if the total number of ADSs outstanding after the issuance does not exceed the number of ADSs previously approved by the R.O.C. FSC, plus any ADSs issued pursuant to the events described in (A) and (B) above and (c) this deposit may only be made to the extent previously issued ADSs have been withdrawn.

As a result of the limited ability to deposit common shares into our ADS program, the prevailing market price of our ADSs on the NYSE may differ from the prevailing market price of the equivalent number of our common shares on the Taiwan Stock Exchange.

Holders of our ADSs will not have the same proposal or voting rights as the holders of our common shares, which may affect the value of your investment.

Except for treasury common shares and common shares held by our subsidiaries which meet certain criteria provided under the R.O.C. Company Act, each common share is generally entitled to one vote and no voting discount will be applied. However, except as described in this annual report and in the deposit agreement, holders of our ADSs will not be able to exercise voting rights attached to the common shares evidenced by our ADSs on an individual basis. Holders of our ADSs will appoint the depositary or its nominee as their representative to exercise the voting rights attached to the common shares represented by the ADSs. The voting rights attached to the common shares evidenced by our ADSs must be exercised as to all matters brought to a vote of stockholders collectively in the same manner.

Table of Contents

Moreover, holders of the ADSs do not have individual rights to propose any matter for stockholders votes at our stockholders meetings. However, holders of at least 51% of the ADS outstanding at the relevant record date may request the depositary to submit to us one proposal per year for consideration at our annual ordinary stockholders meeting, provided that such proposal meets certain submission criteria and limitations, including the language and the length of the proposal, the time of submission, the required certification or undertakings, and the attendance at the annual ordinary stockholders meeting. However, if the proposal submitted by the depositary does not qualify, we have no obligation to allow the depositary to modify such proposal.

Furthermore, if holders of at least 51% of the ADSs outstanding at the relevant record date instruct the depositary to vote in the same manner regarding a resolution, including election of directors, the depositary will appoint our Chairman, or his designee, to represent the ADS holders at the stockholders meetings and to vote the common shares represented by the ADSs outstanding in the manner so instructed. If by the relevant record date the depositary has not received instructions from holders of ADSs holding at least 51% of the ADSs to vote in the same manner for any resolution, then the holders will be deemed to have instructed the depositary to authorize and appoint our Chairman, or his designee, to vote all the common shares represented by ADSs at his sole discretion, which may not be in your interest.

The rights of holders of our ADSs to participate in our rights offerings may be limited, which may cause dilution to their holdings.

We may from time to time distribute rights to our stockholders, including rights to acquire our securities. Under the deposit agreement, the depositary will not offer those rights to ADS holders unless both the rights and the underlying securities to be distributed to ADS holders are either registered under the Securities Act or exempt from registration under the Securities Act. We are under no obligation to file a registration statement with respect to any such rights or underlying securities or to endeavor to cause such a registration statement to be declared effective. Accordingly, holders of our ADSs may be unable to participate in our rights offerings and may experience dilution in their holdings.

Changes in exchange controls that restrict your ability to convert proceeds received from your ownership of ADSs may have an adverse effect on the value of your investment.

Your ability to convert proceeds received from your ownership of ADSs depends on existing and future exchange control regulations of the Republic of China. Under the current laws of the Republic of China, an ADS holder or the depositary, without obtaining further approvals from the R.O.C. Central Bank of China, or the CBC, or any other governmental authority or agency of the Republic of China, may convert NT dollars into other currencies, including U.S. dollars, in respect of:

- the proceeds of the sale of common shares represented by ADSs or received as share dividends with respect to the common shares and deposited into the depositary receipt facility; and
- any cash dividends or distributions received from the common shares represented by ADSs.

In addition, the depositary may also convert into NT dollars incoming payments for purchases of common shares for deposit in the depositary receipt facility against the creation of additional ADSs. If you withdraw the common shares underlying your ADSs and become a holder of our common shares, you may convert into NT dollars subscription payments for rights offerings. The depositary may be required to obtain foreign exchange approval from the CBC on a payment-by-payment basis for conversion from NT dollars into foreign currencies of the proceeds from the sale of

subscription rights of new common shares. Although it is expected that the CBC will grant approval as a routine matter, required approvals may not be obtained in a timely manner, or at all.

Table of Contents

Under the Republic of China Foreign Exchange Control Law, the Executive Yuan of the Republic of China may, without prior notice but subject to subsequent legislative approval, impose foreign exchange controls or other restrictions in the event of, among other things, a material change in international economic conditions.

Our public stockholders may have more difficulty protecting their interests than they would as stockholders of a U.S. corporation.

Our corporate affairs are governed by our articles of incorporation and bylaws governing R.O.C. corporations. The rights of our stockholders to bring stockholders suits against us or our board of directors under R.O.C. law are much more limited than those of the stockholders of U.S. corporations. Therefore, our public stockholders may have more difficulty protecting their interests in connection with actions taken by our management, members of our board of directors or controlling stockholders than they would as stockholders of a U.S. corporation. Please refer to Item 10. Additional Information B. Memorandum and Articles of Association Rights to Bring Stockholders Suits included elsewhere in this annual report for a detailed discussion of the rights of our stockholders to bring legal actions against us or our directors under R.O.C. law.

Holders of our ADSs will be required to appoint several local agents in Taiwan if they withdraw common shares from our ADS program and become our stockholders, which may make ownership burdensome.

Non-R.O.C. persons wishing to withdraw common shares represented by their ADSs from our ADS program and hold our common shares represented by those ADSs are required to, among other things, appoint a local agent or representative with qualifications set forth by the applicable R.O.C. laws and regulations to open a securities trading account with a local brokerage firm, pay R.O.C. taxes, remit funds and exercise stockholders rights. In addition, the withdrawing holders are also required to appoint a custodian bank or a securities firm with qualifications set forth by the R.O.C. FSC to hold the securities in safekeeping, make confirmations, settle trades and report all relevant information, in which the securities firm is appointed as the custodian, the payments shall be held in safekeeping in a special account opened in a bank approved by the R.O.C. FSC. Without making this appointment and opening of the accounts, the withdrawing holders would not be able to subsequently sell our common shares withdrawn from a depositary receipt facility on the Taiwan Stock Exchange. Under R.O.C. law and regulations, except under limited circumstances, PRC persons are not permitted to withdraw the common shares underlying the ADSs or to register as a stockholder of our company. Under the Regulations Governing Securities Investment and Futures Trading in Taiwan by Mainland Area Investors promulgated by the R.O.C. Executive Yuan on April 30, 2009, as amended, only qualified domestic institutional investors, or QDIIs and limited entities or individuals, are permitted to withdraw the common shares underlying the ADSs, subject to compliance with the withdrawal relevant requirements, and only QDIIs, and limited entities or individuals who meet the qualification requirements set forth therein are permitted to own common shares of an R.O.C. company listed for trading on the Taiwan Stock Exchange or the Taipei Exchange, provided that among other restrictions generally applicable to investments made by PRC persons, their shareholdings are subject to certain restrictions as set forth in the abovementioned regulations and that such mainland area investors shall apply for a separate approval if their investment, individually or in aggregate, amounts to or exceeds 10 percent of the common shares of any R.O.C. listed company.

You may not be able to enforce a judgment of a foreign court in the R.O.C.

We are a company limited by shares incorporated under the R.O.C. Company Act. Most of our assets and most of our directors, executive officers and experts named in the registration statement are located in Taiwan. As a result, it may be difficult for you to enforce judgments obtained outside Taiwan upon us or such persons in Taiwan. We have been advised by our R.O.C. counsel that any judgment obtained against us in any court outside the R.O.C. arising out of or relating to the ADSs will not be enforced by R.O.C. courts if any of the following situations shall apply to such final

judgment:

the court rendering the judgment does not have jurisdiction over the subject matter according to R.O.C. law;

Table of Contents

the judgment or the court procedure resulting in the judgment is contrary to the public order or good morals of the R.O.C.;

the judgment was rendered by default, except where the summons or order necessary for the commencement of the action was legally served on us within the jurisdiction of the court rendering the judgment within a reasonable period of time or with judicial assistance of the R.O.C.; or

judgments of the R.O.C. courts are not recognized in the jurisdiction of the court rendering the judgment on a reciprocal basis.

We may be considered a passive foreign investment company, which could result in adverse U.S. federal income tax consequences for U.S. investors.

We do not believe that we were a passive foreign investment company, or PFIC, for 2018 and we do not expect to become one in the future, although there can be no assurance in this regard. Characterization as a PFIC could result in adverse U.S. federal income tax consequences to you if you are a U.S. investor.

For example, if we are a PFIC, our U.S. investors may become subject to increased tax liabilities under U.S. federal income tax laws and regulations and will become subject to burdensome reporting requirements. The determination of whether or not we are a PFIC is made on an annual basis and will depend on the composition of our income and assets from time to time. Specifically, for any taxable year we will be classified as a PFIC for U.S. federal income tax purposes if either (i) 75% or more of our gross income in a taxable year is passive income or (ii) the average percentage of our assets (which includes cash) by value in a taxable year which produce or are held for the production of passive income is at least 50%. The calculation of the value of our assets will be based, in part, on the quarterly market value of common shares and ADSs, which is subject to change. See Taxation U.S. Federal Income Tax Considerations For U.S. Persons Passive Foreign Investment Company.

The trading price of the common shares and ADSs may be adversely affected by the general activities of the Taiwan Stock Exchange and U.S. stock exchanges, the trading price of our common shares, increases in interest rates and the economic performance of Taiwan.

Our common shares are listed on the Taiwan Stock Exchange. The trading price of our ADSs may be affected by the trading price of our common shares on the Taiwan Stock Exchange and the economic performance of Taiwan. The Taiwan Stock Exchange is smaller and, as a market, more volatile than the securities markets in the United States and some European countries. The Taiwan Stock Exchange has experienced substantial fluctuations in the prices and volumes of sales of listed securities, and there are currently limits on the range of daily price movements on the Taiwan Stock Exchange. The Taiwan Stock Exchange is particularly volatile during times of political instability, such as when the relationship between Taiwan and the PRC becomes tense. Moreover, the Taiwan Stock Exchange has experienced disturbance caused by market manipulation, insider trading and payment defaults, and the government of Taiwan has from time to time intervened in the stock market by purchasing stocks listed on the Taiwan Stock Exchange. The recurrence of these or similar events could deteriorate the price and liquidity of our common shares and ADSs.

The market price of the ADSs may also be affected by general trading activities on the U.S. stock exchanges, which recently have experienced significant volatility with respect to trading prices of technology companies. Fluctuation in interest rates and other general economic conditions may also influence the market price of the ADSs.

ITEM 4. INFORMATION ON THE COMPANY

A. History and Development of the Company

Our legal and commercial name is United Microelectronics Corporation, commonly known as UMC . We were incorporated under the R.O.C. Company Law as a company limited by shares in May 1980 and our common shares were listed on the Taiwan Stock Exchange in 1985. Our principal executive office is located at No. 3 Li-Hsin Road II, Hsinchu Science Park, Hsinchu, Taiwan, Republic of China, and our telephone number is 886-3-578-2258. Our Internet website address is www.umc.com. The information on our website does not form part of this annual report. Our ADSs have been listed on the NYSE under the symbol UMC since September 19, 2000.

Table of Contents

We are one of the world s largest independent semiconductor foundries and a leader in semiconductor manufacturing process technologies. Our primary business is the manufacture, or fabrication , of semiconductors, sometimes called chips or integrated circuits , for others. Using our own proprietary processes and techniques, we make chips to the design specifications of our many customers. Our company maintains a diversified customer base across industries, including communication devices, consumer electronics, computer, and others, while continuing to focus on manufacturing for high growth, large volume applications, including networking, telecommunications, internet, multimedia, PCs and graphics. We sell and market mainly wafers which in turn are used in a number of different applications by our customers. The following table presented the percentages of our wafer sales by application for the years ended December 31, 2016, 2017 and 2018.

	Years Ended December 31,		
Application	2016	2017	2018
	%	%	%
Communication	53.0	48.6	45.2
Consumer	27.2	29.4	28.6
Computer	12.6	13.1	16.3
Others	7.2	8.9	9.9
Total	100.0	100.0	100.0

We focus on the development of leading mass-producible manufacturing process technologies. We were among the first in the foundry industry to go into commercial operation with such advanced capabilities as producing integrated circuits with line widths of 0.25, 0.18, 0.15, 0.13 micron and 90, 65/55, 45/40, 28, 14 nanometer and beyond. Advanced technologies have enabled electronic products, especially in relation to communication, consumer and computer products, to integrate their functions in new and innovative methods. Networking capabilities have allowed electronic products such as computers, tablets, cell phones, televisions, set-top boxes and wearable devices to communicate with each other to exchange information. More powerful semiconductors are required to drive multimedia functions (e.g., processing visual data) and to resolve network bandwidth issues. At the same time, the trend towards portable personal electronic devices has resulted in products that are becoming physically smaller and consume less power. Process technology must also shrink the volumes of products aggressively to cater to this trend of integrating multiple functions, reducing the size of components needed for operation and lowering IC power consumption. Dedicated semiconductor foundries need to achieve this process improvement and at the same time develop multiple process technologies to satisfy the varying needs of communication, consumer and computer products. We believe our superior process technologies will enable us to continue to offer our customers significant performance benefits for their products, faster time-to-market production, cost savings and other competitive advantages.

We provide high quality service based on our performance. In today s marketplace, we believe it is important to make available not only the most manufacturable processes, but also the best solutions to enable customers to design integrated circuits that include entire systems on a chip. Through these efforts, we intend to be the foundry solution for SoC customer needs. To achieve this goal, we believe it is necessary to timely develop and offer the IP and design support that customers need to ensure their specific design blocks work with the other design blocks of the integrated circuit system in the manner intended. Accordingly, we have a dedicated IP and design support team which focuses on timely development of the IP and process specific design blocks our customers need in order to develop products that operate and perform as intended. Our design service team actively cooperates with our customers and vendors of cell

libraries and IP offerings to identify, early in the product/market cycle, the offerings needed to ensure that these coordinated offerings are available to our customers in silicon verified form in a streamlined and easy-to-use manner. As a result, we are able to ensure the timely delivery of service offerings from the earliest time in the customer design cycle, resulting in a shorter time-to-volume production. We also provide our customers with real-time online access to their confidential production data, resulting in superior communication and efficiency. We further address our customers needs using our advanced technology and proven methodology to achieve fast cycle time, high yield, production flexibility and close customer communication. For example, we select and configure our clean rooms and equipment and develop our processes to maximize the flexibility in meeting and adapting to rapidly changing customer and industry needs. As a result, our cycle time, or the period from customer order to wafer delivery, and our responsiveness to customer request changes are among the fastest in the dedicated foundry industry. We also provide high quality service and engineering infrastructure.

Table of Contents

Our production capacity is comparable to that of certain largest companies in the semiconductor industry, and we believe our leading edge and high volume capability is a major competitive advantage.

Our technology and service have attracted two principal types of foundry industry customers: fabless design companies and integrated device manufacturers. Fabless design companies design, develop and distribute proprietary semiconductor products but do not maintain internal manufacturing capacity. Instead, these companies depend on outside manufacturing sources. Integrated device manufacturers, in contrast, traditionally have integrated internally all functions manufacturing as well as design, development, sales and distribution.

Our primary customers, in terms of our sales revenues, include premier integrated device manufacturers, such as Texas Instruments and Intel Mobile, plus leading fabless design companies, such as Broadcom, MediaTek, Realtek, Qualcomm and Novatek. In 2018, our company s top ten customers accounted for 51.3% of our operating revenues. We believe our success in attracting these customers is a direct result of our commitment to high quality service and our intense focus on customer needs and performance.

In addition to our semiconductor foundry business, we also established UMC New Business Investment Corporation to focus on investments in the solar energy and LED industries.

On August 29, 2014, we and Fujitsu Semiconductor Limited, or Fujitsu, announced an agreement where we invested ¥5 billion as an initial investment and received approximately 9.3% of the issued and outstanding share capital to became a minority shareholder of a newly formed subsidiary of Fujitsu named Mie Fujitsu Semiconductor Limited, or MIFS, which will operate a 300mm wafer manufacturing facility located in Kuwana, Mie, Japan. On December 16, 2015, our board has further approved the acquisition of additional newly issued shares of MIFS with an aggregate investment amount of NT$1.36 billion, which increased our ownership interest in MIFS to approximately 15.9%. Through this relationship with us, MIFS was able to expand its business globally as a pure-play foundry company by strengthening its production and development capacity in a cost competitive manner. On June 29, 2018, our board approved the acquisition of the remaining 84.1% in MIFS from Fujitsu at a consideration of no more than ¥57.6 billion. Upon completion of such equity acquisition, MIFS will become our wholly-owned subsidiary. We expect to leverage this acquisition to further achieve global synergies and deliver value to our customers. The outward equity transaction was approved by the R.O.C. Government on September 26, 2018. However, the transaction has been partially delayed pending approval from certain relevant government authorities. As a result, the scheduled transaction date of January 1, 2019 will be pushed to the next available date(s) (July 1, 2019 or October 1, 2019). If the transaction cannot be completed by October 1, 2019, the option to acquire the remaining shares of the target company s equity from the counter party will expire on the mentioned date.

On October 9, 2014, our board of directors approved an agreement with the Xiamen Municipal People s Government and Fujian Electronics & Information Group to found a new company named United Semiconductor (Xiamen) Co., Ltd., or USCXM, based in Xiamen, Fujian Province, China that will focus on 12-inch wafer foundry services. We anticipate that we may invest up to US$1.35 billion in USCXM over the next five years, with our investment starting in 2015 that will be deployed in installments based on the progress of this company. USCXM will manufacture 12-inch wafers and initially offer 40 nanometer and 55 nanometer process technologies. Our participation in USCXM has complied and will continue to comply with R.O.C. rules and regulations and will continue to be subject to the review and approval by the relevant R.O.C. authorities. We have obtained the initial investment approval from the R.O.C. government on December 31, 2014 with US$300 million invested by HJ (Hejian Technology Suzhou) and US$450 million by UMC. The initial groundbreaking event of USCXM took place in March 2015 and the grand opening ceremony took place in November 2016. We have further obtained investment approval from the R.O.C. government in November 2017 in connection with US$600 million for capital injection into USCXM and the mentioned amount was invested in September 2018. USCXM had successfully realized commercial mass production

by the end of 2016 and it has carried out production on both 40nm and 28nm technology nodes in 2017. USCXM has continued to increase its capacity to fulfill requirements from worldwide customers, including those from domestic fabless companies in China. We expect to continue to expand our worldwide foundry presence by tapping into the high growth semiconductor market in China, and to increase our exposure to the semiconductor supply chain in China while mitigating geographical risks, which allows us to be closer to our customers in China, which, in turn, enables us to provide better services, increases our manufacturing scale and stimulates revenue growth.

Table of Contents

On December 24, 2014, we transferred our 6-inch fabrication plant, or Fab 6A, including machinery equipment and building facilities to our subsidiary, Wavetek Microelectronics Corporation, or Wavetek, in order to further satisfy customer needs in the fast growing GaAs market and to improve the 6-inch fabrication operational efficiency among our group by fully utilizing the existing assets and resources. In April 2015, Wavetek had successfully entered into the silicon-based CMOS foundry business after it had fully acquired our 6-inch Fab 6A fixed assets and production lines. As of March 31, 2019, our shareholdings in Wavetek was approximately 79.92%, making us its largest shareholder.

On December 26, 2014, our subsidiary, Topcell Solar International Co., Ltd., or Topcell, announced its plans to merge with Motech Industries, Inc., or Motech, through a share exchange transaction. The share exchange conversion was six ordinary shares of Topcell into one newly-issued ordinary share of Motech. The merger was completed in June 2015 and Motech became the surviving company while Topcell Solar was absorbed.

On December 31, 2018, we acquired the remaining equity interest in Best Elite International Limited, a British Virgin Islands corporation, or Best Elite, and our cumulative ownership in Best Elite became 100% as a result.

Please refer to Item 5. Operating and Financial Review and Prospects-B. Liquidity and Capital Resources for a discussion of our capital expenditures in the past three years and the plan for the current year.

On April 25, 2018, to further integrate the resources pursuant to our group wise investment strategy, our board and the board of our subsidiaries, Fortune Venture Capital Corp. or FORTUNE, and UMC New Business Investment Corp., or NBI, resolved an organizational restructure plan, under which NBI will be merged into FORTUNE. FORTUNE is the surviving company and assumes all the assets and liabilities from NBI when the merger became effective on July 1, 2018.

On June 29, 2018, our board approved the proposed application with the China Securities Regulatory Commission for our mainland operations to be listed on the Shanghai Stock Exchange. HeJian Technology (Suzhou) Co., or HJ, our currently 98.14%-owned subsidiary, will represent our to be listed China businesses, which are comprised of HJ s 8 fab in Suzhou, USCXM and its 12 fab in Xiamen and Shandong-based UDS, which provides IC design support services. We anticipate the proposed listing on the Shanghai Stock Exchange for our HJ-led China subsidiaries will provide us with the ability to capitalize on the rapid growth of China s semiconductor market and facilitate our long-term development. The proceeds from the listing is expected to be further allocated towards reinvestments in our China operations in order to provide customers with a complete, integrated IC manufacturing solution from chip design to manufacturing, which will help expand our market share and increase our production scale, technical quality, and overall competitiveness. Moreover, the proposed listing will provide us with a more diversified funding source that we believe will assist in strengthening our capital structure and financial positions, while allowing us to reserve more capital in Taiwan. On March 22, 2019, our subsidiary, HeJian Technology (Suzhou) Co., Ltd., has completed the submission process for A-Share listing application materials.

Our Strategy

To maintain and enhance our position as a market leader, we have adopted a business strategy with a focus on a partnership business model designed to accommodate our customers business needs and objectives and to promote their interests as our partners. We believe that our success and profitability are inseparable from the success of our customers. The goal in this business model is to create a network of partnerships or alliances among integrated device manufacturers, IP and design houses, as well as foundry companies. We believe that we and our partners will benefit from the synergy generated through such long-term partnerships or alliances and the added value to be shared among the partners. The key elements of our strategy are:

24

Table of Contents

Operate as a Customer-Driven Foundry. We plan to operate as a customer-driven foundry. The increasing complexity of 40 nanometer, 28 nanometer, and more advanced technologies has impacted the entire chip industry, as ICs can now be designed with greater gate density and higher performance while incorporating the functions of an entire system. These advanced designs have created a new proliferating market of advanced digital devices such as smart phones, which have decreased in size but greatly increased in functionality. We collaborate closely with our customers as well as partners throughout the entire supply chain, including equipment, electronic design automation tool and IP vendors to work synergistically toward each customer s SoC solution. We also possess experience and know-how in system design and architecture to integrate customer designs with advanced process technologies and IP. We believe the result is a higher rate of first-pass silicon success for our SoC solutions. Our customer-driven foundry solutions begin with a common logic-based platform, where designers can choose the process technologies and transistor options that best fit their specific application. From there, technologies such as radio frequency complementary metal-oxide-semiconductor, or RF CMOS, and embedded Flash memories can be used to further fine-tune the process for customers individual needs. Furthermore, as IP has become critical resources for SoCs, our portfolio includes basic design building blocks as well as more complex IP of optimized portability and cost, developed both internally and by third-party partners. With advanced technology, a broad IP portfolio, system knowledge and advanced 300-millimeter manufacturing, we offer comprehensive solutions that help customers deliver successful results in a timely fashion.

Build up Customer-focused Partnership Business Model. We have focused on building partnership relationships with our customers, and we strive to help our customers achieve their objectives through close cooperation. Unlike the traditional buy-and-sell relationship between a foundry and its customers, we believe our partnership business model will help us understand our customers requirements and, accordingly, better accommodate our customers needs in a number of ways, such as customized processes and services that optimize the entire value chain (not just the foundry portion) and IP-related support. We believe that this business model will enable us to deliver our products to our customers at the earliest time our customers require for their design cycle, resulting in shorter time-to-market and time-to-volume production. Furthermore, we believe we will render more cost-effective services by focusing our research and development expenditures on the specific requirements of our customers. We believe our partnership business model will help us not only survive a market downturn, but also achieve a better competitive position.

Continue to Focus on High Growth Applications and Customers and Actively Explore New Market Opportunities. We believe one measure of a successful foundry company is the quality of its customers. We focus our sales and marketing on customers who are established or emerging leaders in industries with high growth potential. Our customers include industry leaders such as Broadcom, MediaTek, Realtek, Texas Instruments and Qualcomm. We seek to maintain and expand our relationships with these companies. We strive to demonstrate to these customers the superiority and flexibility of our manufacturing, technology and service capabilities and to provide them with production and design assistance. We are also making efforts to further diversify our customer portfolio in order to maintain a balanced exposure to different applications and different customers. We believe these efforts strengthen our relationships with our customers and enhance our reputation in the semiconductor industry as a leading foundry service provider.

In addition to customer diversification, we have also been actively exploring new market opportunities in consumer electronics such as Internet of Things.

Maintain Our Leading Position in Mass-Producible Semiconductor Technology and Selectively Pursue Strategic Investments in New Technologies. We believe that maintaining and enhancing our leadership in mass-producible semiconductor manufacturing technology is critical to attract and retain customers. Our reputation for technological excellence has attracted both established and emerging leaders in the semiconductor industries who work closely with us on technology development. In addition, we believe our superior processing expertise has enabled us to provide

flexible production schedules to meet our customers particular needs. We plan to continue enhancing capital expenditures in research and development and building internal research and development expertise, to focus on process development and to establish alliances with leading and specialty semiconductor companies to accelerate access to next-generation and specialized technologies. For example, with our continuous technology development efforts and capital investment, in 2016, revenue derived from 28-nanometer technology had significantly increased from 2015. We believe our progress in developing more advanced process technologies has benefited our customers in the fields of computers, communications, consumer electronics and others with special preferences in certain aspects of the products, such as the ultimate performance, density and power consumption.

Table of Contents

Moreover, we expect to strengthen our leading position and increase our market share by licensing our technologies to several corporate partners. For example, in 2014, we licensed to MIFS, which is a pure-play foundry company, our advanced 40 nanometer technology under a technology transfer and license agreement. We will continue to explore licensing opportunities based on our comprehensive technology offerings to further drive our revenue. In addition, we also entered into an agreement with the Xiamen Municipal People s Government and Fujian Electronics & Information Group in 2014 in connection with the newly established USCXM located in Xiamen, Fujian Province, China, which is focusing on the manufacturing of 12-inch wafers with initial offering of 40 nanometer and 55 nanometer process technologies. In April 2017, we entered into a license agreement with USCXM to provide 28 nanometer process technologies aimed to further strengthen the wafer manufacturing capabilities of our subsidiary company.

We also recognize that every company has limited resources and that the foundry industry is ever-evolving. Accordingly, we believe we should invest in new research and development technology intelligently and in a cost-effective manner to achieve the ultimate output of the resulting technology. In doing so, we balance the rate of return of our research and development with the importance of developing a technology at the right time to enhance our competitive edge without unduly diluting our profitability. We intend to avoid investments in technologies that do not present a commercial potential for volume production. We believe that to develop the earliest and most advanced semiconductor technology without regard to its potential for near term volume production may prove costly to our operations and would not strengthen our competitive position. We perceive a benefit to defer investment in the premature equipment needed to claim the earliest advanced technology and instead to purchase a more advanced and less expensive version of equipment from vendors who design such equipment based on pre-production lessons learned from the earliest technology.

Maintain Scale and Capacity Capabilities to Meet Customer Requirements, with a Focus on 12-inch Wafer Facilities for Future Expansion. We believe that maintaining our foundry capacity with advanced technology and facilities is critical to the maintenance of our industry leadership. Our production capacity is currently among the largest of all semiconductor foundries in the world. We intend to increase our 12-inch wafer production capacity to meet the needs of our customers and to fully capitalize on the expected growth of our industry. We expect our future capacity expansion plans will focus on 12-inch wafer facilities in order to maintain our technology leadership. 12-inch wafers offer manufacturing advantages over 8-inch wafers due to, among other reasons, the greater number of chips on each wafer and the advantages only offered on newer 12-inch capable equipment. In addition, 12-inch wafer facilities present a more cost-effective solution in achieving an economic scale of production. We intend to carefully monitor current market conditions in order to optimize the timing of our capital spending. We also plan to continue to expand our capacity and capabilities to meet customer requirements in different markets and expand our global presence by making strategic investments in other companies. For example, in 2014, we invested in MIFS in Japan with Fujitsu Semiconductor Limited and in USCXM in China with the Xiamen Municipal People s Government and Fujian Electronics & Information Group that will focus on manufacturing semiconductors using 12-inch wafers. These investments enable us to achieve a greater economy of scale with respect to 300mm wafer operations for advanced node process technologies. We also licensed our advanced technologies to these invested companies in order to provide feasible technology solutions to fulfill their needs. Our board had subsequently approved in June 2018 to acquire all the remaining equity interest in MIFS from Fujitsu Semiconductor Limited. Upon completion, MIFS will become our wholly-owned subsidiary.

B. Business Overview

Manufacturing Facilities

To maintain a leading position in the foundry business, we have placed great emphasis on achieving and maintaining a high standard of manufacturing quality. As a result, we seek to design and implement manufacturing processes that produce consistent, high manufacturing yields to enable our customers to estimate, with reasonable certainty, how many wafers they need to order from us. In addition, we continuously seek to enhance our production capacity and process technology, two important factors that characterize a foundry s manufacturing capability. Our large production capacity and advanced process technologies enable us to provide our customers with volume production and flexible and quick-to-market manufacturing services. All of our fabs operate 24 hours per day, seven days per week. Substantially all maintenance at each of the fabs is performed concurrently with production.

Table of Contents

As a step in our continuing expansion of our manufacturing complex in the Tainan Science Park in southern Taiwan, we completed the construction of our second 300mm fab in Taiwan in May 2009, and moved the equipment into this fab in July 2010.

The following table sets forth operational data of each of our manufacturing facilities as of December 31, 2018.

	Wavetek	Fab 8A	Fab 8C	Fab 8D	Fab 8E	Fab 8F	Fab 8S	HJ	Fab 12A	Fab 12i	USCXM
Commencement of volume production	1989	1995	1998	2000	1998	2000	2000	2003	2002	2004	2016
Estimated full capacity [1][2]	31,000 wafers per month	69,000 wafers per month	36,050 wafers per month	30,000 wafers per month	35,000 wafers per month	36,100 wafers per month	31,100 wafers per month	64,500 wafers per month	83,400 wafers per month	47,840 wafers per month	17,000 wafers per month
Wafer size	6-inch (150mm)	8-inch (200mm)	8-inch (200mm)	8-inch (200mm)	8-inch (200mm)	8-inch (200mm)	8-inch (200mm)	8-inch (200mm)	12-inch (300mm)	12-inch (300mm)	12-inch (300mm)

(1) Measured in stated wafer size.
(2) The capacity of a fab is determined based on the capacity ratings given by manufacturers of the equipment used in the fab, adjusted for, among other factors, actual output during uninterrupted trial runs, expected down time due to set up for production runs and maintenance and expected product mix.

Our fabs are located in the R.O.C., Singapore, and the PRC. The following table sets forth the size and primary use of our facilities and whether such facilities, including land and buildings, are owned or leased. The land in the Hsinchu and Tainan Science Parks is leased from the R.O.C. government. The land in the Pasir Ris is leased from statutory boards of the Singapore government. The land in the Suzhou Industrial Park and Xiang an District is leased from the PRC government.

Location	Size (Land/Building) (in square meters)	Primary Use	Land (Owned or Leased)	Building (Owned or Leased)
Fab 8A, 3, 5 Li-Hsin 2nd Rd., Hsinchu Science Park, Hsinchu, Taiwan 30078, R.O.C.	43,130 / 83,699	8-inch wafer production	Leased (expires in December 2033)	Owned
Fab 8C & Fab 8D, 6, 8 Li-Hsin 3rd Rd., Hsinchu Science Park,	33,784/100,609	8-inch wafer production	Leased (expires in December 2033)	Owned

Hsinchu, Taiwan 30078, R.O.C.				
Fab 8E, 17 Li-Hsin Rd., Hsinchu Science Park, Hsinchu, Taiwan 30078, R.O.C.	35,779 / 76,315	8-inch wafer production	Leased (expires in February 2036)	Owned
Fab 8F, 3 Li-Hsin 6th Rd., Hsinchu Science Park, Hsinchu, Taiwan 30078, R.O.C.	23,774 / 65,736	8-inch wafer production	Leased (expires in February 2038)	Owned
Fab 8S, 16 Creation 1st Rd., Hsinchu Science Park, Hsinchu, Taiwan 30077, R.O.C.	20,365 / 65,614	8-inch wafer production	Leased (expires in December 2023)	Owned
HJ, 333, Xinghua St., Suzhou Industrial Park, Suzhou, Jiangsu Province 215025, PRC	215,621 / 100,908	8-inch wafer production	Leased (expires in December 2052)	Owned

Table of Contents

Location	Size (Land/Building) (in square meters)	Primary Use	Land (Owned or Leased)	Building (Owned or Leased)
Fab 12A, 18, 20 Nan-Ke 2nd Rd., & 57, Nan-ke 3rd Rd., Tainan Science Park, Sinshih, Tainan, Taiwan 74147, R.O.C.	243,250 / 633,904	12-inch wafer production	Leased (expires in November 2034)	Owned
Fab 12i, 3 Pasir Ris Drive 12 Singapore 519528	84,836 / 146,323	12-inch wafer production	Leased (expires in March 2031)	Owned
USCXM, 899 Wan Jia Chun Road, Xiang an District, Xiamen, PRC	254,698 / 348,537	12-inch wafer production	Leased (expires in January 2065)	Owned
United Tower, 3 Li-Hsin 2nd Rd., Hsinchu Science Park, Hsinchu, Taiwan 30078, R.O.C.	8,985 / 85,224	Administration office	Leased (expires in December 2033)	Owned
Neihu Rd. office, 8F, 68. Sec. 1, Neihu Rd., Taipei, Taiwan 11493, R.O.C.	626 / 4,817	Administration office	Owned	Owned
Testing Building, 1, Chin-Shan, 7th St., Hsinchu, Taiwan 30080, R.O.C.	10,762 /41,318	Leased to several companies	Owned	Owned
R&D Building, 18 Nan-Ke 2nd Rd., Tainan Science Park, Sinshih, Tainan, Taiwan 74147, R.O.C.	42,000 / 47,396	Research and development	Leased (expires in December 2023)	Owned
Nexpower, 2, Houke S. Rd., Houli District, Taichung, Taiwan 42152, R.O.C.	57,556 / 82,699	Solar PV modules production	Leased (expires in December 2026)	Owned
Wavetek, 10, Chuangxin 1st Rd., Baoshan Township, Hsinchu, Taiwan 30076, R.O.C.	27,898 / 34,609	6-inch wafer production	Leased (expires in December 2034)	Owned

Process Technology

Process technology is a set of specifications and parameters that we implement for manufacturing the critical dimensions of the patterned features of the circuitry of semiconductors. Our process technologies are currently among the most advanced in the foundry industry. These advanced technologies have enabled us to provide flexible production schedules to meet our customers particular needs.

We pioneered the production of numerous semiconductor products. Our continued enhancement of our process technologies has enabled us to manufacture semiconductor devices with smaller geometries. In 2013, we successfully developed and released into production 28nm Poly-SiON and High-k/metal gate technologies. In 2015, we provided a High-k/ metal gate with high performance compact, or HPC, solution and improved to a high performance compact plus, or HPC+, solution by the end of 2017 for speed-intensive and optimized power consumption products. In 2018, 22nm ULP (ultra-Low Power) and ULL (ultra-Low Leakage) technology was developed to provide cost effective solutions and to obtain better chip performance for IoT applications. We also joined International Business Machines Corporation, or IBM chip alliance, for advanced process development. With IBM s know-how and support, we aim to continue to improve our internally developed 14nm FinFET technology, so as to offer a 14nm competitive low-power enhanced technology for mobile computing and communication products. In March 2017, we commenced the shipment of 14nm wafers to customers and have achieved production quality yields for the advanced process that is being utilized for consumer electronic applications. UMC s 14nm FinFET technology features 55% higher speed and twice the gate density over 28nm process technology. The 14nm process also consumes approximately 50% less power than for 28nm. We also partnered with Avalanche for joint development and production of MRAM to replace embedded flash in 2018 for 28/22nm technologies.

Table of Contents

Furthermore, we have also successfully developed specialty technologies such as 55/40/28nm embedded memory used for MCU and automotive products, 55/40/28nm embedded high voltage device used for display drivers, 55nm BSI-CSI for image sensors and 110/55nm BCD for power management circuits. We also developed ReRAM for advanced node embedded solutions, and RF-SOI technologies of 110/90/55nm nodes covering both custom and platform for RF device applications. All of these specialty technologies can provide system on chip solutions.

The table below sets forth our actual process technology range, categorized by line widths, or the minimum physical dimensions of the transistor gate of integrated circuits in production by each fab, in 2018, and the estimated annual full capacity of each fab, actual total annual output and capacity utilization rates in 2016, 2017 and 2018:

	Years of Commencement of Operation	Year Ended December 31, 2018 Range of Process Technologies (in microns)	Years Ended December 31, 2016	2017	2018
			(in thousands of 8-inch wafer equivalents, except percentages)		
Wavetek	1989	0.5	238	237	223
Fab 8A	1995	0.5 to 0.25	827	825	825
Fab 8C	1998	0.35 to 0.11	348	357	383
Fab 8D	2000	0.13 to 0.09	342	341	347
Fab 8E	1998	0.5 to 0.18	419	418	418
Fab 8F	2000	0.18 to 0.11	401	417	431
Fab 8S	2000	0.18 to 0.11	336	347	372
HJ	2003	0.5 to 0.11	750	753	771
Fab 12A	2002	0.13 to 0.014	1,990	2,182	2,243
Fab 12i	2004	0.13 to 0.040	1,313	1,209	1,248
USCXM	2016	0.040 to 0.028	19	218	413
Total estimated capacity			6,983	7,304	7,673
Total output (actual)			6,190	6,896	7,143
Average capacity utilization			88.6%	94.4%	93.1%

Capacity and Utilization

The fabs in Taiwan that we own directly are named Wavetek, Fab 8A, Fab 8C, Fab 8D, Fab 8E, Fab 8F, Fab 8S and Fab 12A. All of them are located in the Hsinchu Science Park except for Fab 12A located in the Tainan Science Park. The fab in Singapore is named Fab 12i. The fabs in China are named HJ and USCXM, located in Suzhou and Xiamen, respectively.

Our average capacity utilization rate was 88.6% in 2016, 94.4% in 2017 and 93.1% in 2018.

Equipment

Considering the performance and productivity of our manufacturing capability highly relies on the quality of our capital equipment, we generally purchase equipment that not only meet the demand of our existing process technology, but also have the capability to be upgraded to match our future needs. The principal equipment we use to manufacture semiconductor devices are scanners/steppers, cleaners and track equipment, inspection equipment,

etchers, furnaces, wet stations, strippers, implanters, sputters, CVD equipment, probers, testers and so on. We own all of the production equipment except for a few demonstration tools.

Our policy is to purchase high-quality equipment that demonstrates stable performance from vendors with dominant market share to ensure our continued competitiveness in the semiconductor field.

Table of Contents

Some of the equipment is available from a limited number of qualified vendors and/or is manufactured in relatively limited quantities, and some equipment has only recently been developed. We believe that our relationships with equipment suppliers are strong enough that we can leverage our position as a major purchaser to purchase equipment on competitive terms, including shorter lead time, compared with the terms received by several other foundries.

Although we face the challenge of procuring the right equipment in sufficient quantity necessary for ramp-up or expansion of our fabrication facilities under constraint of short lead times, we have not in the past experienced any material problems in procuring the latest generation equipment on a timely basis even in periods of unpredictably high market demand. We manage the risks in the procurement process through timely internal communications among different divisions, efficient market information collection, early reservation of appropriate delivery slots and constant communications with our suppliers as well as by utilizing our good relationships with the vendors.

Raw Materials

Our manufacturing processes use many raw materials, primarily silicon wafers, chemicals, gases and various types of precious sputtering targets. These raw materials are generally available from several suppliers. Our policy with respect to raw material purchases, similar to that for equipment purchases, is to select only a small number of qualified vendors who have demonstrated quality and reliability on delivery time of the raw materials. We may have any long-term supply contracts with our vendors if necessary.

Our general inventory policy is to maintain sufficient stock of each principal raw material for production and rolling forecasts of near-term requirements received from customers. In addition, we have agreements with several key material suppliers under which they hold similar levels of inventory in their warehouses for our use. However, we are not under any obligation to purchase raw material inventory that is held by our vendors for our benefit until we actually order it. We typically work with our vendors to plan our raw material requirements on a monthly basis, with indicative pricing generally set on a quarterly basis. The actual purchase price is generally determined based on the prevailing market conditions. In the past, prices of our principal raw materials have not been volatile to a significant degree. Although we have not experienced any shortage of raw materials that had a material effect on our operations, and supplies of raw materials we use currently are adequate, shortages could occur in various critical materials due to interruption of supply or an increase in industry demand.

The most important raw material used in our production processes is silicon wafer, which is the basic raw material from which integrated circuits are made. The principal makers for our wafers are Shin-Etsu, GlobalWafers, Siltronic and Sumco Group. We have in the past obtained and believe that we will continue to be able to obtain a sufficient supply of silicon wafers. We believe that we have close working relationships with our wafer suppliers. Based on such long-term relationships, we believe that these major suppliers will use their best efforts to accommodate our demand.

We use a large amount of water in our manufacturing process. We obtain water supplies from government-owned entities. We also use substantial amounts of dual loop electricity supplied by Taiwan Power Company in the manufacturing process. We maintain back-up generators that are capable of providing adequate amounts of electricity to maintain the required air pressure in our clean rooms in case of power interruptions. We believe our back-up devices are reasonably adequate in preventing business interruptions caused by power outages and emergency situations.

Quality Management

We believe that our advanced process technologies and reputation for high quality and reliable services and products have been important factors in attracting and retaining leading international and domestic semiconductor companies as

customers.

We structure our quality management system in accordance with the latest international quality standards and our customers strict quality and reliability requirements. Our quality management system incorporates comprehensive quality control programs into the entire business flow of foundry operation including, among others, new process development management, production release control, incoming raw material inspection, statistical process control and methodology development, process change management, technical documentation control, product final inspection, metrology tool calibration and measurement system analysis, quality audit program, nonconformity management, customer complaint disposition, eight-discipline problem solving and customer satisfaction monitoring.

Table of Contents

We set a high quality goal to ensure consistent high yielding and reliable product performance. Our quality program is continually enhanced through top-down annual Business Policy Management and bottom-up Total Quality Management activities. In addition, our efforts to observe best practices among fabs in the foundry industry have also contributed to the improvement of our overall quality management system.

Many of our customers perform physical production site qualification process in the early development phase and routine quality conformance audits in the volume production phase. These audits include both quality system review and physical fabrication area inspection for verification of conformity with the international quality standard and customers quality requirement. Our quality management system and quality control programs have been qualified and routinely audited by numerous customers who are recognized as world-class semiconductor companies with best-in-class quality standards.

Our Quality Assurance Division and Reliability Technology and Assurance Division collaborate to provide quality and reliability performance to customers. With our wafer processing quality and reliability conformance monitor program, we monitor the product quality and reliability at various stages of the entire manufacturing process before shipment to customers.

All our fabs are certified in compliance with IATF 16949 and QC080000 IECQ HSPM standards. IATF 16949 sets the criteria for developing a fundamental quality management system emphasizing on customer satisfaction in quality management, continual improvement, defect prevention and variation and waste reduction. QC080000 IECQ HSPM sets the criteria for developing a process management system for hazardous substances and focuses on developing environmentally friendly manufacturing processes. We are committed to continuously improve our quality management system and to deliver high quality product to our customers.

Services and Products

We primarily engage in wafer fabrication for foundry customers. To optimize fabrication services for our customers, we work closely with them as they finalize circuit design and contract for the preparation of masks to be used in the manufacturing process. We also offer our customers turnkey services by providing subcontracted assembly and test services. We believe that this ability to deliver a variety of foundry services in addition to wafer fabrication enables us to accommodate the needs of a full array of integrated device manufacturers, system companies and fabless design customers with different in-house capabilities.

Wafer manufacturing requires many distinct and intricate steps. Each step in the manufacturing process must be completed with precision in order for finished semiconductor devices to work as intended. The processes require taking raw wafers and turning them into finished semiconductor devices generally through five steps: circuit design, mask tooling, wafer fabrication, assembly and test. The services we offer to our customers in each of these five steps are described below.

Circuit Design. At this initial design stage, our engineers generally work with our customers to ensure that their designs can be successfully and cost-effectively manufactured in our facilities. We have assisted an increasing number of our customers in the design process by providing them with access to our partners electronic design analysis tools, IP and design services as well as by providing them with custom embedded memory macro-cells. In our Silicon Shuttle program, we offer customers and IP providers early access to actual silicon samples with their desired IP and content in order to enable early and rapid use of our advanced technologies. The Silicon Shuttle program is a multi-chip test wafer program that allows silicon verification of IP and design elements. In the Silicon Shuttle program, several different vendors can test their IP using a single mask set, greatly reducing the cost of silicon verification for us and the participating vendors. The high cost of masks for advanced processes makes this program

attractive to IP vendors. In our alliances with them, we coordinate with leading suppliers of IP, design and ASIC services to ensure their offerings are available to our customers in an integrated, easy to use manner which matches customers need to our technologies. With a view to lowering customer design barriers, we expanded our design support functions from conventional design support to adding IP development to complement third-party intellectual properties and to provide customers with the widest range of silicon-verified choices. Our offerings range from design libraries to basic analog mixed-mode intellectual properties which, together, have helped shorten our customer s design cycle time.

Table of Contents

Mask Tooling. Our engineers generally assist our customers to design and/or obtain masks that are optimized for our advanced process technologies and equipment. Actual mask production is usually provided by independent third parties specializing in mask tooling.

Wafer Fabrication. As described above, our manufacturing service provides all aspects of the wafer fabrication process by utilizing a full range of advanced process technologies. During the wafer fabrication process, we perform procedures in which a photosensitive material is deposited on the wafer and exposed to light through the mask to form transistors and other circuit elements comprising of a semiconductor. The unwanted material is then etched away, leaving only the desired circuit pattern on the wafer. As part of our wafer fabrication services, we also offer wafer probing services, which test, or probe, individual die on the processed wafers and identify dice that fail to meet required standards. We prefer to conduct wafer probing internally to obtain speedier and more accurate data on manufacturing yield rates.

Assembly and Testing. We offer our customers turnkey services by providing the option to purchase finished semiconductor products that have been assembled and tested. We outsource assembly and test services to leading assembly and test service providers, including Siliconware Precision Industries Co., Ltd., or Siliconware, and Advanced Semiconductor Engineering Inc. in Taiwan. After final testing, the semiconductors are shipped to our customers designated locations.

In addition to our foundry business, we also engage in the research, development and manufacture of products in the solar energy and LED industries.

Customers and Markets

Our primary customers, in terms of our sales revenues, include premier integrated device manufacturers, such as Texas Instruments and Intel Mobile, plus leading fabless design companies, such as Broadcom, MediaTek, Realtek, Qualcomm and Novatek. Although we are not dependent on any single customer, a significant portion of our operating revenues has been generated from sales to a few customers. Our top ten customers accounted for approximately 51.3% of our operating revenues in 2018. Set forth below is a geographic breakdown of our operating revenues in 2016, 2017 and 2018 by the location of our customers.

	Years Ended December 31,		
Region	**2016**	**2017**	**2018**
	%	%	%
Taiwan	31.4	32.8	36.4
Singapore	18.1	20.6	16.4
China (including Hong Kong)	9.3	12.7	12.2
Japan	3.0	3.2	3.9
USA	9.3	12.2	15.6
Europe	19.8	9.6	8.3
Others	9.1	8.9	7.2
Total	100.0	100.0	100.0

We believe our success in attracting these end customers is a direct result of our commitment to high quality service and our intense focus on customer needs and performance. As an independent semiconductor foundry, most of our operating revenue is generated by our sales of wafers. The following table presented the percentages of our wafer sales by types of customers for the years ended December 31, 2016, 2017 and 2018.

Table of Contents

Customer Type	Years Ended December 31, 2016	2017	2018
	%	%	%
Fabless design companies	92.4	91.0	92.4
Integrated device manufacturers	7.6	9.0	7.6
Total	100.0	100.0	100.0

We focus on providing a high level of customer service in order to attract customers and maintain their ongoing loyalty. Our culture emphasizes responsiveness to customer needs with a focus on flexibility, speed and accuracy throughout our manufacturing and delivery processes. Our customer-oriented approach is especially evident in two types of services: customer design development services and manufacturing services. For example, in 2013, we expand our regional business by opening our UMC Korea office, in order to provide local support to our customers in Korea, and shorten time-to-market for our Korea-based customers designing and manufacturing on UMC process technologies. We believe that our large production capacity and advanced process technology enable us to provide better customer service than many other foundries through shorter turn-around time, greater manufacturing flexibility and higher manufacturing yields.

We work closely with our customers throughout the design development and prototyping processes. Our design support team closely interacts with customers and IP vendors to facilitate the design process and to identify their specific requirements for IP offerings. We are responsive to our customers requirements in terms of overall turn-around time and production time-to-market by, for example, helping our customers streamline their IP offering processes and delivering prototypes in a timely and easy-to-use fashion. We also maintain flexibility and efficiency in our technical capability and respond quickly to our customers design changes.

For IP offerings, we work with several leading IP vendors from digital, memory and analog fields in the semiconductor industry to deliver quality IP blocks that have been silicon validated using our advanced processes. Our alliances with major electronic design automation vendors provide our customers with digital/analog reference design procedures and easy-to-use design solutions. By continuously enhancing our IP offerings, reference design procedures and design services through collaboration with major vendors, we aim to provide complete, accurate and user-friendly design solutions to our customers.

As a design moves into manufacturing production, we continue to provide ongoing customer support through all phases of the manufacturing process. The local account manager works with our customer service representative to ensure the quality of our services, drawing upon our marketing and customer engineering support teams as required.

We offer an online service, MyUMC , which gives our customers easy access to our foundry services by providing a total online supply chain solution. MyUMC offers 24-hour access to detailed account information such as manufacturing, engineering and design support documents through each customer s own customized start page. The features that are available to customers through MyUMC include (i) viewing the status of orders from the start of production to the final shipping stages; (ii) designing layouts to shorten customers tape out time; (iii) collecting customer engineering requests; (iv) gathering and downloading documents for design purposes; and (v) and accessing online in real-time the same manufacturing data used by our fab engineers.

We also have a system-to-system connecting services to provide direct data exchange between our system and our customers systems. These services, which include our UMC Design View Room Cloud Service , facilitate our design collaborations with our customers to help reduce the cost of chip designs and reduce the time to market. In order to

continue to improve our information security management, our Information Technology Division received the certification of ISO/IEC 27001:2005 in March 2008 and renewed ISO/IEC 27001:2013 certification in February 2015.

In addition, we have established a data-driven advanced semiconductor smart manufacturing system to provide world-class quality production, ensure information security and service quality, as well as improve customer satisfaction, operational and R&D efficiency. We achieved this by integrating a spectrum of innovative digital technologies, including Internet of Things, big data, cloud, artificial intelligence and information technology, and our enterprise information and semiconductor expertise.

Table of Contents

We price our products on a per die or per wafer basis, taking into account the complexity of the technology, the prevailing market conditions, the order size, the cycle time, the strength and history of our relationship with the customer and our capacity utilization. Our main sales office is located in Taiwan, which is in charge of our sales activities in Asia. United Microelectronics (Europe) BV, our wholly-owned subsidiary based in Amsterdam, assists our sales to customers in Europe. Our sales in North America are made through UMC Group (USA), our subsidiary located in Sunnyvale, California. We also have sales offices in China, Japan and Korea to support our customers in those regions.

We typically designate a portion of our wafer manufacturing capacity to some of our customers primarily under two types of agreements: reciprocal commitment agreements and deposit agreements. Under a reciprocal commitment agreement, the customer agrees to pay for, and we agree to supply, a specified capacity at a specified time in the future. Under a deposit agreement, the customer makes in advance a cash deposit for an option on a specified capacity at our fabs for a stated period of time. Option deposits are credited to wafer purchase prices as shipments are made. If this customer does not use the specified capacity, it will forfeit the deposit but, in certain circumstances and with our permission, the customer may arrange for a substitute customer to utilize such capacity. In some cases, we also make available capacity to customers under other types of agreements, such as capacity commitment arrangements with technology partners.

We advertise in trade journals, organize technology seminars, hold a variety of regional and international sales conferences and attend a number of industry trade fairs to promote our products and services. We also publish a corporate newsletter for our customers.

Information Security Risk Management

Our information security risks and the mitigating measures we have taken are described in the following seven sections:

(1) Risk Management Organization

We have established an Enterprise Risk Management Committee to coordinate with key internal departments for risk management and control, jointly review and manage internal and external risks of the company, and prioritize risk response strategies for major risk issues across the company. It is combined with internal audit and control functions to ensure that the operational risks associated with operations are properly managed. In addition, we established the Corporate Security Division in 2018, which is responsible for our information security and physical security planning and related audit matters, and work together with our Information Technology Division to further strengthen information security.

(2) Information Security Policy (Internal Control and Protocol)

Our information security policy is based on the guiding principle: To establish Information Security Management rules in accordance to customer s requirement, to reach a consensus that information security is everyone s responsibility through full awareness, to protect information Confidentiality, Integrity, Availability for the Company and Customer, and to provide safe production environment to ensure sustainable operation of the Company s business. Our major information security objectives are aimed at antivirus, anti-intrusion and anti-leakage through the building of multiple internal controls such as firewall, intrusion detection and antivirus systems to enhance our ability to defend against external attacks. Also, through regular educational and training programs, security operation/awareness is tightly involved and seamlessly integrated into every employee s daily work.

(3) Establish Enterprise Risk Management System

Our Enterprise Risk Management Committee integrates the identified various risk items, including strategy, operation, finance, hazard, etc., evaluate the possibility and severity of their occurrence, defines the priority order and risk level of the risk items, and adopt corresponding risk management schemes. Regularly review the possibility of risk occurrence and the potential change of severity over time to grasp the effectiveness of risk management programs and related control operations. We comply with multiple ISO certification standards in the areas of quality, environment, water resources, carbon footprint and green energy. Related information security certification includes ISO15408, ISO22301 and ISO27001.

Table of Contents

(4) Assessment of Information Security and Cyber Risks

We pay special attention to the security risks from external intrusion, and build a complete multi-layer defense mechanism including firewall, intrusion detection, antivirus system, vulnerability scanning, patch management procedure and penetration testing. We undertake annual self-assessment on cyber security defense capability on an average of three to four points (corresponding to Defined ~ Managed level in InfoSec Maturity Model). The found weakness items are listed as annual projects for improvement. In addition to self-assessment, we also leverage international professional security company s resources for overall security healthy inspection as a trusted third party verification and a basis for further improvement.

(5) Information Security Management System (ISMS) Verification

We have been listed on NYSE since 2000 and had complied with the Sarbanes-Oxley Act (SOX 404) for internal key financial processes. In 2019, we intend to strengthen information security by introducing ISO27001 information security management system certification to reduce security risk and production anomaly that may cause by human error. Continuous improvement of PDCA is then carried out through annual recertification.

In 2014, a cross-division security committee was established. Based on the need to produce secure products like smart card, we introduced ISO15408 (CC, Common Criteria) certification specifically designed for secure production procedures not only in data receiving, processing and destroying but also higher physical access control request for securing entire production line purpose. Continuous improvement of PDCA is then carried out through biennial recertification.

(6) Insurance against Information Security Risks

In view of recent reports about data leakage, virus infection, hacking event in Taiwan and the world, together with the ransomware incident of peer semiconductor manufacturer s information system in August 2018, whose operating loss in business interruption reached NT$7.6 billion. There is no guarantee that enterprises will not become the target of attacks despite reasonable security protection in place. In view of this, we opt for cyber security insurance for partly transferring and mitigating the risk. This insurance is in effect since January 2019 with retroactive option which can trace back to undiscovered pre-existing threats. The initial insurance coverage is US$10 million for all our fabs in Taiwan and Singapore.

(7) The Impact of Occurred Major Asset Security Incidents and Response Measures

In response to potential cyber-attacks, we upgraded the antivirus software with behavior-based detection capability and implementing strict information device in/out management, as well as updated critical patches for production line computers to defense against such worm-type viruses that may attack system vulnerabilities. We also set Access Control List (ACL) in production line network to grant necessary access between equipment tools, which can block the virus from spreading and minimize its impact. SEMICON TAIWAN subsequently formed a task force to study equipment information security standards, of which we are a member, to contribute as a local enterprise responsibility.

In short, while new invasive techniques are constantly refurbished but defense system is faced with zero-breach tolerance as past defense achievements do not necessarily mean or guarantee that anomaly will not happen in the future. Enterprises must keep pace with the times, face the ever-changing and growing information security threat. Information security has a long way to go and requires continuous improvement. UMC will uphold to Customer-orientation, Integrity, Innovation, Accountability, Efficiency as corporate culture and well fulfill due care/due diligence management responsibility to provide customers with a secure production environment to reduce

operational risk and reward shareholders with highest investment value as possible.

Table of Contents

Competition

The worldwide semiconductor foundry industry is highly competitive, particularly during periods of overcapacity and inventory correction. We compete internationally and domestically with dedicated foundry service providers as well as with integrated device manufacturers and final product manufacturers which have in-house manufacturing capacity or foundry operations. Some of our competitors have substantially greater production, financial, research and development and marketing resources than we have. As a result, these companies may be able to compete more aggressively over a longer period of time than we can. In addition, several new dedicated foundries have commenced operations and compete directly with us. Any significant increase in competition may erode our profit margins and weaken our earnings.

We believe that our primary competitors in the foundry services market are Taiwan Semiconductor Manufacturing Company Limited, Semiconductor Manufacturing International (Shanghai) Corporation and Globalfoundries Inc., as well as the foundry operation services of some integrated device manufacturers such as IBM, Samsung, Intel and Toshiba. Other competitors such as DongbuAnam Semiconductor, Grace Semiconductor Manufacturing Corp., X-FAB Semiconductors Foundries AG and Silterra Malaysia Sdn. Bhd. have initiated efforts to develop substantial new foundry capacity, although much of such capacity involves less cost-effective production than the 12-inch fabs for which we possess technical know-how. New entrants in the foundry business are likely to initiate a trend of competitive pricing and create potential overcapacity in legacy technology. The principal elements of competition in the semiconductor foundry industry include technical competence, production speed and cycle time, time-to-market, research and development quality, available capacity, manufacturing yields, customer service and price. We believe that we compete favorably with the new competitors on each of these elements, particularly our technical competence and research and development capabilities.

Intellectual Property

Our success depends in part on our ability to obtain patents, licenses and other intellectual property (IP) rights covering our production processes and activities. To that end, we have acquired certain patents and patent licenses and intend to continue to seek patents on our production processes. As of December 31, 2018, we held 5,678 U.S. patents and 7,313 patents issued outside of the United States.

Our ability to compete also depends on our ability to operate without infringing on the proprietary rights of others. The semiconductor industry is generally characterized by frequent claims and litigation regarding patent and other IP rights. As is the case with many companies in the semiconductor industry, we have from time to time received communications from third parties asserting patents that allegedly cover certain of our technologies and alleging infringement of certain IP rights of others. We expect that we will receive similar communications in the future. Irrespective of the validity or the successful assertion of such claims, we could incur significant costs and devote significant management resources to the defense of these claims, which could seriously harm our company. See Item 3. Key Information D. Risk Factors Our inability to obtain, preserve and defend IP rights could harm our competitive position.

In order to minimize our risks from claims based on our manufacture of semiconductor devices or end-use products whose designs infringe on others IP rights, we in general accept orders only from companies that we believe enjoy satisfactory reputation and for products that are not identified as risky for potential infringement claims. Furthermore, we obtain indemnification rights from customers. We also generally obtain indemnification rights from equipment vendors to hold us harmless from any losses resulting from any suit or proceedings brought against our company involving allegation of infringement of IP rights on account of our use of the equipment supplied by them.

We have entered into various patent cross-licenses with major technology companies, including a number of leading international semiconductor companies, such as IBM and LSI. Our cross licenses may have different terms and expiry dates. Depending upon our competitive position and strategy, we may or may not renew our cross licenses and further, we may enter into different and/or additional technology and/or IP licenses in the future.

Table of Contents

Research and Development

In 2016, 2017 and 2018, we spent NT$13,532 million, NT$13,669 million and NT$13,025 million (US$426 million), respectively, on research and development, which represented 9.2%, 9.2% and 8.6%, respectively, of our operating revenues of such years. Our research and development efforts mainly focus on delivering comprehensive foundry solutions that consist of the key process technologies encompassing logic as well as specialty manufacturing technologies that address customers needs. These resources provide our foundry customers with improved opportunities to develop diverse product lines that supply the global semiconductor market. Our commitment to research and development can be illustrated by our 2018 research and development expenditures, which reached approximately 8.6% of operating revenues.

As of December 31, 2018, we employed 1,821 professionals in our research and development activities. In addition, other management and operational personnel are also involved in research and development activities but are not separately identified as research and development professionals.

Our Investments

Depending on the market conditions, we intend to gradually reduce our investments through open market trading and other measures available to our company.

The following table sets forth the sales of our investments in 2016:

Investees	Number of shares sold (in millions)	Proceeds from disposal (in NT$ millions)
Nien Made Enterprise Co., Ltd.	5	1,593
Superalloy Industrial Co., Ltd.	6	870
Motech Industries, Inc.	17	599
Easou Holdings Company Limited (formerly Yeti Group Ltd.)	14	295

The following table sets forth the sales of our investments in 2017:

Investees	Number of shares sold (in millions)	Proceeds from disposal (in NT$ millions)
Superalloy Industrial Co., Ltd.	5	534
Nien Made Enterprise Co., Ltd.	1	414
GlobalWafers Co., Ltd.	2	343
Chunghwa Telecom Co., Ltd.	0	208

The following table sets forth the sales of our investments in 2018:

Investees	Number of shares sold (in millions)	Proceeds from disposal (in NT$ millions)	(in US$ millions)

All-Stars Xmi Ltd.	0	471	15
Motech Industries, Inc.	22	300	10
Bora Pharmaceuticals Co, Ltd.	2	225	7
Epic! Creations, Inc.	2	183	6

Table of Contents

Environmental, Safety and Health Matters

UMC implemented extensive ESH management systems since 1996. These systems enable our operations to identify applicable ESH regulations, assist in evaluating compliance status and timely establish loss preventive and control measures. The systems we implemented in all our fabs have been certified as meeting the ISO 14001 and OHSAS 18001 standards. ISO 14001 consists of a set of standards that provide guidance to the management of organizations to achieve an effective environmental management system. Procedures are established at manufacturing locations to ensure that all accidental spills and discharges are properly addressed. OHSAS 18001 is a recognizable occupational health and safety management system standard, which may be applied to assess and certify our management systems. Our goal in implementing ISO 14001 and OHSAS 18001 systems is to continually improve our ESH management, comply with ESH regulations and to be a sustainable green foundry. UMC s major ESH policies include:

Environmental Protection Aspects:

With zero pollution as the goal, strive to be a sustainable green corporation by complying with or going above and beyond the requirements of environmental laws and international conventions.

Implement and integrate an environmental management system into the overall organizational management system. Commit to ongoing improvement of environmental performance.

Actively introduce and develop green technologies, and apply to production activities and product service processes. Strive to reduce environmental loads in all life cycle stages to achieve green design, production and operation.

Comply with international environmental protection trends, properly utilize and recycle energy and resources, promote circular economy, and become a leader in green technology.

Fulfill corporate social responsibility, and cooperate with the government, the public and global business partners in ecological improvement and rehabilitation.

Promote environmental ethics education and green concepts to encourage eco awareness, action and responsibility in corporations, upstream and downstream supply chains and the general public.

Disclose environmental information and maintain ongoing communication with stakeholders. Exercise due diligence in promoting environmental sustainability.

Safety and Health Aspects:

Meet or exceed the requirements of industry safety and health laws, aiming for zero disaster. The company is committed to steady development while making safety a priority.

Promote safety and health management system and risk improvement processes to achieve and maintain world-class safety/health and risk management performance.

Use advanced safety and health technologies as well as risk and disaster rescue techniques to aggressively enhance all safety aspects in a pioneering manner.

Table of Contents

Implement prevention management and auditing systems to ensure the safety of the work environment and operations, protecting the physical and mental health of employees to put the minds of workers and customers at ease.

Make it a responsibility for personnel of all levels to exercise influence, eliminate hazard factors, prevent occurrence of accidents and work-related illnesses, and promote effective safety and health interactions through cooperation and sharing.

Continue conducting safety and health education and advocacy; encourage active participation in safety and health activities, allow for health and safety to be a habit and a way of life for all employees.

As a member of the global community and a semiconductor industry leader, we have implemented measures to deal with environmental problems and mitigate climate change. We have introduced green concepts in our operations, including green commitment, management, procurement, production, products, recycling, office, education and marketing.

In order to conquer the green barrier formed by the RoHS (the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment) Directive, we established a cross-division HSPM (Hazardous Substances Process Management) committee to manage all development and implementation of related work. We completed the final system audit for QC 080000 ICEQ HSPM qualification, a certification for having a hazardous substance process management system that meets the RoHS Directive, on June 9, 2006 and became the first semiconductor manufacturer worldwide to achieve HSPM certification for all fabs. In 2009, we completed the report on the carbon footprint verification for integrated circuit wafers produced at our facilities, the first such report in the foundry industry. In 2010, we completed water footprint verification for our 200 mm and 300 mm wafers. These verifications provide scientific and reliable statistics on the carbon and water information of products manufactured in our fabs as well as self-reviews of environmental impact.

With respect to safety and health management, we realized that lowering the risks in equipment and processes can reduce accidents, but cannot guarantee the safety of all employees. In order to achieve the goal of zero-accident , we intend to promote the concept of safety is my responsibility . We have educated the employees with the concepts of be aware of your own safety well as the safety of others and safety is everyone s responsibility, and my personal accountability.

Furthermore, we have implemented the FMEA method to foster employees capabilities in risk analysis. Therefore, we established a channel for communication to encourage and ensure the employees to fully express their opinions for professional response and assistance. By doing so, we hope to establish a working attitude of Safety and health first to further improve the quality of our working environment, and eventually to become a good example of global safety and health management.

The following list sets forth some of the important awards that we received in environmental protection, safety and health:

Selected as a member of Dow Jones Sustainability Indexes for the eleventh straight year since 2008;

Achieved Leadership Status (score level: A-) on CDP s Climate Change Assessment Program (2016-2018);

Awarded Watermark Award by Singapore s National Water Agency (2018);

Awarded Corporate Sustainability Report Award by Taiwan Institute for Sustainable Energy (2008-2018);

Awarded Enterprises Environmental Award of the Republic of China by the Environmental Protection Administration of Executive Yuan, R.O.C. (2003-2018);

Table of Contents

Awarded The Best Participation of Green Procurement for Enterprises by the Environmental Protection Administration of Executive Yuan, R.O.C. (2011-2018); and

Awarded Excellent Occupational Safety and Health Executive Organization of Hsinchu Science Park by the Science Park Administration (1998-2018).

Climate Change

Our climate change policies announced on April 22, 2010 include: (i) achieving carbon neutral status via carbon management, (ii) becoming a comprehensive low-carbon emissions solution provider, and (iii) leveraging corporate resources to cultivate a low-carbon emissions economy. In order to implement these policies, we set greenhouse gas reduction goals as to various phases. By 2015, we completed resource and energy productivity improvement plan named 369+-project which consisted of reducing the usage of electricity by 3%, the usage of pipe water by 6% and the waste generation by 9% compared with the base year 2012. Currently, we announced our latest Green 2020 goals to demonstrate our long-term commitment to sustainable environment and achieved our annual targeted goal in 2018. We will be more proactive with self-motivated action and more stringent standards. The goal is to further reduce water, energy and waste by 10% over current levels by 2020. Meanwhile, we also strive to reduce carbon emissions through the following two measures: (1) we continue to implement a greenhouse gas emission reduction plan to assist customers in establishing a low-carbon emissions supply chain, and (2) we continue to enhance our research and development in advanced processes to provide low-power products and reduce carbon emissions at the consumer level.

Since 1999, we have been a pioneer in the foundry industry to implement measures to reduce per-fluorinated compounds, and we completed the replacement of C_3F_8 with C_4F_8 in 2011. We have made a significant achievement by reducing normalized per-fluorinated compounds, which is one of the major greenhouse gas reduction objectives of the World Semiconductor Council. From 2013 to 2014, UMC participated in the Environmental Protection Administration, or the EPA, early reduction project and acquired a carbon reduction allowance of 3.02 million tons. We subsequently executed a contract with Dragon Steel Corporation to trade 2 million tons of carbon emission credits. It was the first trade of carbon emissions credits that was reviewed and recorded by the EPA, indicating a significant milestone in Taiwan s carbon emission credits trading market. Proceeds derived from the carbon trading transaction was wholly used by us to enforce environmental protection and promote environmental protection measures and to continue contributing towards environmental sustainability.

We also support timely disclosure of carbon information and ensuring data quality. Since 2006, we have participated in the Carbon Disclosure Project formed by global institutional investors and disclosed our annual greenhouse gas emission volume, reduction goals and results. In 2018, we achieved a leadership level score of A- in the CDP s Climate Change Assessment Program. Moreover, we engage third-party verifiers to ensure the quality of the data. We completed the verification on greenhouse gas emission and reduction records for all of our fabs in both Taiwan and Singapore on an annual basis.

Risk Management

Risk and safety matters are administered by our Risk Management and Environmental Safety Health Division, or the GRM & ESH, established in 1998. We are pursuing the goal of a highly protected risk status in the semiconductor industry through the implementation of strict engineering safety procedures, regular enforcement of safety codes and standards, and compliance of detailed industry safety guidelines.

We have adopted the Triple Star Ranking System of AIG Insurance, a global leader in risk management and insurance, since 1999. All fabs have been ranked as top-class following AIG s risk evaluation and risk improvement recommendations. The ranking system focuses on 20 items, including ten Physical Protection Elements and ten Human Elements. All of our 12-inch fabs had obtained triple-stars in all 20 elements in every Triple Star Audit. Furthermore, we were awarded the Outstanding Performance Award in Risk Management by AIG Insurance in 2013. For our new expansion 12-inch line, Fab12A P5/6, is built with international loss control standards, and had received the top-class ranking by AIG within six months after tool move-in in November 2015.

Table of Contents

Taiwan is located at the pacific fire rim, and it is therefore imperative for us to take proactive measures against the risk for earthquake. During the 2016 earthquake in Southern Taiwan, our preventive actions helped to minimize damages caused in Fab 12A. In addition, we have two more production bases located in Singapore and China, which can help to allocate production and avoid disruption. In order to reduce potential damages to our production facilities and equipment from earthquakes in the future, we continue to import the latest anti-seismic technologies, such as a seismic isolation platform for reticle stocker and furnace; furthermore install earthquake warning system within Fab 12A that will provide us with enhanced response time in the event of an earthquake.

Nowadays, extreme weather has become a risk to various business operations. In order to understand the potential impact to us, a flood risk simulation project has been implemented in 2014. Since Hsinchu Science-Based Industrial Park is located in higher terrain; we believe there is no potential flood risk. However, for Fab12A in Tainan, we had conducted a physical improvement plan by installing floodgates in specific entrances to upgrade the protection level to a 500-year flood. For our latest 12 inch fab, Fab12A Phase 5 & 6, we adopt a fundamental solution to avoid flood impact by raising the finished floor of the fab building 2m high above the adjacent public road. Those efforts have been confirmed by FM insurance company, the leader of loss control standards around the world, in 2015.

In addition, we are fully aware of the impact presented by business interruption. We are also devoted in the pursuit of corporate resilience and continuity by committing non-interrupted services to satisfy our valued customers and important stakeholders. In 2013, we were the first foundry in the world to receive ISO 22301 certification for its business continuity management system which demonstrates our commitment to developing our disaster response abilities and our mechanisms for quick recovery. We will keep improving this system and extend the scope to our suppliers.

Insurance

We maintain industrial all risk insurance for our buildings, facilities, equipment and inventories as well as third-party properties. The insurance for fabs and their equipment covers losses from physical damage and business interruption up to their respective policy limits except for policy exclusions. For example, in early 2016, we experienced a severe earthquake which adversely affected our 300mm Fab 12A wafer manufacturing operations in Taiwan and we had settled our insurance policies which partially recovered the losses resulting from this earthquake. In addition, we purchase directors and officers liability insurance for our board directors and executive officers, covering the liabilities incurred in relation to his/her/its operation of business and legally responsible for. We also maintain public liability insurance for losses to third parties arising from our business operations. We believe that our insurance arrangement is adequate to cover all major types of losses relevant to the semiconductor industry practice. However, significant damage to any of our production facilities, whether as a result of fire or other causes, could seriously harm our business.

C. Organizational Structure

The following list shows our corporate structure as of December 31, 2018:

Company	Jurisdiction of Incorporation	Percentage of Ownership as of December 31, 2018
UMC Group (USA)	U.S.A.	100.00%

United Microelectronics (Europe) B.V.	The Netherlands	100.00%
UMC Capital Corp.	Cayman Islands	100.00%
TLC Capital Co., Ltd.	Taiwan, R.O.C.	100.00%
Green Earth Limited	Samoa	100.00%
Fortune Venture Capital Corp.	Taiwan, R.O.C.	100.00%
UMC Investment (Samoa) Limited	Samoa	100.00%
UMC Capital (USA)	U.S.A.	100.00%
ECP Vita Pte. Ltd.	Singapore	100.00%
Soaring Capital Corp.	Samoa	100.00%

Table of Contents

Company	Jurisdiction of Incorporation	Percentage of Ownership as of December 31, 2018
Unitruth Advisor (Shanghai) Co., Ltd.	China	100.00%
Tera Energy Development Co., Ltd.	Taiwan, R.O.C.	100.00%
United Microchip Corporation	Cayman Islands	100.00%
Nexpower Technology Corp.	Taiwan, R.O.C.	93.36%
Wavetek Microelectronics Corporation	Taiwan, R.O.C.	78.47%
Everrich Energy Investment (HK) Limited	China	100.00%
Everrich (Shandong) Energy Co., Ltd.	China	100.00%
SocialNex Italia 1 S.R.L.	Italy	93.36%
Wavetek Microelectronics Investment (Samoa) Limited	Samoa	78.47%
Wavetek Microelectronics Corporation (USA)	U.S.A.	78.47%
Best Elite International Limited	British Virgin Islands	100.00%
Infoshine Technology Limited	British Virgin Islands	100.00%
Oakwood Associates Limited	British Virgin Islands	100.00%
Hejian Technology (Suzhou) Co., Ltd.	China	98.14%
UnitedDS Semiconductor (Shandong) Co., Ltd.	China	98.14%
United Semiconductor (Xiamen) Co., Ltd.	China	64.95%
UMC Group Japan	Japan	100.00%
UMC Korea Co., Ltd.	Korea	100.00%
Omni Global Limited	Samoa	100.00%
United Microtechnology Corporation (California)	U.S.A.	100.00%
United Microtechnology Corporation (New York)	U.S.A.	100.00%
Sino Paragon Limited	Samoa	100.00%
UMC Technology Japan Co., Ltd.	Japan	100.00%

D. Property, Plants and Equipment

Please refer to B. Business Overview Manufacturing Facilities for a discussion of our property, plants and equipment.

ITEM 4A. UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 5. OPERATING AND FINANCIAL REVIEW AND PROSPECTS

Unless stated otherwise, the discussion and analysis of our financial condition and results of operations in this section apply to our financial information as prepared in accordance with IFRSs. You should read the following discussion of our financial condition and results of operations together with the consolidated financial statements and the notes to such statements included in this annual report. This discussion may contain forward-looking statements based upon current expectations that involve risks and uncertainties. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of various factors, including those set forth under Item 3.

Key Information D. Risk Factors or in other parts of this annual report on Form 20-F.

For the convenience of readers, NT dollar amounts used in this section for, and as of, the year ended December 31, 2018 have been translated into U.S. dollar amounts using US$1.00 = NT$30.61, the foreign exchange rate on December 31, 2018 as released by the Board of Governors of the Federal Reserve System. The U.S. dollar translation appears in parentheses next to the relevant NT dollar amount.

Table of Contents

Overview

We are one of the world s leading independent semiconductor foundries, providing comprehensive wafer fabrication services and technologies to our customers based on their designs.

Cyclicality of the Semiconductor Industry

As the semiconductor industry is highly cyclical, revenues varied significantly over this period. It can take several years to plan and construct a fab and bring it to operations. Therefore, during periods of favorable market conditions, semiconductor manufacturers often begin building new fabs or acquiring existing fabs in response to anticipated demand growth for semiconductors. In addition, after commencement of commercial operations, fabs can increase production volumes rapidly. As a result, large amounts of semiconductor manufacturing capacity typically become available during the same time period. Absent a proportional growth in demand, this increase in supply often results in semiconductor manufacturing overcapacity, which has led to a sharp decline in semiconductor prices and significant capacity under-utilization. Our average capacity utilization rate was 88.6%, 94.4% and 93.1% for the years ended December 31, 2016, 2017 and 2018, respectively. We believe that our operating results in 2016, 2017 and 2018 continue to reflect the ongoing uncertainty in the global economy.

Pricing

We price our products on either a per die or a per wafer basis, taking into account the complexity of the technology, the prevailing market conditions, the order size, the cycle time, the strength and history of our relationship with the customer and our capacity utilization. Because semiconductor wafer prices tend to fluctuate frequently, we in general review our pricing on a quarterly basis. As a majority of our costs and expenses are fixed or semi-fixed in nature, fluctuations in our products average selling price historically have had a substantial impact on our margins. Our average selling price decreased by approximately 4.9% from 2016 to 2017, and further decreased by 3.4% in 2018, reflecting the continuing nominal price erosion in 2017 and 2018.

We believe that our current level of pricing is comparable to that of other leading foundries in each respective geometry. We believe that our ability to provide a wide range of advanced foundry services and process technologies as well as large manufacturing capacity will enable us to compete effectively with other leading foundries at a comparable price level.

Capacity Utilization Rates

Our operating results are characterized by relatively high fixed costs. In 2016, 2017 and 2018, approximately 67.8%, 69.0% and 68.6%, respectively, of our manufacturing costs consisted of depreciation, a portion of indirect material costs, amortization of license fees and indirect labor costs.

If our utilization rates increase, our costs would be allocated over a larger number of units, which generally leads to lower unit costs. As a result, our capacity utilization rates can significantly affect our margins. Our utilization rates have varied from period to period to reflect our production capacity and market demand. Our average capacity utilization rate was 88.6%, 94.4% and 93.1% for the years ended December 31, 2016, 2017 and 2018, respectively. Utilization rates were primarily affected by global macroeconomic factors. Other factors affecting utilization rates are efficiency in production facilities, product flow management, the complexity and mix of the wafers produced, overall industry conditions, the level of customer orders, mechanical failure, disruption of operations due to expansion of operations, relocation of equipment or disruption of power supply and fire or natural disaster.

Our production capacity is determined based on the capacity ratings of the equipment in the fab, provided by the engineers, adjusted for, among other factors, actual output during uninterrupted trial runs, expected down time due to set up for production runs and maintenance, expected product mix and research and development. Because these factors include subjective elements, our measurement of capacity utilization rates may not be comparable to those of our competitors.

Table of Contents

Change in Product Mix and Technology Migration

Because the price of wafers processed with different technologies varies significantly, the mix of wafers that we produce is among the primary factors that affect our revenues and profitability. The value of a wafer is determined principally by the complexity and performance of the processing technology used to produce the wafer, as well as by the yield and defect density. Production of devices with higher levels of functionality and performance, with better yields and lower defect density as well as with greater system-level integration requires better manufacturing expertise and generally commands higher wafer prices. The increase in price generally has more than offset associated increases in production cost once an appropriate economy of scale is reached.

Prices for wafers of a given level of technology generally decline over the processing technology life cycle. As a result, we have continuously been migrating to increasingly sophisticated technologies to maintain the same level of profitability. We began our volume production with 65-nanometer and 40-nanometer technologies in 2006 and 2009, respectively. We introduced our 28-nanometer technology to customers in 2011 and started large-scale commercial production in 2014. Our 28nm and below technologies contributed approximately 17.3%, 17.1% and 15.2% of our foundry revenue in 2016, 2017 and 2018, respectively.

The table below sets forth a breakdown of percentage of our wafer sales by process technologies in 2016, 2017 and 2018.

	Years Ended December 31,		
Process Technologies	**2016**	**2017**	**2018**
	%	%	%
14 nanometers and under	0.0	0.9	2.6
28 nanometers	17.3	16.2	12.6
40 nanometers	27.2	28.4	25.3
65 nanometers	16.5	12.3	12.5
90 nanometers	3.5	4.9	8.3
0.11/0.13 micron	11.0	11.5	11.6
0.15/0.18 micron	11.4	12.4	13.7
0.25/0.35 micron	9.9	10.0	10.1
0.50 micron or higher	3.2	3.4	3.3
Total	100.0	100.0	100.0

Manufacturing Yields

Manufacturing yield per wafer is measured by the number of functional dice on that wafer over the maximum number of dice that can be produced on that wafer. A small portion of our products is priced on a per die basis, and our high manufacturing yields have assisted us in achieving higher margins. In addition, with respect to products that are priced on a per wafer basis, we believe that our ability to deliver high manufacturing yields generally has allowed us to either charge higher prices per wafer or attract higher order volumes, resulting in higher margins.

We continually upgrade our process technologies. At the beginning of each technological upgrade, the manufacturing yield utilizing the new technology is generally lower, sometimes substantially lower, than the yield under the current technology. The yield is generally improved through the expertise and cooperation of our research and development

personnel and process engineers, as well as equipment and at times raw material suppliers. Our policy is to offer customers new process technologies as soon as the new technologies have passed our internal reliability tests.

Investments

Most of our investments were made to improve our market position and for strategy considerations, a significant portion of which are in foundry-related companies including fabless design customers, raw material suppliers and IP vendors. Historically, we also made investments in companies in the solar manufacturing and LED industries.

Table of Contents

We have, from time to time, disposed of investments for financial, strategic or other purposes in recent years. See Item 4. Information on the Company B. Business Overview Our Investments for a description of our investments.

Treasury Share Programs

We have from time to time announced plans, none of which were binding on us, to buy back up to a fixed amount of our common shares on the Taiwan Stock Exchange at the price range set forth in the plans. On May 11, 2016, our board of directors resolved to purchase up to 200 million common shares on the Taiwan Stock Exchange at a price between NT$7.90 and NT$18.70 per share during the period from May 12, 2016 to July 11, 2016 to transfer to our employees as employee compensation. On March 7, 2018, our board of directors resolved to purchase up to 200 million common shares on the Taiwan Stock Exchange at a price between NT$9.85 and NT$21.30 per share during the period from March 8, 2018 to May 7, 2018 for cancellation. On November 5, 2018, our board of directors resolved to purchase up to 300 million common shares on the Taiwan Stock Exchange at a price between NT$7.55 and NT$20.80 per share during the period from November 6, 2018 to January 5, 2019 for cancellation.

During 2016, 2017 and 2018, we purchased an aggregate of 200 million, nil and 480 million, common shares, respectively, and transferred nil, nil and 200 million of such common shares that we repurchased under these plans to our employees as employee compensation in 2016, 2017 and 2018, respectively.

Critical Accounting Policies

The preparation of our consolidated financial statements requires management to make judgments, estimates and assumptions that affect the reported amounts of revenues, expenses, assets, liabilities, the accompanying disclosures and the disclosure of contingent liabilities. However, uncertainty about these assumptions and estimates could result in outcomes that require a material adjustment to the carrying amount of assets or liabilities affected in future periods.

The key assumptions concerning the future and other key sources of estimating uncertainty at the reporting date that would have a significant risk for a material adjustment to the carrying amounts of assets or liabilities within the next fiscal year are discussed below. We based our assumptions and estimates on information available when the consolidated financial statements were prepared. Existing circumstances and assumptions about future developments, however, may change due to market changes or circumstances arising beyond our control. Such changes are reflected in the assumptions when they occur.

Classification and Measurement of Financial Instruments

Financial assets and financial liabilities are recognized when we become a party to the contractual provisions of the instrument. We determine the classification of our financial assets at initial recognition. In accordance with IAS 39 Financial Instruments: Recognition and Measurement (IAS 39) prior to January 1, 2018, our financial assets are classified as financial assets at fair value through profit or loss, available-for-sale financial assets, held-to-maturity financial assets and notes, accounts and other receivables. Our financial liabilities are classified as financial liabilities at fair value through profit and loss and financial liabilities carried at amortized cost. We adopted IFRS 9 - Financial Instruments (IFRS 9) having recognized the cumulative effect on January 1, 2018. Please refer to Note 3 to our audited consolidated financial statements included elsewhere in this annual report for further details. Following the adoption of IFRS 9 on January 1, 2018, our financial assets are classified as financial assets at fair value through profit or loss, financial assets at fair value through other comprehensive income, and financial assets measured at amortized cost. Our financial liabilities are classified as financial liabilities at fair value through profit or loss and financial liabilities measured at amortized cost. Purchase or sale of financial assets and liabilities are recognized using trade date accounting. All financial instruments are recognized initially at fair value plus, in the case of investments not at

fair value through profit or loss, directly attributable costs, and are subsequently measured at fair value or amortized cost using the effective interest method, less impairment, based on the classification. In accordance with IAS 39 prior to January 1, 2018, we assess whether objective evidence of impairment exists for a financial asset or a group of financial assets at each reporting date. Following the adoption of IFRS 9 on January 1, 2018, we measure, at each reporting date, an allowance for expected credit losses (ECLs) for debt instrument investments measured at fair value through other comprehensive income and financial assets measured at amortized cost.

Table of Contents

Where the fair values of the Level 3 financial assets and financial liabilities recorded on the balance sheet cannot be derived from active markets, they are determined by the application of an appropriate valuation method including the income approach and market approach. The valuation of these financial assets and financial liabilities involves significant judgment in the preparation of cash flow forecasts, a selection of comparable companies or equity transaction prices, as well as the application of assumptions such as discount rates, discounts for lack of marketability, and valuation multiples, etc. Changes in assumptions about these factors could affect the reported fair value of the financial assets and financial liabilities. Please refer to Note 11 to our audited consolidated financial statements included elsewhere in this annual report for more details.

Inventories

Inventories are accounted for on a perpetual basis. Raw materials are stated at actual purchase costs, while the work in process and finished goods are stated at standard costs and subsequently adjusted to weighted-average costs at the end of each month. The cost of work in progress and finished goods comprises raw materials, direct labor, other direct costs and related production overheads. Allocation of fixed production overheads to the costs of conversion is based on the normal capacity of the production facilities. Cost associated with underutilized capacity is expensed as incurred.

Inventories are valued at the lower of cost and net realizable value item by item. Net realizable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale. Please refer to Note 6(4) to our audited consolidated financial statements included elsewhere in this annual report. Costs of completion include direct labor and overhead, including depreciation and maintenance of production equipment, indirect labor costs, indirect material costs, supplies, utilities and royalties that is expected to be incurred at normal production level. We estimate normal production level taking into account loss of capacity resulting from planned maintenance, based on historical experience and current production capacity.

Bonds

Convertible bonds

We evaluate the terms of the convertible bonds issued to determine whether it contains both a liability and an equity component. Furthermore, we assess if the economic characteristics and risks of the put and call options embedded in the convertible bonds are closely related to the economic characteristics and risk of the host contract before separating the equity element.

For the liability component excluding the derivatives, its fair value is determined based on the effective interest rate applied at that time by the market to instruments of comparable credit status. The liability component is classified as a financial liability measured at amortized cost using the effective interest rate method before the instrument is converted or settled. For the embedded derivative that is not closely related to the host contract, it is classified as a liability component and subsequently measured at fair value through profit or loss unless it qualifies as an equity component. The equity component is recognized initially at the difference between the fair value of the compound financial instrument as a whole and the fair value of the liability component. Its carrying amount is not remeasured in the subsequent accounting periods. If the convertible bond issued does not have an equity component, it is accounted for as a hybrid instrument in accordance with the requirements under IFRS 9 (prior to January 1, 2018: IAS 39).

If the convertible bondholders exercise their conversion right before maturity, we shall adjust the carrying amount of the liability component. The adjusted carrying amount of the liability component at conversion and the carrying amount of equity component are credited to common stock and additional paid-in capital premiums. No gain or loss is

recognized upon bond conversion.

Table of Contents

In addition, the liability component of convertible bonds is classified as a current liability if within 12 months the bondholders may exercise the put right. After the put right expires, the liability component of the convertible bonds should be reclassified as a non-current liability if it meets the definition of a non-current liability in all other respects.

Post-Employment Benefits

Under defined contribution pension plans, the contribution payable to the plan in exchange for the service rendered by an employee during a period shall be recognized as an expense. The contribution payable, after deducting any amount already paid, is recognized as a liability. Under defined benefit pension plans, the net defined benefit liability (asset) shall be recognized as the amount of the present value of the defined benefit obligation, deducting the fair value of any plan assets and adjusting for any effect of the asset ceiling. Service cost and net interest on the net defined benefit liability (asset) are recognized as expenses in the period of service. Remeasurement of the net defined benefit liability (asset), which comprises actuarial gains and losses, the return on plan assets and any change in the effect of the asset ceiling, excluding any amounts included in net 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 shall not be reclassified to profit or loss in a subsequent period.

Defined benefit costs and the present value of the defined benefit obligation for a pension plan are determined using the projected unit credit method. An actuarial valuation involves making various assumptions, which include the determination of the discount rate, future salary increase rate, mortality rate, etc., and may differ from actual developments in the future. In determining the appropriate discount rate, management considers the interest rates of the government bonds extrapolated from maturity corresponding to the expected duration of the defined benefit obligation. As for the rate of future salary increase, management takes account of past experiences, comparisons within the industry and the geographical region, inflation and the discount rate. Due to the complexity of the actuarial valuation and its long-term nature, a defined benefit obligation is highly sensitive to changes in these assumptions. The assumptions used are disclosed in Note 6(14) to our audited consolidated financial statements included elsewhere in this annual report.

Revenue Recognition

2016 and 2017

Revenue is recognized to the extent that it is probable that the economic benefits will flow to us and the revenue can be reliably measured. Revenue is measured at the fair value of the consideration received or receivable. The specific criteria described below must also be met before revenue is recognized.

Sales revenue

We manufacture semiconductors for creditworthy customers based on their design specifications, pursuant to manufacturing agreements and/or purchase orders at contractual prices. We ship wafers mainly under the trade term, Free Carrier (FCA), through which the title and risk of loss for the wafers are transferred to the customers upon delivery to carriers approved by the customers. Sales revenue is recognized at this point, having also fulfilled all of the following criteria pursuant to IAS 18, paragraph 14:

a. the significant risks and rewards of ownership of the goods have been transferred to the customer;

b. neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold have been retained;

c. the amount of revenue can be measured reliably;

Table of Contents

d. it is probable that the economic benefits associated with the transaction will flow to the entity; and

e. the costs incurred or to be incurred in respect of the transaction can be measured reliably.

Sales revenue is measured at the fair value of the consideration received or receivable, net of sales returns and discounts, which are estimated based on customer complaints, historical experience and other known factors. Sales returns and discounts are recorded in the same period in which sales are made.

2018

We adopted IFRS 15 - Revenue from Contracts with Customers (IFRS 15) using the modified retrospective method having recognized the cumulative effect on January 1, 2018. Please refer to Note 3 to our audited consolidated financial statements included elsewhere in this annual report for further details.

Revenue from Contracts with Customers

We recognize revenue from contracts with customers by applying the following steps of IFRS 15:

a. identify the contract with a customer;

b. identify the performance obligations in the contract;

c. determine the transaction price;

d. allocate the transaction price to the performance obligations in the contract; and

e. recognize revenue when (or as) the entity satisfies its performance obligations.

Revenues on our contracts with customers for the sales of wafers and joint technology development are recognized as we satisfy our performance obligations to customers upon transfer of control of promised goods and services. We recognize revenue at transaction price that are determined using contractual prices reduced by sales returns and allowances which we estimate based on historical experience having determined that a significant reversal in the amount of cumulative revenue recognized are not probable to occur. We recognize refund liabilities for estimated sales return and allowances based on the customer complaints, historical experience, and other known factors.

We recognize accounts receivable when we transfer control of the goods or services to customers and have a right to an amount of consideration that is unconditional. Such accounts receivable are short term and do not contain a significant financing component. For certain contracts that do not provide us unconditional rights to the consideration, and the transfer of controls of the goods or services has been satisfied, we recognize contract assets and revenues.

Consideration received from customers prior to having satisfied our performance obligations are accounted for as contract liabilities which are transferred to revenue after the performance obligations are satisfied. We recognize costs to fulfill a contract when the costs relate directly to the contract, generate or enhance resources to be used to satisfy

performance obligations in the future, and are expected to be recovered. The costs and revenues are recognized when we satisfy our performance obligations to customers upon transfer of control of promised goods and services.

Table of Contents

Impairment of Property, Plant and Equipment

At each reporting date or whenever events indicate that the asset s value has declined or significant changes in the market with an adverse effect have taken place, we assess whether there is an indication that an asset in the scope of IAS 36 Impairment of Assets may be impaired. If any indication exists, we complete impairment testing for the cash-generating unit (CGU) to which the individual assets belong. Where the carrying amount of an asset or CGU exceeds its recoverable amount, the asset is considered impaired and is written down to its recoverable amount. The recoverable amount of an individual asset or CGU is the higher of fair value less costs of disposal and its value in use. The fair value less costs of disposal is based on best information available to reflect the amount that an entity could obtain from the disposal of the asset in an orderly transaction between market participants after deducting the costs of disposal. The value in use is measured at the net present value of the future cash flows the entity expects to derive from the asset or CGU. Cash flow projection involves subjective judgments and estimates which include the estimated useful lives of property, plant and equipment, capacity that generates future cash flows, capacity of physical output, potential fluctuations of economic cycle in the industry and our operating situation.

Income Tax

Income tax expense (benefit) is the aggregate amount of current income tax and deferred income tax included in the determination of profit or loss for the period. Current income tax assets and liabilities for the current period and prior periods are measured using the tax rates and tax laws that have been enacted or substantively enacted by the end of the reporting period. Current income tax relating to items recognized directly in other comprehensive income or equity is recognized in other comprehensive income or equity rather than profit or loss.

Deferred income tax is determined using the liability method on temporary differences between the tax bases of assets and liabilities and their carrying amounts in financial statements at the reporting date. Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the year when the asset is realized or the liability is settled, based on tax rates and tax laws that have been enacted or substantively enacted at the reporting date. The measurement of deferred tax assets and liabilities reflects the tax consequences that would follow the manner in which we expect, at the end of the reporting period, to recover or settle the carrying amount of our assets and liabilities. Deferred tax relating to items recognized outside profit or loss is not recognized in profit or loss but rather in other comprehensive income or directly in equity. Deferred tax assets are reassessed and recognized at each reporting date. Unrecognized deferred tax assets are reassessed at each reporting date and are recognized to the extent that it has become probable that future taxable profits will allow the deferred tax assets to be recovered. Deferred tax assets and liabilities offset each other, if a legally enforceable right exists to set off current income tax assets against current income tax liabilities, and the deferred taxes relate to the same taxable entity and the same taxation authority.

Uncertainties exist with respect to the interpretation of complex tax regulations, changes in tax laws, and the amount and timing of future taxable income. We establish provisions, based on reasonable estimates, for possible consequences of audits by the tax authorities of the respective countries in which we operate. The amount of such provisions is based on various factors, such as experience of previous tax audits and different interpretations of tax regulations made by the taxable entity and the responsible tax authority. Such differences of interpretation may arise on a wide variety of issues depending on the conditions prevailing in our respective domicile.

Deferred tax assets are recognized for all carryforward of unused tax losses, tax credits and deductible temporary differences to the extent that it is probable that future taxable profit will be available or there are sufficient taxable temporary differences against which the unused tax losses, unused tax credits or deductible temporary differences can be utilized. The amount of deferred tax assets determined to be recognized is based upon the likely timing and the level of future taxable profits and taxable temporary differences. Please refer to Note 6(24) to our audited consolidated

financial statements included elsewhere in this annual report for more details on unrecognized deferred tax assets.

A. Operating Results

Operating Revenues

We generate our operating revenues primarily from the manufacture and sales of wafer fabricating semiconductor devices, solar energy and new generation LED. We also derive a small portion of our operating revenues from wafer probe services that we perform internally as well as mask tooling services and assembly and test services that we subcontract to other companies.

Table of Contents

Operating Costs

Our operating costs consist principally of:

- overhead, including depreciation and maintenance of production equipment, indirect labor costs, indirect material costs, supplies, utilities and royalties;
- wafer costs;
- direct labor costs; and
- service charges paid to subcontractors for mask tooling, assembly and test services.

Our total depreciation expenses were NT$49,691 million, NT$50,965 million and NT$49,949 million (US$1,632 million) in 2016, 2017 and 2018, respectively.

Operating Expenses

Our operating expenses consist of the following:

- Sales and marketing expenses. Sales and marketing expenses consist primarily of intellectual property development expenses, salaries and related personnel expenses, wafer sample expenses and mask expenses. Wafer samples are actual silicon samples of our customers early design ideas made with our most advanced processes and provided to those customers;
- General and administrative expenses. General and administrative expenses consist primarily of salaries for our administrative, finance and human resource personnel, fees for professional services, and cost of computer and communication systems to support our operations;
- Research and development expenses. Research and development expenses consist primarily of salaries and related personnel expenses, research testing related expenses and depreciation on the equipment used for our research and development; and
- Expected credit losses. For notes, accounts receivable and contract assets, we apply a simplified approach in calculating expected credit losses (ECLs) and recognize a loss allowance based on lifetime ECLs at each reporting date. ECLs are measured based on our historical credit loss experience and customers current financial condition, adjusted for forward-looking factors, such as customers economic environment.

Net Other Operating Income and Expenses

Net other operating income and expenses consist primarily of:

- amortization of deferred government grants related to machinery and equipment;
- gains or losses arising from disposal of property, plant and equipment; and
- net rental income or loss from property.

Non-operating Income and Expenses

Our non-operating income and expenses primarily consist of the following:

1. Other income, which consists of:
   - interest income, which is primarily derived from time deposits; and
   - dividend income, which is primarily derived from financial assets at fair value through profit or loss and financial assets at fair value through other comprehensive income.

Table of Contents

2. Other gains and losses, which principally consist of:

   gains or losses on valuation of financial assets and liabilities, which are primarily derived from disposal of and changes in the values of financial assets and liabilities classified as fair value through profit or loss, according to IFRS 9;

   impairment loss, which is primarily derived from the loss recognized in investments accounted for under the equity method; and

   gains or losses on disposal of investments, which are primarily derived from our disposal of investments accounted for under the equity method.

3. Finance costs, which principally consist of:

   interest expenses, which are primarily derived from bonds payable and bank loans; and

   financial expenses, which are primarily derived from stockholder services proxy fee.

4. Share of profit or loss of associates and joint ventures, which is primarily derived from the recognition of investee companies net profit based on the ownership percentage we hold.

Taxation

The corporate income tax rate in the R.O.C. was previously 17% and is currently 20% starting January 1, 2018 according to the amendments to the Income Tax Act. Based on our status as a company engaged in the semiconductor business in Taiwan, we have been granted exemptions from income taxes in Taiwan with respect to income attributable to capital increases for the purpose of purchasing equipment related to the semiconductor business for a period of five years following each such capital increase. In addition, our branch in Singapore enjoys tax exemption for income derived from tax-exempted activities under Singapore s Income Tax Act and Economic Expansion Incentive (Relief from Income Tax) Act. These tax exemptions resulted in tax savings of approximately NT$1,708 million, NT$1,542 million and NT$433 million (US$14 million) in 2016, 2017 and 2018, respectively. We also benefit from other tax incentives generally available to technology companies in Taiwan, such as tax credits applicable against corporate income tax that range from 10% to 15% of qualified research and development expenditures. These tax incentives resulted in tax savings of approximately NT$400 million, NT$306 million and NT$913 million (US$30 million) in 2016, 2017 and 2018, respectively.

The R.O.C. government enacted the R.O.C. Income Basic Tax Act, also known as the Alternative Minimum Tax Act , or the AMT Act, to impose an alternative minimum tax. AMT is a supplemental tax which is payable if the income tax payable pursuant to the R.O.C. Income Tax Act is below the minimum amount prescribed under the AMT Act. Most tax-exempt income under the R.O.C. Income Tax Act is considered to be taxable under the AMT Act, such as eligible income generated during tax holidays and capital gain from selling domestic securities, and tax credits are not allowed to deduct AMT. The tax rate for business entities is 12%.

In 1997, the R.O.C. Income Tax Act was amended to introduce the integrated income tax system and impose 10% tax on undistributed earnings generated from 1998. However, in early 2018, the passed amendments to the Income Tax Act abolished the integrated income tax system and reduced the tax rate of undistributed earnings by half.

Table of Contents

After taking into account the tax exemptions and tax incentives discussed above, we recorded NT$553 million, NT$993 million and NT$(1,130) million (US$(37) million) of income tax expenses (benefit) in 2016, 2017 and 2018, respectively. Our effective income tax rate in 2018 was (53.35)%.

Comparisons of Results of Operations

The following table sets forth some of our results of operations data as a percentage of our operating revenues for the periods indicated.

	Years Ended December 31,		
	2016	**2017**	**2018**
	%	%	%
Operating revenues	100.0	100.0	100.0
Operating costs	(79.5)	(81.9)	(84.9)
Gross profit	20.5	18.1	15.1
Operating expenses			
Sales and marketing	(3.1)	(2.8)	(2.6)
General and administrative	(3.9)	(2.8)	(3.2)
Research and development	(9.2)	(9.2)	(8.6)
Expected credit losses			(0.3)
Subtotal	(16.2)	(14.8)	(14.7)
Net other operating income and expenses	(0.1)	1.1	3.4
Operating income	4.2	4.4	3.8
Non-operating income and expenses	(1.0)	0.7	(2.4)
Income from continuing operations before income tax	3.2	5.1	1.4
Income tax benefit (expense)	(0.4)	(0.6)	0.7
Net income	2.8	4.5	2.1
Total other comprehensive income (loss), net of tax	(2.7)	(3.2)	0.6
Total comprehensive income	0.1	1.3	2.7
Net income attributable to:			
Stockholders of the parent	5.8	6.5	5.1
Non-controlling interests	(3.0)	(2.0)	(3.0)
Total comprehensive income attributable to:			
Stockholders of the parent	3.1	3.3	5.7
Non-controlling interests	(3.0)	(2.0)	(3.0)

Year Ended December 31, 2018 Compared to Year Ended December 31, 2017

Operating revenues. Operating revenues increased by 1.3% from NT$149,285 million in 2017 to NT$151,253 million (US$4,941 million) in 2018, primarily due to increased other operating revenues and a 4.0% increase in foundry wafer shipments from 6,837 thousand 8-inch equivalent wafers in 2017 to 7,108 thousand 8-inch equivalent wafers in 2018, which was partially offset by an annual decline of 3.4% in average selling price, and a 0.9% appreciation of the NTD in 2018 from 2017.

Operating costs. Operating costs increased by 5.1% from NT$122,227 million in 2017 to NT$128,413 million (US$4,195 million) in 2018, primarily due to the increased direct material costs and indirect labor costs and an increase in shipments in response to capacity expansion.

Gross profit and gross margin. Gross profit decreased from NT$27,058 million in 2017 to NT$22,840 million (US$746 million) in 2018. Our gross margin decreased from 18.1% in 2017 to 15.1% in 2018, primarily due to the increased operating costs.

Table of Contents

Operating income and operating margin. Operating income decreased from NT$6,568 million in 2017 to NT$5,680 million (US$186 million) in 2018. Our operating margin decreased from 4.4% in 2017 to 3.8% in 2018. The decrease in operating margin was largely due to the increase in operating costs. Operating costs increased by 5.1% from NT$122,227 million in 2017 to NT$128,413 million (US$4,195 million) in 2018.

Sales and marketing expenses. Our sales and marketing expenses decreased by 7.8% from NT$4,234 million in 2017 to NT$3,902 million (US$127 million) in 2018. The decrease in sales and marketing expenses was mainly due to a decrease of NT$262 million (US$9 million) in sample expenses, NT$262 million (US$9 million) in mask expenses and increase of NT$67 million (US$2 million) in personnel expenses, NT$54 million (US$2 million) in intellectual property royalty expenses. Our sales and marketing expenses as a percentage of our operating revenues decreased from 2.8% in 2017 to 2.6% in 2018.

General and administrative expenses. Our general and administrative expenses increased by 16.5% from NT$4,240 million in 2017 to NT$4,941 million (US$161 million) in 2018, mainly due to an increase of NT$287 million (US$9 million) in personnel expenses, NT$183 million (US$6 million) in professional fee and NT$58 million (US$2 million) in depreciation expenses. Our general and administrative expenses as a percentage of our operating revenues increased from 2.8% in 2017 to 3.2% in 2018.

Research and development expenses. Our research and development expenses decreased by 4.7% from NT$13,669 million in 2017 to NT$13,025 million (US$426 million) in 2018. The decrease in research and development expenses was mainly due to a decrease of NT$378 million (US$12 million) in depreciation expenses, NT$358 million (US$12 million) in wafer for research and development usage, NT$159 million (US$5 million) in maintenance expenses, NT$128 million (US$4 million) in indirect material expenses and increase of NT$379 million (US$12 million) in personnel expenses. Our research and development expenses as a percentage of our operating revenues decreased from 9.2% in 2017 to 8.6% in 2018.

Expected credit losses. Our expected credit losses increased from nil in 2017 to NT$409 million (US$13 million) in 2018. The increase in expected credit losses for the year ended December 31, 2018 was mainly due to the loss allowance on contract assets & accounts receivable assessed by us primarily at an amount equal to the assets lifetime expected credit losses. The loss allowance on contract assets & accounts receivable mainly resulted from the indictment filed by the United States Department of Justice (DOJ) against us in relation to the joint technology development agreement that we have with Fujian Jinhua as further detailed in Item 8. Our expected credit losses as a percentage of our operating revenues increased from nil in 2017 to 0.3% in 2018.

Net other operating income and expenses. Net other operating income increased by 209.6% from NT$1,653 million in 2017 to NT$5,117 million (US$167 million) in 2018, mainly due to an increase in government grants income from NT$1,710 million in 2017 to NT$5,221 million (US$171 million) in 2018. Net other operating income and expenses as a percentage of our operating revenues increased from 1.1% in 2017 to 3.4% in 2018.

Non-operating income and expenses. Non-operating income and expenses decreased by 422.6% from an income of NT$1,104 million in 2017 to a loss of NT$3,562 million (US$117 million) in 2018, mainly due to the decrease in other gains and losses from a gain of NT$994 million in 2017 to a loss of NT$1,128 million (US$37 million) in 2018, a decrease in exchange gain from a gain of NT$1,566 million in 2017 to a loss of NT$357 million (US$12 million) in 2018, and a decrease in share of profit or loss of associates and joint ventures from an income of NT$158 million in 2017 to a loss of NT$617 million (US$20 million) in 2018.

Other comprehensive income (loss), net of tax. Our other comprehensive income, net of tax, increased from a loss of NT$4,815 million in 2017 to an income of NT$835 million (US$27 million) in 2018. We attributed this change

primarily to the decrease in the loss of exchange differences on translation of foreign operations from a loss of NT$5,915 million in 2017 to a loss of NT$76 million (US$2 million) in 2018, and an increase in unrealized gain (loss) on financial assets at fair value through other comprehensive income from nil in 2017 to a gain of NT$1,035 million (US$34 million) in 2018, partially offset by the decrease in share of other comprehensive income (loss) of associates and joint ventures which may be reclassified subsequently to profit or loss from an income of NT$571 million in 2017 to a loss of NT$23 million (US$1 million) in 2018, and the decrease in unrealized gain (loss) on available-for-sale financial assets from a gain of NT$681 million in 2017 to nil in 2018.

Table of Contents

Net income attributable to the stockholders of the parent. Due to the factors described above, our net income decreased by 20.6% from NT$9,676 million in 2017 to NT$7,678 million (US$251 million) in 2018.

Total comprehensive income attributable to the stockholders of the parent. Due to the factors described above, our comprehensive income increased by 73.3% from NT$4,973 million in 2017 to NT$8,617 million (US$281 million) in 2018.

Year Ended December 31, 2017 Compared to Year Ended December 31, 2016

Operating revenues. Operating revenues increased by 1.0% from NT$147,870 million in 2016 to NT$149,285 million in 2017, primarily due to increased demand in leading edge technologies, which resulted in a 10.8% increase in foundry wafer shipments from 6,172 thousand 8-inch equivalent wafers in 2016 to 6,837 thousand 8-inch equivalent wafers in 2017, which was partially offset by appreciation of the NTD in 2017, appreciating by approximately 5.8% from 2016, and a lower average selling price in 2017, decreasing by approximately 4.9% from 2016.

Operating costs. Operating costs increased by 4.0% from NT$117,491 million in 2016 to NT$122,227 million in 2017, primarily due to the increased direct material costs, indirect labor costs, and depreciation expense and an increase in shipments in response to capacity expansion and increased customer demands.

Gross profit and gross margin. Gross profit decreased from NT$30,379 million in 2016 to NT$27,058 million in 2017. Our gross margin decreased from 20.5% in 2016 to 18.1% in 2017, primarily due to the increased operating costs.

Operating income and operating margin. Operating income increased from NT$6,194 million in 2016 to NT$6,568 million in 2017. Our operating margin increased from 4.2% in 2016 to 4.4% in 2017. The increase in operating margin was largely due to the decrease in sales and marketing expenses and general and administrative expenses and increase in amortization of deferred government grants. Operating expenses decreased by 7.4% from NT$23,922 million in 2016 to NT$22,143 million in 2017.

Sales and marketing expenses. Our sales and marketing expenses decreased by 7.7% from NT$4,589 million in 2016 to NT$4,234 million in 2017. The decrease in sales and marketing expenses was mainly due to a decrease of NT$262 million in intellectual property royalty expenses as a result of the decreased number of intellectual properties under which we were granted licenses, NT$71 million in sample expenses and NT$41 million in mask expenses. Our sales and marketing expenses as a percentage of our operating revenues decreased from 3.1% in 2016 to 2.8% in 2017.

General and administrative expenses. Our general and administrative expenses decreased by 26.9% from NT$5,801 million in 2016 to NT$4,240 million in 2017, mainly as a result of the setup costs of USCXM in 2016. Our general and administrative expenses as a percentage of our operating revenues decreased from 3.9% in 2016 to 2.8% in 2017.

Research and development expenses. Our research and development expenses increased by 1.0% from NT$13,532 million in 2016 to NT$13,669 million in 2017. The increase in research and development expenses was mainly due to an increase of NT$469 million in personnel expenses, NT$206 million in depreciation expenses and NT$68 million in intellectual property royalty expenses. The decrease in research and development expenses was mainly due to a decrease of NT$322 million in wafers for research and development usage, NT$211 million in mask expenses and NT$108 million in indirect material expenses. Our research and development expenses as a percentage of our operating revenues were both 9.2% in 2016 and 2017.

Net other operating income and expenses. Net other operating income increased by 728.9% from expenses of NT$263 million in 2016 to income of NT$1,653 million in 2017, mainly due to a decrease in impairment loss of property, plant, and equipment from NT$455 million in 2016 to nil in 2017 and an increase in government grants income from NT$243 million to NT$1,710 million. Net other operating income and expenses as a percentage of our operating revenues were (0.1%) and 1.1% in 2016 and 2017, respectively.

Table of Contents

Non-operating income and expenses. Non-operating income and expenses increased by 174.9% from a loss of NT$1,473 million in 2016 to an income of NT$1,104 million in 2017, mainly due to the increase in exchange gain from a loss of NT$1,502 million in 2016 to a gain of NT$1,566 million in 2017, and an increase in share of profit or loss of associates and joint ventures from a loss of NT$316 million in 2016 to an income of NT$158 million in 2017, partially offset by an increase in the finance cost from NT$1,414 million in 2016 to NT$2,495 million in 2017.

Other comprehensive income (loss), net of tax. Our other comprehensive loss, net of tax, increased from a loss of NT$4,024 million in 2016 to a loss of NT$4,815 million in 2017. We attributed this change primarily to the increase in the loss of exchange differences on translation of foreign operations from a loss of NT$1,817 million in 2016 to a loss of NT$5,915 million in 2017, partially offset by the increase in unrealized gain (loss) on available-for-sale financial assets from a loss of NT$1,874 million in 2016 to a gain of NT$681 million in 2017, and the increase in share of other comprehensive income (loss) of associates and joint ventures which may be reclassified subsequently to profit or loss from a loss of NT$273 million in 2016 to an income of NT$571 million in 2017.

Net income attributable to the stockholders of the parent. Due to the factors described above, our net income increased by 12.2% from NT$8,621 million in 2016 to NT$9,676 million in 2017.

Total comprehensive income attributable to the stockholders of the parent. Due to the factors described above, our comprehensive income increased by 7.4% from NT$4,629 million in 2016 to NT$4,973 million in 2017.

B. Liquidity and Capital Resources

The foundry business is highly capital intensive. Our development over the past three years has required investments. Additional expansion for the future generally will continue to require significant cash for acquisition of plant and equipment to support increased capacities, particularly for the production of 12-inch wafers, although our expansion program will be adjusted from time to time to reflect market conditions. In addition, the semiconductor industry has historically experienced rapid changes in technology. To maintain competitiveness at the same capacity, we are required to make adequate investments in plant and equipment. In addition to our need for liquidity to support the large fixed costs of capacity expansion and the upgrading of our existing plants and equipment for new technologies, as we ramp up production of new plant capacity, we require significant working capital to support purchases of raw materials for our production and to cover variable operating costs such as salaries until production yields provide sufficiently positive margins for a fabrication facility to produce operating cash flows.

Resource for Liquidity

We have financed our capital expenditure requirements in recent years from operating cash inflows, bank borrowings, as well as the issuance of bonds and equity-linked securities denominated in NT dollars and U.S. dollars. Operating cash inflows significantly exceed operating income, reflecting the significant non-cash depreciation expense.

As of December 31, 2018, we had NT$83,662 million (US$2,733 million) of cash and cash equivalents and NT$528 million (US$17 million) of financial assets at fair value through profit or loss. Cash equivalents included time deposits and commercial paper with original maturities of three months or less and repurchase agreements collateralized by government bonds and corporate bonds. These agreements bore interest rates ranging from 0.23% to 0.32%, 0.24% to 0.32% and 0.24% to 0.46% in 2016, 2017 and 2018, respectively. The terms of these agreements were typically less than one month. As of December 31, 2016, 2017 and 2018, we held repurchase agreements in the amount of NT$6,188 million, NT$9,259 million and NT$9,495 million (US$310 million), respectively.

In early June 2012, we issued five-year and seven-year domestic unsecured corporate bonds totaling NT$10,000 million, with a face value of NT$1 million per unit. The five-year domestic unsecured corporate bond was issued in the amount of NT$7,500 million. Interest will be paid annually at 1.43%. The principal has been fully repaid. The seven-year domestic unsecured corporate bond was issued in the amount of NT$2,500 million. Interest will be paid annually at 1.63%, and the principal will be repayable in June 2019 upon maturity. The proceeds of this offering were used for purchasing machinery and equipment. As of December 31, 2018, NT$2,500 million aggregate principal amount of these bonds were outstanding.

Table of Contents

In mid-March 2013, we issued another five-year and seven-year domestic unsecured corporate bonds totaling NT$10,000 million, with a face value of NT$1 million per unit. The five-year domestic unsecured corporate bond was issued in the amount of NT$7,500 million. Interest will be paid annually at 1.35%. The principal has been fully repaid. The seven-year domestic unsecured corporate bond was issued in the amount of NT$2,500 million. Interest will be paid annually at 1.50%, and the principal will be repayable in March 2020 upon maturity. The proceeds of this offering were used for purchasing machinery and equipment. As of December 31, 2018, NT$2,500 million aggregate principal amount of these bonds were outstanding.

In mid-June 2014, we issued an aggregate principal amount of NT$5,000 million of seven-year and ten-year domestic unsecured corporate bonds, with a denomination of NT$1 million per bond. The seven-year domestic unsecured corporate bond was issued with an aggregate principal amount of NT$2,000 million with an annual coupon bearing an interest rate of 1.7%. The ten-year domestic unsecured corporate bond was issued with an aggregate principal amount of NT$3,000 million with an annual coupon bearing an interest rate of 1.95%. The proceeds of this offering were used for repay debts. As of December 31, 2018, NT$5,000 million aggregate principal amount of these bonds were outstanding.

In mid-May 2015, we issued five-year US$600 million aggregate principal amount of currency linked zero coupon convertible bonds due 2020. Each bond, at the option of the holder, were convertible into our common shares at NT$14.8157 per share on December 31, 2018. The proceeds of this offering were used for purchasing machinery and equipment. As of December 31, 2018, no bonds had been converted or redeemed.

In late March 2017, we issued another five-year and seven-year domestic unsecured corporate bonds totaling NT$8,300 million, with a face value of NT$1 million per unit. The five-year domestic unsecured corporate bond was issued in the amount of NT$6,200 million. Interest will be paid annually at 1.15%, and the principal will be repayable in March 2022 upon maturity. The seven-year domestic unsecured corporate bond was issued in the amount of NT$2,100 million. Interest will be paid annually at 1.43%, and the principal will be repayable in March 2024 upon maturity. The proceeds of this offering were used for repay debts. As of December 31, 2018, NT$8,300 million aggregate principal amount of these bonds were outstanding.

In early October 2017, we issued another five-year and seven-year domestic unsecured corporate bonds totaling NT$5,400 million, with a face value of NT$1 million per unit. The five-year domestic unsecured corporate bond was issued in the amount of NT$2,000 million. Interest will be paid annually at 0.94%, and the principal will be repayable in October 2022 upon maturity. The seven-year domestic unsecured corporate bond was issued in the amount of NT$3,400 million. Interest will be paid annually at 1.13%, and the principal will be repayable in October 2024 upon maturity. The proceeds of this offering were used for repay debts. As of December 31, 2018, NT$5,400 million aggregate principal amount of these bonds were outstanding.

At our 2018 annual general meeting, our stockholders authorized our board of directors to raise capital from private placement, through issuing instruments such as common shares, depositary receipts (including but not limited to ADS), or Euro/Domestic convertible bonds (including secured or unsecured corporate bonds), based on market conditions and our needs. The amount of common shares issued or convertible is proposed to be no more than 10% of our issued and outstanding share capital (i.e., no more than 1,262,431,871 common shares). According to Item 6, Article 43-6 of the R.O.C. Security and Exchange Act, any private placement of our common shares must be conducted separately within one year after approval at the annual general meeting of stockholders. The approval to conduct a private placement of our common shares will expire on June 12, 2019.

Operating Activities

In 2018, net cash provided by operating activities was NT$50,935 million (US$1,664 million), primarily due to net income before income tax of NT$2,118 million (US$69 million) and the add-back of non-cash items, such as depreciation and amortization in the amount of NT$52,049 million (US$1,700 million).

Table of Contents

In 2017, net cash provided by operating activities was NT$52,474 million, primarily due to net income before income tax of NT$7,672 million and the add-back of non-cash items, such as depreciation and amortization in the amount of NT$53,099 million, partially offset by the change in other current assets of NT$4,398 million.

In 2016, net cash provided by operating activities was NT$46,450 million, primarily due to net income before income tax of NT$4,721 million and the add-back of non-cash items, such as depreciation and amortization in the amount of NT$51,984 million, partially offset by the change in other current assets of NT$8,640 million.

Investing Activities

In 2018, net cash used in investing activities was NT$15,500 million (US$506 million), primarily due to cash used to purchase equipment at our fabs amounting to NT$19,590 million (US$640 million) and partially offset by proceeds of NT$7,130 million (US$233 million) from government grants related to assets acquisition.

In 2017, net cash used in investing activities was NT$35,416 million, primarily due to cash used to purchase equipment at our fabs amounting to NT$44,236 million, partially offset by proceeds of NT$6,756 million from government grants related to assets acquisition and proceeds of NT$2,179 million from disposal of financial assets.

In 2016, net cash used in investing activities was NT$80,086 million, primarily due to cash used to purchase equipment at our fabs amounting to NT$91,561 million, partially offset by proceeds of NT$9,566 million from government grants related to assets acquisition and proceeds of NT$4,370 million from disposal of financial assets.

Financing Activities

In 2018, net cash used in financing activities was NT$33,485 million (US$1,094 million), primarily due to the decrease in bank loans of NT$14,168 million (US$463 million), the net decrease from bonds redemption of NT$7,500 million (US$245 million), NT$8,558 million (US$280 million) for cash dividend payment, and treasury stock acquired and sold to employees of NT$3,944 million (US$129 million).

In 2017, net cash provided by financing activities was NT$9,162 million, primarily due to the increase in bank loans of NT$10,277 million and the net increase from bonds issuance and redemption of NT$6,200 million, partially offset by NT$6,103 million for cash dividend payment.

In 2016, net cash provided by financing activities was NT$38,795 million, primarily due to the increase in bank loans of NT$32,134 million and other financial liabilities of NT$15,979 million, partially offset by NT$6,907 million for cash dividend payment.

We had NT$13,104 million (US$428 million) in outstanding short-term loans as of December 31, 2018. We had total availability under existing short-term lines of credit of NT$77,658 million (US$2,537 million) as of December 31, 2018.

We had bonds payable of NT$41,378 million (US$1,352 million) in the aggregate as of December 31, 2018.

The following table sets forth our outstanding long-term bank loans as of December 31, 2018:

	Unsecured long-term bank loans	**Secured long-term bank loans**

	(in NT$ millions)	(in US$ millions)	(in NT$ millions)	(in US$ millions)
Due in 2019	1,081	35	1,543	50
Due in 2020	334	11	3,832	125
Due in 2021	333	11	3,831	125
Due in 2022			7,646	250
Due in 2023			7,646	250
Due in 2024 & thereafter			4,582	150

Table of Contents

The interest rates of our long-term bank loans range from 0.99% to 5.56%.

As of December 31, 2018, the current portion of bonds due within one year was NT$2,499 million (US$81 million), and the current portion of long-term bank loans due within one year was NT$2,622 million (US$86 million).

Capital Expenditures

We will continue to moderate the expansion pace for leading edge capacity to focus on diversifying existing logic and specialty technology offerings to our customers. As of December 31, 2018, the construction contracts amounted to NT$3,075 million (US$100 million) and the portion of the contracts not yet recognized was approximately NT$936 million (US$31 million). In 2016, 2017 and 2018, we incurred capital expenditures of approximately NT$91,561 million, NT$44,236 million and NT$19,590 million (US$640 million), respectively, primarily to purchase equipment for research and development and production.

We believe that our existing cash and cash equivalents and short-term investments will be sufficient to meet our working capital and capital expenditure requirements at least through the end of 2019. Due to rapid changes in technology in the semiconductor industry, however, we have frequent demand for investment in new manufacturing technologies. We cannot assure you that we will be able to raise additional capital, should that become necessary, on terms acceptable to us, or at all. If financing is not available on terms acceptable to us, management intends to reduce expenditures so as to delay the need for additional financing. To the extent that we do not generate sufficient cash flows from our operations to meet our cash requirements, we may rely on external borrowings and securities offerings to finance our working capital needs or our future expansion plans. The sale of additional equity or equity-linked securities may result in additional dilution to our stockholders. Our ability to meet our working capital needs from cash flow from operations will be affected by the demand for our products and change in our product mix, which in turn may be adversely affected by several factors. Many of these factors are beyond our control, such as economic downturns and declines in the average selling price of our products. The average selling price of our products have been subjected to downward pressure in the past and are reasonably likely to be subject to further downward pressure in the future. We have not historically relied on, and we do not plan to rely on in the foreseeable future, off-balance sheet financing arrangements to finance our operations or expansion.

Transactions with Related Parties

See Item 7. Major Stockholders and Related Party Transactions B. Related Party Transactions and Note 7 to our audited consolidated financial statements included in this annual report.

Inflation/Deflation

We do not believe that inflation in the R.O.C. has had a material impact on our results of operations.

C. Research, Development, Patents and Licenses, Etc.

The semiconductor industry is characterized by rapid changes in technology, frequently resulting in obsolescence of process technologies and products. As a result, effective research and development is essential to our success. We invested approximately NT$13,532 million, NT$13,669 million and NT$13,025 million (US$426 million) in 2016, 2017 and 2018, respectively, in research and development, which represented 9.2%, 9.2% and 8.6%, respectively, of operating revenues for such years. We believe that our continuous spending on research and development will help us to achieve fruitful results in the development of advanced and specialty technologies. As of December 31, 2018, we

employed 1,821 professionals in our research and development division.

Table of Contents

Our current research and development activities seek to upgrade and integrate manufacturing technologies and processes, as well as to drive 14 nanometer technology in mass production with EUV (Extreme Ultraviolet) lithography, and FinFET (Fin Field-Effect Transistor). Although we emphasize firm-wide participation in the research and development process, we maintain central research and development teams primarily responsible for developing cost-effective technologies that can serve the manufacturing needs of our customers. Monetary incentives are provided to our employees if projects result in successful patents. We believe we have a strong foundation in research and development and intend to continue our efforts on technology developments. Our top management believes in the value of continued support of research and development efforts and intends to continue our foundry position by providing customers with comprehensive technology and SoC solutions in the industry.

D. Trend Information

Please refer to Item 5. Operating and Financial Review and Prospects Overview for a discussion of the most significant recent trends in our production, sales, costs and selling prices. In addition, please refer to discussions included in this Item for a discussion of known trends, uncertainties, demands, commitments and events that we believe are reasonably likely to have a material effect on our operating revenues, income from continuing operations, profitability, liquidity or capital resources, or that would cause reported financial information not necessarily to be indicative of future operating results or financial condition.

E. Off-balance Sheet Arrangements

We do not generally provide letters of credit to, or guarantees for, or engage in any repurchase financing transactions with any entity other than our consolidated subsidiaries. We have in the past, from time to time, entered into foreign currency forward contracts to hedge our existing assets and liabilities denominated in foreign currencies and identifiable foreign currency purchase commitments. We do not engage in any speculative activities using derivative instruments. See Item 11. Quantitative and Qualitative Disclosure About Market Risk.

F. Tabular Disclosure of Contractual Obligations

The following table sets forth our contractual obligations and commitments with definitive payment terms on a consolidated basis which will require significant cash outlays in the future as of December 31, 2018.

	Payments Due by Period				
	Total	Less than 1 Year	1-3 Years	4-5 Years	After 5 Years
	(in NT$ millions)				
Long-term debt[1]					
Unsecured bonds	41,896	2,500	22,696	8,200	8,500
Long-term loans	30,828	2,624	8,330	15,292	4,582
Operating lease obligations[2]	7,408	601	1,227	1,187	4,393
Purchase obligations[3]	6,430	1,696	1,075	780	2,879
Other long-term obligations[4]	23,119	834	424	17,486	4,375

Total contractual cash obligations	109,681	8,255	33,752	42,945	24,729

(1) Assuming the domestic bonds are paid off upon maturity.
(2) Represents our obligations to make lease payments mainly to use machineries, equipment, office and land on which our fabs are located, primarily in the Hsinchu Science Park and the Tainan Science Park in Taiwan, Pasir Ris Wafer Fab Park in Singapore.
(3) Represents commitments for purchase of raw materials and construction contracts. These commitments are not recorded on our balance sheet as of December 31, 2018.
(4) Represents intellectual properties and royalties payable under our technology license agreements and the financial liability for the repurchase of other investors investment. The amounts of payments due under these agreements are determined based on fixed contract amounts.

G. Safe Harbor

See Forward-Looking Statements in This Annual Report May Not Be Realized.

Table of Contents

ITEM 6. DIRECTORS, SENIOR MANAGEMENT AND EMPLOYEES

A. Directors and Senior Management

The following table sets forth the name, age, position, tenure and biography of each of our directors and executives as of March 31, 2019. There is no family relationship among any of these persons.

The business address of our directors and executive officers is the same as our registered address.

Name	Age	Position	Year(s) with Us
Stan Hung	58	Chairman, Director and Chief Strategic Officer	27
SC Chien	61	Co-president and Director (Representative of Hsun Chieh Investment Co., Ltd.)	30
Jason Wang	56	Co-president and Director (Representative of Silicon Integrated Systems Corp.)	11
Cheng-Li Huang (1)	70	Independent Director	10
Lih J. Chen(1)	72	Independent Director	1
Jyuo-Min Shyu(1)	65	Independent Director	1
Wenyi Chu (1)	52	Independent Director	4
Chung-Laung Liu	85	Director	13
Ting-Yu Lin	57	Director	13
Chitung Liu	53	Chief Financial Officer and Vice President	18

(1) Member of the Audit Committee.

Stan Hung is a director, Chief Strategic Officer and the Chairman of our company. Mr. Hung was our chief financial officer and senior vice president from 2000 to 2007. He was also the Chairman of Epitech Technology Corporation in 2007 and ITE Technology Corporation for a portion of 2008, respectively. Prior to re-joining United Microelectronics Corporation in 1991, Mr. Hung was a financial manager at Optoelectronics Corporation. He is also the chairman of Fortune Venture Capital Corp., TLC Capital Co. Ltd., Faraday Technology Corporation, HeJian Technology (Suzhou) Co., Ltd., UMC Capital Corp., and a director of Triknight Capital Corporation, United Microelectronics (Europe) B.V. and UMC Capital (USA). Mr. Hung received a bachelor s degree in accounting from Tam Kang University in 1982.

SC Chien is a director and the President of our company. Mr. Chien is a representative of Hsun Chieh Investment Co., Ltd. and he is also a director of Fortune Venture Capital Corp., TLC Capital Co., Ltd., Wavetek Microelectronics Corporation, Epistar Corp., United Semiconductor (XIAMEN) Co., Ltd., and UMC Capital Corp. Mr. Chien received a bachelor s degree in chemical engineering from National Taiwan University.

Jason Wang is a director and the President of our company. Mr. Wang is a representative of Silicon Integrated Systems Corp. and also serves on the board of directors of UMC GROUP (USA) since 2004. Mr. Wang joined UMC as Vice President of Corporate Marketing in 2008, and from 2009 to 2014, served as President of UMC GROUP (USA) responsible for business operation efficiency enhancement and UMC North America strategic business development. Mr. Wang is also a director of Fortune Venture Capital Corp., TLC Capital Co., Ltd., Wavetek Microelectronics Corporation, United Microelectronics (Europe) B.V., UMC Capital Corp., UMC Capital (USA), United Microtechnology Corporation (New York), United Microtechnology (California) and Sino Paragon Limited.

Mr. Wang did his undergraduate study in Business Administration at San Jose State University.

Cheng-Li Huang is an independent director of our company. Professor Huang was a professor of Tamkang University and served as its Comptroller. He was also the chief executive of Tamkang Accounting Education Foundation and the publisher of Journal of Contemporary Accounting. Professor Huang received a Ph.D. degree in accounting from University of Warwick in 1999.

Table of Contents

Lih J. Chen is an independent director of our company. Professor Chen is the Distinguished Chair Professor of National Tsing Hua University. Professor Chen received a Ph.D. degree in physics from University of California, Berkeley in 1974.

Jyuo-Min Shyu is an independent director of our company. Dr. Shyu is a professor of Computer Science at National Tsing Hua University. He was also the Minister of Ministry of Science and Technology and the President of Industrial Technology Research Institute. Professor Shyu received a Ph.D. degree in Electrical Engineering and Computer Science from University of California, Berkeley in 1988.

Wenyi Chu is an independent director of our company. Professor Chu is a professor of business administration at National Taiwan University. Professor Chu was the chairwoman of Graduate Institute of Business Administration and Department of Business Administration in National Taiwan University from 2012 to 2014. Professor Chu received a Ph.D. degree in Strategy and International Management from London Business School, United Kingdom in 1997.

Chung-Laung Liu is a director of our company. Professor Liu was the William M.W. Mong Honorary Chair Professor of National Tsing Hua University. Professor Liu is also the Chairman of TrendForce Corp., a supervisor of Andes Technology Corporation, an independent director of Microelectronics Technology Inc., Powerchip Semiconductor Corp., Far EasTone Telecommunications Co., Ltd., Accton Technology Corporation, as well as a director of Macronix International Co., Ltd., UBI BioPharma Inc. and GeoThings, Inc. Professor Liu received a doctorate degree in science from Massachusetts Institute of Technology in 1962.

Ting-Yu Lin is a director of our company. Mr. Lin is also the chairman of Sunrox International Inc. Mr. Lin received a master s degree in international finance from Meiji University in 1993.

Chitung Liu is the Chief Financial Officer and the Vice President of our company. Prior to joining our company in 2001, Mr. Liu was a managing director of UBS. Mr. Liu is a director of Fortune Venture Capital Corp., TLC Capital Co., Ltd., Unimicron Technology Corp., Novatek Microelectronic Corp., Hejian Technology (Suzhou) Co., Ltd., UMC Group (USA), Green Earth Limited, ECP Vita Pte. Ltd., Omni Global Limited, UMC Capital Corp., United Microchip Corporation, UMC Technology Japan Co., Ltd., Sino Paragon Limited, Mie Fujitsu Semiconductor Limited, United Microtechnology Corporation (New York) and United Microtechnology Corporation (California). Mr. Liu received an executive MBA degree from National Taiwan University in 2009.

B. Compensation

The aggregate compensation paid and benefits in kind granted to our directors in 2018 were approximately NT$14.6 million (US$0.5 million). The remuneration was out of our 2018 earnings distribution plan, and the distribution percentage for directors is 0.21%. See Item 10. Additional Information B. Memorandum and Articles of Association Dividends and Distributions . Some of the remuneration was paid to the legal entities that certain directors represent. The aggregate compensation paid and benefits in kind granted to our executive officers in 2018 were approximately NT$602.8 million (US$19.7 million), which include NT$50.2 million (US$1.6 million) as bonus.

C. Board Practices

All of our directors were elected in June 2018 for a term of three years. Neither we nor any of our subsidiaries has entered into a contract with any of our directors by which our directors are expected to receive benefits upon termination of their employment.

61

Table of Contents

Audit Committee

Our board of directors established an audit committee in March 2005. In the annual general meeting held on June 13, 2008, we amended our articles of incorporation to introduce the mechanism of an Audit Committee. See Item 10. Additional Information B. Memorandum and Articles of Association Directors . After the re-election of directors in the annual general meeting on June 12, 2018, our board of directors appointed Cheng-Li Huang, Lih J. Chen, Jyuo-Min Shyu and Wenyi Chu to be the members of the audit committee. Each audit committee member is an independent director who is financially literate with accounting or related financial management expertise. The audit committee meets as often as it deems necessary to carry out its responsibilities. Pursuant to an audit committee charter, the audit committee has responsibility for, among other things, overseeing the qualifications, independence and performance of our internal audit function and independent auditors, and overseeing the accounting policies and financial reporting and disclosure practices of our company. The audit committee also has the authority to engage special legal, accounting or other consultants it deems necessary in the performance of its duties.

Remuneration Committee

The R.O.C. Securities and Exchange Act, as amended on November 24, 2010, further introduced the mechanism of a Remuneration Committee , which requires all the publicly listed companies in the R.O.C., including our company, to adopt a remuneration committee. On March 18, 2011, R.O.C. FSC promulgated the Regulations Governing the Establishment and Exercise of Powers by Compensation Committees of Public Companies, according to which, public listed companies of our size shall set up the remuneration committee no later than September 30, 2011 and the remuneration committee shall be composed of no less than three members commissioned by the board of directors. In addition, for a company with independent directors, such as us, at least one of the remuneration committee members shall be the independent director of such company. We established a remuneration committee in accordance with Article 14-6 of the R.O.C. Securities and Exchange Act on April 27, 2011. We amended our articles of incorporation to implement the mechanism of our remuneration committee during the annual general meeting held on June 15, 2011. After the re-election of directors in the annual general meeting on June 12, 2018, our board of directors appointed Cheng-Li Huang, Lih J. Chen, Jyuo-Min Shyu and Wenyi Chu to be the members of the remuneration committee.

In November 2003, the Securities and Exchange Commission approved changes to the NYSE s listing standards related to the corporate governance practices of listed companies. Under these rules, listed foreign private issuers, like us, must disclose any significant ways in which their corporate governance practices differ from those followed by NYSE-listed U.S. domestic companies under the NYSE s listing standards. A copy of the significant differences between our corporate governance practices and NYSE corporate governance rules applicable to U.S. companies is available on our website http://www.umc.com/English/investors/Corp gov difference.asp.

Nominating Committee

Our board of directors established a nominating committee in December 2017. Our nominating committee initially consists of Chung-Laung Liu, Cheng-Li Huang and Wenyi Chu, each of whom is an independent director. The nominating committee is to assist the board to enhance the management mechanism and to improve corporate governance for our sustainable development. The objectives of our nominating committee include: (i) to constitute the nomination policy and succession plans of the directors and the executives, and to review and propose the candidate list of the directors and the executives accordingly; (ii) to construct and to develop the operation of our board and the board committees, as well as to plan and to execute the performance assessment of the board, the board committees and the executives, and (iii) to enhance the corporate governance system and practices in order to protect the interests of our stakeholders.

D. Employees

As of December 31, 2018, we had 19,929 employees, which included 11,651 engineers, 7,494 technicians and 784 administrative staff performing administrative functions on a consolidated basis. We have in the past implemented, and may in the future evaluate the need to implement, labor redundancy plans based on the work performance of our employees.

	As of December 31,		
	2016	**2017**	**2018**
Employees			
Engineers	11,596	11,846	11,651
Technicians	7,123	7,432	7,494
Administrative Staff	820	798	784
Total	19,539	20,076	19,929

Table of Contents

Employee salaries are reviewed annually. Salaries are adjusted based on industry standards, inflation and individual performance. As an incentive, additional bonuses in cash may be paid at the discretion of management based on the performance of individuals. In addition, except under certain circumstances, R.O.C. law requires us to reserve from 10% to 15% of any offerings of our new common shares for employees subscription.

Our employees participate in our profit distribution pursuant to our articles of incorporation. Employees are entitled to receive additional bonuses based on a certain percentage of our allocable surplus income. On March 6, 2019, our board of directors proposed an employee bonus in cash in the amount of NT$1,401 million (US$46 million) in relation to retained earnings in 2018.

Our employees are not covered by any collective bargaining agreements. We believe we have a good relationship with our employees.

E. Share Ownership

As of March 31, 2019, each of our directors and executive officers held common shares and/or ADSs of United Microelectronics, either directly for their own account or indirectly as the representative of another legal entity on our board of directors, except for Cheng-Li Huang, Lih J. Chen, Jyuo-Min Shyu and Wenyi Chu, our independent directors. As of April 14, 2019, our most recent record date, Hsun Chieh Investment Co. held approximately 441 million of our common shares, representing approximately 3.64% of our issued and outstanding share capital. Silicon Integrated Systems Corp. held approximately 285 million of our common shares, representing approximately 2.35% of our issued and outstanding share capital. Chairman Mr. Hung held approximately 40 million of our common shares, representing approximately 0.33% of our issued and outstanding share capital. Ting-Yu Lin held approximately 13 million of our common shares, representing approximately 0.1% of our issued and outstanding share capital.

We have adopted employee stock option plans in the past, pursuant to which options may be granted to our full-time regular employees, including those of our domestic and overseas subsidiaries. The exercise price for the options would be the closing price of our common shares on the Taiwan Stock Exchange on the day the options are granted, while the expiration date for such options is six years from the date of its issuance. All stock options we previously granted had expired.

According to our Employee Stock Options Plan, an option holder may exercise an increasing portion of his or her options starting two years after the grant of the options. According to the vesting schedule, 50%, 75% and 100% of such option holder s options shall vest two, three and four years after the grant of the options, respectively. Upon a voluntary termination or termination in accordance with the R.O.C. Labor Law, the option holder shall exercise his or her vested options within 30 days, subject to exceptions provided therein, and after the termination otherwise such options shall terminate. If termination was due to death, the heirs of such option holder have one year starting from the date of the death to exercise his or her vested options. If termination was due to retirement or occupational casualty, the option holder or his or her heirs may exercise all his or her options within a certain period as provided. The options are generally not transferable or pledgeable by the option holders.

ITEM 7 MAJOR STOCKHOLDERS AND RELATED PARTY TRANSACTIONS

A. Major Stockholders

The following table sets forth information known to us with respect to the beneficial ownership of our common shares as of (i) April 14, 2019, our most recent record date, and (ii) as of certain record dates in each of the preceding three years, for (1) the stockholders known by us to beneficially own more than 2% of our common shares and (2) all directors and executive officers as a group. Beneficial ownership is determined in accordance with Securities and Exchange Commission rules.

Table of Contents

	As of April 10, 2017	As of April 14, 2018	As of April 14, 2019	
Name of Beneficial Owner	Number of common shares beneficially owned	Number of common shares beneficially owned	Number of common shares beneficially owned	Number of common shares beneficially owned
Hsun Chieh Investment Co., Ltd. [1]	3.50%	3.50%	441,371,000	3.64%
Silicon Integrated Systems Corp.	2.50%	2.50%	285,380,424	2.35%
Directors and executive officers as a group	6.33%	6.32%	808,293,626	6.67%

(1) 36.49% owned by United Microelectronics Corporation as of March 31, 2019.

None of our major stockholders have different voting rights from those of our other stockholders. To the best of our knowledge, we are not directly or indirectly controlled by another corporation, by any foreign government or by any other natural or legal person severally or jointly.

For information regarding our common shares held or beneficially owned by persons in the United States, see Item 9. The Offer and Listing A. Offer and Listing Details Market Price Information for Our American Depositary Shares in this annual report.

B. Related Party Transactions

From time to time we have engaged in a variety of transactions with our affiliates. The sales and purchase prices with related parties are determined through mutual agreement in reference to market conditions.

The following table shows our aggregate ownership interest, on a consolidated basis, in major related fabless design companies that we enter into transactions from time to time as of December 31, 2018.

Name	Ownership %
Silicon Integrated Systems Corp.	20.54
Faraday Technology Corp.	13.78

We provide foundry services to this fabless design company and the sales price was determined through mutual agreement in reference to market conditions. We derived NT$1,963 million, NT$1,388 million and NT$1,319 million (US$43 million) of our operating revenues in 2016, 2017 and 2018, respectively, from the provision of our foundry services. For more information, please refer to Note 7 to our audited consolidated financial statements included in this annual report.

C. Interests of Experts and Counsel

Not applicable.

ITEM 8. FINANCIAL INFORMATION

A. Consolidated Statements and Other Financial Information

Please refer to Item 18 for a list of all financial statements filed as part of this annual report on Form 20-F.

Table of Contents

Legal and Administrative Proceedings

We may, from time to time, become a party to various legal or administrative proceedings arising in the ordinary course of our business.

On July 1, 2016, INTERNATIONAL BUSINESS MACHINES CORPORATION (IBM) filed a complaint in the United States District Court for the Southern District of New York alleging that UMC failed to pay the technology license fee in accordance with the technology license agreement. UMC appealed a judgment issued on September 15, 2017 by the United States District Court of Southern District of New York for the subject matter. The United States Court of Appeals for the Second Circuit made a summary order on March 11, 2019, vacated part of the district court s judgment and remanded the case. On March 27, 2019, UMC and IBM reached a settlement.

On August 31, 2017, the Taichung District Prosecutors Office indicted us for the Trade Secret Act of the R.O.C., alleging that our employees misappropriated the trade secrets of Micron Technology Inc., or Micron. The case is currently in progress and we have appointed counsels to prepare answers against these charges.

On December 5, 2017, Micron filed a civil action with similar cause against us with the United States District Court, Northern District of California. Micron claimed entitlement to the actual damages, treble damages and relevant fees and requested the court to issue an order that enjoins us from using its trade secrets in question. The case is currently in progress and we have appointed counsels to prepare answers against these charges.

On January 12, 2018, we filed three patent infringement actions with the Fuzhou Intermediate People s Court against, among others, Micron (Xi an) Co., Ltd. and Micron (Shanghai) Trading Co., Ltd., requesting the court to order the defendants to stop manufacturing, processing, importing, selling, and committing to sell the products deploying the infringing patents in question, and also to destroy all inventories and related molds and tools. On July 3, 2018, the Fuzhou Intermediate People s Court ruled against the aforementioned two defendants, holding that the two defendants must immediately cease to manufacture, sell, and import products that infringe our patent rights. The lawsuit filed by UMC is still on trial.

On November 1, 2018, the Department of Justice of the United States, or the DOJ, unsealed an indictment against us, Fujian Jinhua Integrated Circuit Co., Ltd. or Jinhua, and three individuals, including one current employee and two former employees of ours, alleging that we and others conspired to steal trade secrets of Micron, and used that information to develop technology that was subsequently transferred to Jinhua. On the same day, the DOJ filed a civil complaint enjoining the aforementioned defendants from exporting to the United States any products containing DRAM manufactured by us or Jinhua and preventing the defendants from transferring the trade secrets to anyone else. Please refer to Item 10 C. Material Contracts DRAM Technology Cooperation Agreement, dated May 13, 2016, between UMC and Fujian Jinhua for further details about the cooperation arrangement with Jinhua. The indictment and civil complaint are still on trial. The Company has appointed counsel to prepare answers against these charges.

Given these litigations are still in the preliminary stages, the Company cannot assess the legal proceeding and probable outcome or impact.

Other than the abovementioned legal proceedings, we are not currently involved in any material litigation or other proceedings that may have, or have had in the recent past, significant effects on our financial position or profitability.

Dividend Policy

As for our policy on dividend distributions, see Item 10. Additional Information B. Memorandum and Articles of Association Dividends and Distributions . On June 8, 2016, our stockholders approved a cash distribution of NT$0.55 per common share for an aggregate of NT$6,906,973,103. On June 15, 2016, our board of directors resolved to adjust the cash dividend ratio to NT$0.56501906 per common share because the number of outstanding common shares had changed as a result of our repurchase and cancellation of treasury common shares. On June 8, 2017, our stockholders approved a cash distribution of NT$0.50 per common share for an aggregate of NT$6,112,159,358. On June 12, 2018, our stockholders approved a cash dividend of NT$0.7 per common share for an aggregate of NT$8,557,023,101. On June 12, 2018, our board of directors resolved to adjust the cash dividend ratio to NT$0.71164307 per common share because the number of outstanding common shares had changed as a result of our repurchase of treasury common shares. On March 6, 2019, our board of directors proposed dividends of NT$6,916,104,855 (approximately NT$0.58 per common share) which are expected to be approved at our annual general meeting on June 12, 2019.

Table of Contents

The following table sets forth the cash dividends per share and stock dividends per share as a percentage of common shares outstanding paid during each of the years indicated in respect of common shares outstanding at the end of each such year, except as otherwise noted.

	Cash Dividend per Share NT$	Stock Dividend per Share NT$	Total Number of Common Shares Issued as Stock Dividend	Number of Outstanding Common Shares at Year End
1997		3.0	868,629,276	4,117,758,265
1998		2.9	1,199,052,940	5,480,221,725
1999		1.5	834,140,790	6,638,054,462
2000		2.0	1,809,853,716	11,439,016,900
2001		1.5	1,715,104,035	13,169,235,416
2002		1.5	1,968,018,212	15,238,578,646
2003		0.4	607,925,145	15,941,901,463
2004		0.8	1,288,558,185	17,550,800,859
2005	0.1029	1.029	1,758,736,435	18,856,632,324
2006	0.409141420	0.10228530	179,031,672	19,131,192,690
2007	0.7			13,214,494,883
2008	0.75	0.45	562,958,816	12,987,771,315
2009				12,987,771,315
2010	0.5			12,987,912,315
2011	1.11164840			13,084,341,565
2012	0.49980232			12,951,805,540
2013	0.40639654			12,692,081,665
2014	0.50			12,725,207,790
2015	0.54969673			12,758,132,915
2016	0.56501906			12,624,318,715
2017	0.50			12,624,318,715
2018	0.71164307			12,424,318,715

(1) We declare stock dividends in an NT dollar amount per share, but we pay the stock dividends to our stockholders in the form of common shares. The amount of common shares distributed to each stockholder is calculated by multiplying the dividend declared by the number of common shares held by the given stockholder, divided by the par value of NT$10 per share. Fractional common shares are not issued but are paid in cash.

B. Significant Changes

For the significant subsequent events following the close of the last financial year up to the date of this annual report on Form 20-F, please refer to Note 10 to our audited consolidated financial statements included elsewhere in this annual report.

ITEM 9 THE OFFER AND LISTING

(1) Offer and Listing Details

Market Information for Our Common Shares

Our common shares have been listed on the Taiwan Stock Exchange under the symbol 2303 since July 1985. There is no public market outside Taiwan for our common shares.

Table of Contents

Market Information for Our American Depositary Shares

Our ADSs have been listed on the NYSE under the symbol UMC since September 19, 2000. The outstanding ADSs are identified by the CUSIP number 910873405. Each of our ADSs represents the right to receive five common shares.

As of March 31, 2019, there were a total of 143,204,659 ADSs listed on the NYSE. With certain limited exceptions, holders of common shares that are not R.O.C. persons are required to hold these common shares through a brokerage or custodial account in the R.O.C. As of March 31, 2019, 716,023,295 common shares were registered in the name of a nominee of JPMorgan Chase & Co., the depositary under the deposit agreement. JPMorgan Chase & Co. has advised us that, as of March 31, 2019, 143,188,961 ADSs representing these 715,944,805 common shares were held of record by Cede & Co., and 15,698 ADSs were held by U.S. registered stockholders. We have no further information as to common shares held or beneficially owned by U.S. persons.

C. Plan of Distribution

Not applicable.

D. Markets

The principal trading markets for our common shares are the Taiwan Stock Exchange and the New York Stock Exchange, on which our common shares trade in the form of ADSs.

E. Selling Stockholders

Not applicable.

F. Dilution

Not applicable.

G. Expenses of the Issue

Not applicable.

ITEM 10. ADDITIONAL INFORMATION

A. Share Capital

Not applicable.

B. Memorandum and Articles of Association

The following statements summarize the material elements of our capital structure and the more important rights and privileges of stockholders conferred by the R.O.C. law and our articles of incorporation.

Objects and Purpose

The scope of business of United Microelectronics as set forth in Article 2 of our articles of incorporation, includes, among others, (i) integrated circuits; (ii) semiconductor parts and components; (iii) parts and components of microcomputers, microprocessors, peripheral support and system products; (iv) parts and components of semiconductor memory systems products; (v) semiconductor parts and components for digital transceiver product and system products; (vi) semiconductor parts and components for telecom system and system products; (vii) testing and packaging of integrated circuits; (viii) mask production; (ix) metals, derived fuels and chemical products generated simultaneously from our manufacturing process; (x) management consulting service in regard to sustainable development, energy/resources conservation technologies and semiconductor fab related affairs; (xi) clearance, recycle and disposal of waste and manufacturing outputs; research and development, design, production, sales, promotion and after-sale services related to our business; and (xii) export/import trade related to our business.

Table of Contents

Directors

The R.O.C. Company Act and our articles of incorporation provide that our board of directors is elected by stockholders and is responsible for the management of our business. As of March 31, 2019, our board of directors consisted of nine directors, out of which four are independent directors. In the annual general meeting held on June 11, 2007, we amended our articles of incorporation to abolish the managing director mechanism. In the annual general meeting held on June 13, 2008, we amended our articles of incorporation to introduce the mechanism of an Audit Committee. The Chairman presides at all meetings of our board of directors, and also has the authority to represent our company. The term of office for our directors is three years, and our directors are elected by our stockholders by means of cumulative voting. The amendment to our articles of incorporation on June 11, 2007 also adopts a nomination system which provides that holders of one percent or more of the issued and outstanding shares of our company would be entitled to submit a roster of candidates to be considered for nomination to our company s board of directors at an annual general meeting involving the election of directors. Pursuant to the R.O.C. Company Act, entity that owns our common shares may be elected as a director, in which case a natural person must be designated to act as the legal entity s representative. A legal entity that is our stockholder may designate its representative to be elected as our director on its behalf. In the event several representatives are designated by the same legal entity, any or all of them may be elected. A director who serves as the representative of a legal entity may be removed or replaced at any time at the discretion of such legal entity, and the replacement director may serve the remainder of the term of office of the replaced director. As of March 31, 2019, two of our nine directors are representatives of other legal entities, as shown in Item 6. Directors, Senior Management and Employees A. Directors and Senior Management.

According to the R.O.C. Company Act and the rules promulgated under the R.O.C. Securities and Exchange Act, a director who has a personal interest in a matter to be discussed at the meeting of the board of directors, shall explain the essential contents of such personal interest in the meeting of the board of directors. Moreover, where the spouse, a blood relative within the second degree of kinship of a director, or any company which has a controlling or subordinate relation with a director has interests in a matter to be discussed at the meeting of the board of directors, such director shall be deemed to have a personal interest in the matter. In case that such personal interest may impair the interests of us, such director shall abstain from joining the discussion and voting on such matter. In case that such director is the representative designated by a legal entity stockholder to be elected as our director and such legal entity stockholder has personal interest in the matter to be discussed at the meeting of the board of directors, the rules abovementioned shall also apply. Our articles of incorporation provide that our board of directors is authorized, by taking into account of the extent of his/her/its involvement of our operation activities and the value of his/her/its contribution, to determine the compensation for each director at a comparable rate adopted by other companies of the same industry regardless of the profit received by our company. In addition, according to our articles of incorporation, we may distribute a maximum of 0.1% of the annual profits before tax as remuneration to directors. Please refer to Dividends and Distributions in this item below for more details. Our articles of incorporation do not impose a mandatory retirement age limit for our directors. Furthermore, our articles of incorporation do not impose a shareholding qualification for each director, while the laws and regulations require the aggregate shareholding of all directors, excluding independent directors, to meet certain thresholds considering the paid-in capital and the numbers of the independent directors. According to our current internal Loan Procedures, we shall not extend any loan to our directors.

In order to strengthen corporate governance of companies in Taiwan, effective from January 1, 2007, the amended R.O.C. Securities and Exchange Act authorizes the R.O.C. FSC, after considering certain factors, including the scale, shareholding structure and business nature of a public company, to require that a public company, such as our company, meet certain criteria, including having at least two independent directors but not less than one fifth of the total number of directors.

68

Table of Contents

In addition, pursuant to the R.O.C. Securities and Exchange Act, a public company is required to either establish an audit committee, or R.O.C. Audit Committee, or retain supervisors, provided that the R.O.C. FSC may, after considering the scale and business nature of a public company and other necessary situation, require the company to establish an audit committee in place of its supervisors. We have amended our articles of incorporation in the annual general meeting held on June 13, 2008, introducing the mechanism of an R.O.C. Audit Committee. On February 20, 2013, the R.O.C. FSC has ruled that a public company with certain scale or of certain business nature, including us, shall establish an R.O.C. Audit Committee instead of the supervisors. According to our articles of incorporation and audit committee charter, our R.O.C. Audit Committee is composed of all independent directors and performs the power and duties provided by applicable laws and regulations, including without limitation the powers and the duties of supervisors provided under the R.O.C. Company Act. A company is not allowed to maintain both supervisors and a R.O.C. Audit Committee, so we chose to eliminate our supervisors when we established our R.O.C. Audit Committee in 2009.

According to our current articles of incorporation, we may purchase directors and officers liability insurance for our directors, covering the liabilities incurred in relation to his/her/its operation of business and legally responsible for.

Common Shares

As of December 31, 2018, our authorized share capital was NT$260 billion, divided into 26 billion common shares, of which 12,424,318,715 common shares were issued and outstanding. All common shares presently issued are fully paid and in registered form, and existing stockholders are not subject to any capital calls. We do not have any outstanding warrants or option to purchase our common shares.

Employee Stock Option

According to our Employee Stock Options Plan, options may be granted to our full-time regular employees, including those of our domestic and overseas subsidiaries. Since 2004 to 2009, we obtained approvals by relevant R.O.C. authorities to grant up to an aggregate of 1,500 million stock options to acquire our common shares under our Employee Stock Option Plan. According to the plan, an option holder may exercise an increasing portion of his or her options in time starting two years after the grant of the options. According to the vesting schedule, 50%, 75% and 100% of such option holder s options shall vest two, three and four years after the grant of the options, respectively.

New Common Shares and Preemptive Rights

New common shares may only be issued with the prior approval of our board of directors. If our issuance of any new common shares will result in any change in our authorized share capital, we are required under R.O.C. law to amend our articles of incorporation and obtain approval of our stockholders in a stockholders meeting. We must also obtain the approval of, or submit a registration with, the R.O.C. FSC and the Science Park Administration. According to the R.O.C. Company Act, when a company issues capital stock for cash, 10% to 15% of the issue must be offered to its employees. In addition, if a listed company intends to offer new common shares for cash, at least 10% of the issue must also be offered to the public. This percentage can be increased by a resolution passed at a stockholders meeting, which will reduce the number of new common shares in which existing stockholders may have preemptive rights. Unless the percentage of the common shares offered to the public is increased by a resolution, existing stockholders of the company have a preemptive right to acquire the remaining 75% to 80% of the issue in proportion to their existing shareholdings. According to the Corporate Merger and Acquisition Act of the R.O.C., as effective on February 8, 2002 and amended on May 5, 2004 and July 8, 2015 which took effect on January 8, 2016, if new common shares issued by our company are solely for the purpose of merger, acquisition, share swap or spin-off, the above-mentioned restrictions, including the employee stock ownership plan, the preemptive rights of the existing stockholders and the

publicity requirement of a listed company, to such issuance of new common shares may not be applied.

Stockholders

We only recognize persons registered in our register as our stockholders. We may set a record date and close our register of stockholders for specified periods to determine which stockholders are entitled to various rights pertaining to our common shares.

Table of Contents

Transfer of Common Shares

Under the R.O.C. Company Act, a company may issue individual share certificates or no certificate at all, to evidence common shares. Our articles of incorporation, provide that we may deliver common shares in book-entry form instead of by means of issuing physical share certificates. We have issued our common shares in uncertificated/scripless form since 2007. Therefore, the transfer of our common shares is carried out on the book-entry system. The settlement of trading of our common shares is normally carried out on the book-entry system maintained by the Taiwan Depository and Clearing Corporation. Transferees must have their names and addresses registered on our register in order to assert stockholder s rights against us. Our stockholders are required to file their respective specimen seals with our share registrar, Horizon Securities Co., Ltd.

Stockholders Meetings

We are required to hold an annual ordinary stockholders meeting once every calendar year within six months from the end of each fiscal year. Our board of directors may convene an extraordinary meeting whenever the directors deem necessary, and they must do so if requested in writing by stockholders holding no less than 3% of our issued common shares who have held these common shares for more than a year. At least 15 days advance written notice must be given of every extraordinary stockholders meeting and at least 30 days advance written notice must be given of every annual ordinary stockholders meeting. In addition, stockholder(s) who have continuously held more than 50% of our issued common shares for a period of three months or longer may convene an extraordinary shareholders meeting without any approval of our board of directors. The period during which a stockholder holds the shares and the number of shares held by a stockholder shall be determined based on our register of stockholders as of the book close date of the relevant extraordinary stockholders meeting. Unless otherwise required by law or by our articles of incorporation, voting for an ordinary resolution requires an affirmative vote of a simple majority of those present. A distribution of cash dividends would be an example of an ordinary resolution. The R.O.C. Company Act and, in the case of certain merger and acquisition deals, the Corporate Merger and Acquisition Act, also provides that in order to approve certain major corporate actions, including any amendment of our articles of incorporation, dissolution, merger or spin-off, share swap, entering into, amendment, or termination of any contract for lease of the company s business in whole, or for entrusted business, or for joint operation with others, on regular basis, the transfer of all or an essential part of the business or assets, accept all of the business or assets of any other company which would have a significant impact on our operations, removing directors or the distribution of dividend in stock form, a special resolution shall be adopted by the holders of the majority of our common shares represented at a stockholders meeting at which holders of at least two-thirds of our issued and outstanding common shares are present; provided that, in the case of a public company, such as our company, such resolution may be adopted by the holders of at least two-thirds of the common shares represented at a stockholders meeting at which holders of at least a majority of our issued and outstanding common shares are present; provided, further, that in the case of merger, spin-off, transfer of all or essential part of business or asset, or share swap which meets the specific criteria provided under the Corporate Merger and Acquisition Act, such as short-form merger/spin-off/share swap or whale-minnow merger/spin-off/share-swap (as defined therein), such corporate action can be approved by a board resolution adopted by majority consent at a meeting with at least two-thirds of our directors present without stockholders approval. Notwithstanding the foregoing, in the event such transaction will result in our delisting, the approval from holders of at least two-thirds of our issued and outstanding common shares is required.

Voting Rights

Each common share is generally entitled to one vote and no voting discount will be applied. However, treasury common shares and our common shares held by (i) an entity in which we own more than 50% of the voting shares or paid-in capital, or (ii) a third party in which we and an entity controlled by us jointly own, directly or indirectly, more

than 50% of the voting shares or paid-in capital are not entitled to any vote. Except as otherwise provided by law or our articles of incorporation, a resolution can be adopted by the holders of a simple majority of the issued and outstanding common shares represented at a stockholders meeting. The quorum for a stockholders meeting to discuss the ordinary resolutions is a majority of the issued and outstanding common shares. Pursuant to the R.O.C Company Act amended on December 28, 2011, the election of directors by our stockholders shall be conducted by means of cumulative voting rather than other voting mechanisms adopted in our articles of incorporation. Except as otherwise provided under applicable laws and regulations, in all other matters, a stockholder must cast all his or her votes in the same manner when voting on any of these matters.

Table of Contents

Our stockholders may be represented at an ordinary or extraordinary stockholders meeting by proxy if a valid proxy form is delivered to us five days before the commencement of the ordinary or extraordinary stockholders meeting, unless such proxy has been revoked no later than two days before the date of the stockholders meeting. Voting rights attached to our common shares exercised by our stockholders proxy are subject to the proxy regulation promulgated by the R.O.C. FSC.

Authorized by the R.O.C Company Act, the R.O.C. FSC has issued an administrative order on February 20, 2012 to require Taiwan Stock Exchange-listed companies, such as our company, and Taipei Exchange (previously known as GreTai Securities Market)-listed companies in the R.O.C. with NT$10 billion or more of paid-in share capital and with 10,000 or more stockholders as of the first date of the close period applicable to the stockholders meeting to adopt an e-voting system for the stockholders meeting. According to the administrative order by the R.O.C. FSC, commencing from January 1, 2018, all listed companies shall adopt the e-voting system for the stockholders meeting. The e-voting system provides a new platform for stockholders to exercise their voting rights online. As a company that meets the foregoing criteria, we have successfully adopted the e-voting system in the 2012 stockholders meeting and voted by poll on each agenda item for discussion.

Any stockholder who has a personal interest in a matter to be discussed at our stockholders meeting, the outcome of which may impair our interests, shall not vote or exercise voting rights on behalf of another stockholder on such matter.

According to the R.O.C. Company Act amended on January 4, 2012, a stockholder of a public company who holds common shares for others, such as a depositary, may choose to exercise his/her/its voting power separately. On April 13, 2012, R.O.C. FSC promulgated the Regulations Governing the Split Voting of the Stockholders and Compliance Matters for Public Companies, the implementation rules of such split voting method, which stipulates that the depository of the overseas depositary receipts may exercise its voting power separately in accordance with the instructions of the respective holders of the ADS. Notwithstanding the foregoing, before any amendment to the currently effective Deposit Agreement is made, holders of our ADSs generally will not be able to exercise voting rights on the common shares underlying their ADSs on an individual basis.

Dividends and Distributions

We are not allowed under R.O.C. law to pay dividends on our treasury common shares. We may distribute dividends on our issued and outstanding common shares if we have earnings. Before distributing a dividend to stockholders, among other things, we must recover any past losses, pay all outstanding taxes and set aside a legal reserve equivalent to 10% of our net income until our legal reserve equals our paid-in capital, and a special reserve, if any.

At an annual ordinary stockholders meeting, our board of directors submits to the stockholders for their approval proposals for the distribution of dividends or the making of any other distribution to stockholders from our net income or reserves for the preceding fiscal year. Dividends are paid to stockholders proportionately. Dividends may be distributed either in cash or in common shares or a combination of cash and common shares, as determined by the stockholders at such meeting.

Previously, the employee bonus and directors remuneration were categorized as profit sharing items and were calculated and distributed based on earnings after tax basis. However, according to Articles 235 and 235-1 of the Company Act, both amended and added on May 20, 2015, employee bonus and directors remuneration shall no longer be a profit sharing item but shall be calculated based on earnings before tax and distributed as expenses. Our articles of incorporation currently in effect, provide that where we make profits before tax for the annual financial year, subject to a board resolution adopted by majority consent at a meeting with at least two-thirds of our directors present,

we shall appropriate (i) no less than 5% of such annual profits before tax as employee bonus, and (ii) a maximum of 0.1% as directors remunerations. The employees eligible for the distribution include our employees and employees of our subsidiaries and the form of employee bonus may be made in stock or cash. The qualification of such employees is to be determined by our board of directors. Notwithstanding the foregoing, if we have accumulated losses of the previous years, we shall set aside the amount of such accumulated losses prior to the allocation of the employee bonus and the above directors remuneration. For the purpose of calculation of the above employee bonus and the directors remunerations, such annual profits before tax shall be without giving effect of the deduction and distribution of such employee bonus and the directors remunerations.

Table of Contents

The remaining amount may be distributed according to the distribution plan proposed by our board of directors based on our dividend policy, and submitted to the stockholders meeting for approval. Our articles of incorporation also specify that the amount distributable as dividend shall be the sum of (x) the balance of our earnings deducted by (i) payment of all taxes and dues, (ii) deduction of any past losses, (iii) allocation of 10% of our net income as a statutory reserve (which may be exempted if the accumulated amount of legal reserve has amounted to our paid-in capital); and (iv) special reserve, if any, plus (y) the retained earnings of previous years. In the annual general meeting held in June 2005, our stockholders approved a change of the percentage of stock dividend issued to our stockholders, if any, to no more than 80% and cash dividend, if any, to no less than 20%.

In addition to permitting dividends to be paid out of net income, we are permitted under the R.O.C. Company Act to make distributions to our stockholders of additional common shares by capitalizing reserves, including the legal reserve and capital surplus of premiums from issuing stock and earnings from gifts received, or make such distributions by cash, if we do not have losses. However, where legal reserve is distributed by capitalization or in cash, only the portion of legal reserve which exceeds 25 percent of the paid-in capital may be distributed.

For information as to R.O.C. taxes on dividends and distributions, see R.O.C. Tax Considerations in this Item.

Acquisition of Our Common Shares by Us

An R.O.C. company may not acquire its own common shares, except under certain exceptions provided in the R.O.C. Company Act or the R.O.C. Securities and Exchange Act. Under the R.O.C. Company Act, a company may purchase up to 5% of its issued common shares for transfer to employees as employee compensation in accordance with a resolution of its board of directors, passed by a majority vote, at a meeting with at least two-thirds of the directors present.

Under Article 28-2 of the R.O.C. Securities and Exchange Act, we may, by a board resolution adopted by majority consent at a meeting with two-thirds or more of our directors present, purchase up to 10% of our issued common shares on the Taiwan Stock Exchange or by a tender offer, in accordance with the procedures prescribed by the R.O.C. FSC, for any of the following purposes:

- to transfer our common shares to our employees as employee compensation;
- to transfer upon conversion of bonds with warrants, preferred shares with warrants, convertible bonds, convertible preferred shares or certificates of warrants issued by us; or
- if necessary, to maintain our credit and our stockholders equity; provided that the common shares so purchased shall be canceled thereafter.

We have from time to time announced plans, none of which was binding on us, to buy back up to a fixed amount of our common shares on the Taiwan Stock Exchange at the price range set forth in the plans disclosed in Item 16E Purchase Of Equity Securities By The Issuer And Affiliated Purchasers. We may not spend more than the aggregate amount of the retained earnings, the premium from issuing stock and the realized portion of the capital reserve to purchase our common shares. Historically, we have cancelled some of the repurchased common shares and transferred some of the repurchased common shares to our employees as employee compensation. In 2010, 2013 and 2015, we purchased an aggregate of 300 million, 200 million and 200 million, respectively, of our common shares under these

plans. From February 3, 2010 to April 2, 2010, we purchased 300 million of our common shares on the Taiwan Stock Exchange at an average price of NT$16.15 per share to transfer to our employees as employee compensation. From March 14, 2013 to May 13, 2013, we purchased 200 million of our common shares on the Taiwan Stock Exchange at an average price of NT$11.23 per share to transfer to our employees as employee compensation. From July 30, 2015 to September 29, 2015, we purchased 200 million of our common shares on the Taiwan Stock Exchange at an average price of NT$11.02 per share to transfer to our employees as employee compensation. During 2016, 2017 and 2018, we purchased an aggregate of 200 million, nil and 480 million, common shares, respectively, and transferred nil, nil and 200 million of such common shares that we repurchased under these plans to our employees as employee compensation in 2016, 2017 and 2018, respectively.

Table of Contents

On March 14, 2012, our board of directors approved the cancellation of 157,934,400 treasury common shares, which were purchased from December 17, 2008 to February 16, 2009. On April 24, 2013, our board of directors approved the cancellation of 300,000,000 treasury common shares, which were purchased from February 3, 2010 to April 2, 2010.

We may not pledge or hypothecate any purchased common shares. In addition, we may not exercise any stockholders rights attached to such common shares. In the event that we purchase our common shares on the Taiwan Stock Exchange, our affiliates, directors, managers and their respective spouses and minor children and/or nominees are prohibited from selling any of our common shares during the period in which we purchase our common shares.

In addition to the share purchase restriction, the Company Act provides that our subsidiaries may not acquire our common shares or the equity securities of our majority-owned subsidiaries if the majority of the outstanding voting equity securities or paid-in capital of such subsidiary is directly or indirectly held by us.

Liquidation Rights

In a liquidation, you will be entitled to participate in any surplus assets after payment of all debts, liquidation expenses and taxes proportionately.

Rights to Bring Stockholders Suits

Under the R.O.C. Company Act, a stockholder may bring suit against us in the following events:

- within 30 days from the date on which a stockholders resolution is adopted, a stockholder may file a lawsuit to annul a stockholders resolution if the procedure for convening a stockholders meeting or the method of resolution violates any law or regulation or our articles of incorporation. However, if the court is of the opinion that such violation is not material and does not affect the result of the resolution, the court may reject the stockholder s claim.

- if the substance of a resolution adopted at a stockholders meeting contradicts any applicable law or regulation or our articles of incorporation, a stockholder may bring a suit to determine the validity of such resolution.

Stockholders may bring suit against our directors under the following circumstances:

- Stockholder(s) who have continuously held 1% or more of our issued common shares for a period of six months or longer may request in writing that the audit committee institutes an action against a director on our behalf. In case the audit committee fails to institute an action within 30 days after receiving such request, the stockholder(s) may institute an action on our behalf. In the event stockholder(s) institute an action, a court may, upon the defendant s motion, order such stockholder(s) to furnish appropriate security.

- Stockholder(s) who hold more than 3% or more of our total issued common shares may institute an action with a court to remove a director of ours who has materially violated the applicable laws or our articles of

incorporation or has materially damaged the interests of our company if a resolution for removal on such grounds has first been voted on and rejected by our stockholders and such suit is filed within 30 days of such stockholders vote.