Stock Code: ２３３７

MACRONIX INTERNATIONAL CO., LTD.

2019 Annual Report

Printed on March 29, 2020

This Annual Report is available at the following Websites：

Taiwan Stock Exchange Market Observation Post System：http://mops.twse.com.tw

Corporate Website：http://www.macronix.com

I. Company Spokesperson and Deputy

Spokesperson: Miin Chyou Wu | Title: Chairman and CEO
Tel: 03-5786688 | E-mail: ir@mxic.com.tw
Deputy Spokesperson: Pei-Fu Yeh | Title: Vice President
Tel: 03-5786688 | E-mail: ir@mxic.com.tw

II. Headquarters and Factories

Headquarters and FAB 2: No. 16, Li-Hsin Road, Science Park, Hsin-chu, Taiwan, R.O.C.
Tel: 03-5786688
FAB 1: No. 3, Creation Road III, Science Park, Hsin-chu, Taiwan, R.O.C.
Tel: 03-5788888
FAB 5: No. 19, Li-Hsin Road, Science Park, Hsin-chu, Taiwan, R.O.C.
Tel: 03-6668999
Product Testing: No. 8, Creation Road IV, Science Park, Hsin-chu, Taiwan, R.O.C.
Tel: 03-5783333
Taipei Office: 19F, No. 4, Min-Chuan E. Road, Sec. 3, Taipei, Taiwan, R.O.C.
Tel: 02-25093300

III. Stock Transfer Agency

Stock Affairs Office of Macronix International Co., Ltd.
Address: 2F, No. 162-1, Songjiang Road, Taipei, Taiwan, R.O.C.
Website: http://www.macronix.com
Tel: 02-25638128

IV. Auditors

Accounting Firm: Deloitte & Touche
Accountant: Ming-Hui Chen, Ching-Pin Shih
Address: 6F, No. 2, Prosperity Road I, Science Park, Hsin-chu, Taiwan, R.O.C.
Website: http://www.deloitte.com.tw
Tel: 03-5780899

V. Overseas Securities Exchanges: None

VI. Company Website: http://www.macronix.com

Macronix's Philosophy

Honesty

Macronix's Values

Innovation, Quality, Efficiency, Service, Team Work

Table of Contents

Chapter I. Letter to Shareholders

As of 2019, Macronix has engaged in the field of non-volatile memory for 30 years, and during that time has won the support and trust of its clients. Macronix ROM and NOR Flash have risen to the top of the memory market, and its NAND Flash has shown its superior ability in the global memory market. It is now headed into the new era of 3D NAND! Over the past year, due to uncertainties from the US-China trade negotiations and business cycles, demand has dampened and the price of memory has experienced a significant drop. In recent years, Macronix has successfully deployed in high-capacity and high-quality markets, and thus it can continue to provide high-end application clients with superior products of the highest quality. This has reduced the impact from the drop in prices. Revenue in 2019 fell by 5% from the previous year (2018), and average gross margin decreased by 10 percentage points. However, advanced process products have gradually been adopted by clients, and in new and emerging high-quality applications, such as the automotive, 5G, wearable device, and health medical fields, we have obtained field-leading results—these results will be the impulse for the growth of our operations in the future.

The operating performance of 2019 is as follows: net consolidated revenue for the year was NT$34.995 billion, annual consolidated gross profit was NT$9.615 billion, while annual gross profit margin was 28%, net profit after tax was NT$3.013 billion, and an earnings per share was NT$1.64. Cash generated from operating activities was NT$4.543 billion, cash expenditures for investment activities was NT$12.404 billion, with NT$8.725 billion in cash at the end of the period, debt ratio was 46.4%, book value per share rose to NT$17.68. All these figures indicate that Macronix's financial status is well sounded.

Macronix has continued to maintain its global competitiveness owing to crucial breakthroughs and innovations in technology. Ever since its founding, it has constantly engaged in R&D of prospective memory technology and development of new products. Investment expenses for research and development were equivalent to about 10% of revenue last year (2019). As of the end of last year (2019), Macronix accumulated 8,018 patents worldwide. It also has incorporated many foundational patents and key 3D NAND technologies. Macronix not only holds a high quantity of patents, but also patents of high quality, which further strengthens the Company's leading position in the international non-volatile memory market and facilitates its long-term development.

Regarding the development of processes and products, in terms of ROM, products with capacity over 64Gb accounted for 73% of ROM revenues in the fourth quarter of last year (2019). In terms of NOR Flash, products below 75 nm accounted for 74% of NOR Flash revenue in the fourth quarter of last year (2019), of which high-density products above 256Mb increased to 36% of NOR Flash revenue. Process technology has been advanced to 55 nm. In terms of NAND Flash, 19 nm SLC NAND Flash products began mass production in the third quarter of last year (2019), which satisfied demand for higher density memory from set-top box clients. Beginning this year (2020), Macronix has gradually promoted these products in many scopes of application. Last year (2019), using 3D NAND technology, we successfully developed 48-layer 128 Gb products, which have been adopted by clients. We expect to mass produce these products in the second half of the year (2020). In addition, in the fourth quarter of last year (2019), the Board of Directors passed NT$8.70 billion in capital expenditure, which will be invested in 3D NAND process technology and product development. Also, the Company will continue to press forward with 192-layer stack technology to give Macronix an even more solid foundation for its competitive ability and enhance international product competitiveness.

As applications of AI such as IoT, automotive electronics, and 5G telecommunications are increasing in importance, Macronix has continued to provide its clients with solutions that go beyond normal requirements for standards and capacities. For example: We introduced the brand-new ArmorFlash™ last year (2019), wherein crucial security elements have been incorporated into memory chips to satisfy pressing needs for information security in such memory applications as IoT and automotive electronics. This technology has been adopted in the autonomous vehicle computing platforms of international manufacturers. Macronix's OctaBus flash memory provides high-efficiency data transmission, which has led to its use in solutions for clients promoting embedded AI in memory. In addition, Macronix provides low power consumption, high-speed IO, and high capacity memory solutions to adapt to the coming 5G-era. These solutions have fulfilled client expectations the stability and durability of memory products for stability and durability, and have been adopted by 80% of manufacturers of 5G base stations. These many examples are ample evidence that Macronix possesses first-rate product designs and manufacturing technologies. It is precisely these qualities and the Company's competitive edge that have distinguished Macronix in the memory market. At the same time, Macronix has incorporated big data and AI analysis into its production process to increase product yield, giving it a leading position in terms of features and advantages. Furthermore, its prospective research in Memory Centric AI technology has opened the gates to the next era of technology in the memory industry.

As the leading manufacturer of Non-volatile memory, Macronix continues to innovate and advance with quality products. In addition, it has devoted itself to the care of its employees, the development of professional talent, and the fulfillment of social responsibility. Last year (2019), Macronix was recognized with the CSR Annual Sustainable Elite at the first SGS CSR Awards. It also gave back to the community with real, tangible actions: it donated to National Cheng Kung University to build Macronix Innovation Center, which provides a platform for interdisciplinary innovation and multi-functional uses, which thereby strengthens Taiwan's capacity for technological innovation.

Looking into the future, our management team will continue to uphold its "Honesty" business philosophy and will focus on its action plan of optimizing wafer fabs and speeding up development of 3D NAND process products and innovative memory technologies. We will move forward creating more value with high quality as our goal; and we look forward to sharing our tremendous operating results with our shareholders, clients, and employees.

Chairman: Miin Chyou Wu

President: Chih-Yuan Lu

Chapter II. Company Overview

I. Date of Establishment

Macronix International Co., Ltd. was founded on December 9, 1989.

II. Company History

(I) Overview

Macronix was founded in Hsinchu Science Park, Taiwan, in 1989, and was the first company to be listed as a Categlory C technology stock in Taiwan in 1995. Macronix is a leading integrated device manufacturer in the global non-volatile memory (NVM) market that provides a full range of NOR flash, NAND flash, and ROM products.

With its world-class R&D and manufacturing capabilities, Macronix continues to deliver the highest-quality, innovative and performance-driven products to its customers in the consumer, communications, computing, automotive, networking and other market segments. We provide high-end application clients with superior products of the highest quality.

Macronix currently owns one 12-inch wafer fab (Fab 5), one 8-inch wafer fab (Fab 2), and one 6-inch wafer fab (Fab 1). Fab 5 and Fab 2 are for Macronix own products, and Fab 1 is focusing on strategic foundry businesses for niche analog and logic products. Macronix will continue to develop technology and accelerate the implementation of its own product's competitive advantage, continue to develop new products, strengthen technology, quality and service, and strive for Macronix's sustainable management and Taiwan's global competitiveness.. Please refer to the company’s website for Milestones (URL: http://www.macronix.com).

(II) The Company's Mergers and Acquisitions, Reinvestment in Affiliated Enterprises, and Restructuring

1. Implementation of Major Mergers and Acquisitions: None.
2. Reinvestment in Affiliated Companies: Please refer to page 120 to 123of this Annual Report for the "Summary of Affiliated Companies".
3. Reorganization: None.

(III) Mass Transfer of Equity by or Change of Directors, Supervisors, or More than 10% Shareholders: None.

(IV) Major Changes of Ownership, Business Management or Operation: None.

(V) Other Matters Sufficient to Affect Shareholders' Equity and Impacts on the Company: None.

(VI) Milestones

Month/Year	Milestones
Dec. 1989	• Establishment of the Company.
Dec. 1990	• Joint development of Mask ROM with NKK Corp., Japan.
Jan. 1991 Dec.	• Successfully developed the 256Kb and 512Kb EPROM. • Revenue exceeded NT$ 100 million.
May. 1992 Jun. Oct.	• Macronix's Flat Cell patent was granted by USPTO. • Mass production of FAB 1with monthly production exceeded 5,000 wafers. • Launched the world first 4Mb Flash Memory.
Jun. 1993 Oct.	• Process technology migrated to 0.6 um. • Signed manufacturing cooperation agreement with TSMC.
Jan. 1994 Feb.	• Announced the new product of R3000 RISC CPU. • Grand opening of the Creation Building.
Mar. 1995 Dec.	• First listed of High-Tech company under Category C in Taiwan Stock Exchange ("TSE") • Grand opening for the Testing Plant and Recreation Hall.
Mar. 1996 May. Dec.	• Completion of the world first 10/100M bps Ethernet and high-speed Ethernet BRIDGE CONTROLLER development. • First Taiwanese company listed in Nasdaq, USA. • Yearly sales revenue exceeded NT$10 billion.
Feb. 1997 Mar. May. Sep. Oct.	• Issued the first ECB for around US$ 210 million. • Mass production of FAB 2. • Company shares listed at TSE changed from Category C to Category A. • Establishment of Stock Affair Office. • Signed cooperation memorandum with Matsushita Electronics, Japan.
Aug. 1998 Dec.	• Joint development of 16Mb XA microcontroller with Philips Semiconductor. • Completion of new organization structure for Y2000 challenges.
Mar. 1999	• Grand opening for new Headquarters Building.
Feb. 2000 Aug. Dec.	• Jointly developing the world's first single chip solution for 32Mbyte Mask ROM with Infineon. • Cooperated with Mitsubishi for mobile memory IC manufacturing. • Strategic alliance with Tower Semiconductor, Israel.
Aug. 2001 Dec.	• Establishment of the Macronix Education Foundation. • NT$300 million donation to Tsing Hua University for its construction of "Learning Resource Center Building" .
Jul. 2002 Oct.	• Grand opening of FAB 3. • Grand opening of Employee Dormitory with Recreation Facilities.
May 2003	• Judgement in favor of Macronix against Atmel's US 4419747 patent.
Apr. 2004 Jul.	• US$170 million GDR offering listed at Luxembourg. • Joint development of the Phase Change Memory Technology with IBM.
Mar. 2005 Jun. Nov.	• Mr. Min Wu was elected as the Chairman of Macronix. • Mass production of150nm 3V Serial Flash products. • Capital reduction resolved by the provisional shareholders meeting.
Jan. 2006 May. Dec.	• FAB 3 Disposal documents signed. • New shares listed at TSE after capital reduction. • Five technical papers selected by 2006 International Electron Devices Meeting (IEDM), and among those the paper with IBM and Qimonda regarding Phase Change Memory was selected as highlighted paper by IEDM and ISSCC. • Mass production of 100nm XtraROM®.

Month/Year	Milestones
Jan. 2007 Jul. Aug. Oct.	• Spined off four subsidiaries. • Dr. Chih-Yuan Lu was appointed as the President of Macronix. • Mass production of 75nm XtraROM®. • Mass production of 130nm 3V Serial Flash products. • Macronix's ADR delisted from Nasdaq. • Frost & Sullivan awarded Macronix with its 2007 Excellence in Research of the Year Award in the Asia Pacific Phase Change Memory Technologies Market.
Oct. 2008	• Foundation-Laying Ceremony of Macronix's affiliated company in SuZhou Industrial Park, China was held. • Mass production of 65nmXtraROM®.
May. 2009 Dec.	• Mass production of 110nm 3V Serial Flash products. • Macronix was awarded of National Industrial Safety& Health Awards.
Apr. 2010 Jun. Nov. Dec.	• FAB 5 Acquisition. • Two technical papers were selected by the Symposium on VLSI Technology, and among those the paper regarding 3D VG NAND Flash was selected as one of the 8 highlighted papers. • Mass production of 75nm 3V Parallel Flash products. • FAB 5 unveiling ceremony.
Feb. 2011 Mar. July. Sep. Nov. Dec.	• Mass production of 110nm 1.8V Parallel Flash products. • Mr. Miin Chyou Wu, Chairman & CEO of Macronix, was awarded of Honorary Doctorate by National Tsing Hua University. • Mr. Chih-Yuan Lu, President of Macronix, was awarded of 2012 IEEE Frederik Philips Award. • Macronix honored with 2011 National Invention and Creation Award. • Macronix ranked number one in patent strength in Taiwan's semiconductor industry, and 18th worldwide. • Mass production of 75nm 1.8V Serial Flash products. • Mass production of 75nm 3V NAND Flash products.
Jan. 2012 Feb. Sep. Oct.	• Mr. Chih-Yuan Lu, President of Macronix was awarded of Special Distinguished Award of Physical Society of Republic of China. • Mass production of 45nm XtraROM®. • Mass production of 75nm 1.8V Parallel Flash products. • Mass production of 75 nm 3V Serial Flash products. • Macronix Received the 13th National Standardization Forward-looking Contribution Award.
Apr. 2013 Jul. Dec.	• Opening ceremony of the Macronix Building at National Tsing Hua University. • Mr. Chih-Yuan Lu, President of Macronix was awarded of Honorary Doctorate by National Chiao Tung University. • Mr. Chih-Yuan Lu, President of Macronix was awarded of ITRI Laureate. • Mr. Chih-Yuan Lu, President of Macronix was awarded of Presidential Science Prize. • Macronix Education Foundation was awarded by the Ministry of Education of Outstanding Educational Foundation.
Feb. 2014 May. Jun.	• Mass production of 55nm 3V Parallel Flash products. • Mass production of 55nm 3V Serial Flash products. • Mass production of 36nm 1.8V/3V NAND Flash products. • Mass production of 32nm XtraROM® products.
Jun. 2015 Sep.	• Macronix ranked in the top 5% of the first corporate governance evaluation by the TSE. • 55nm 1.8V Serial Flash products delivered samples.

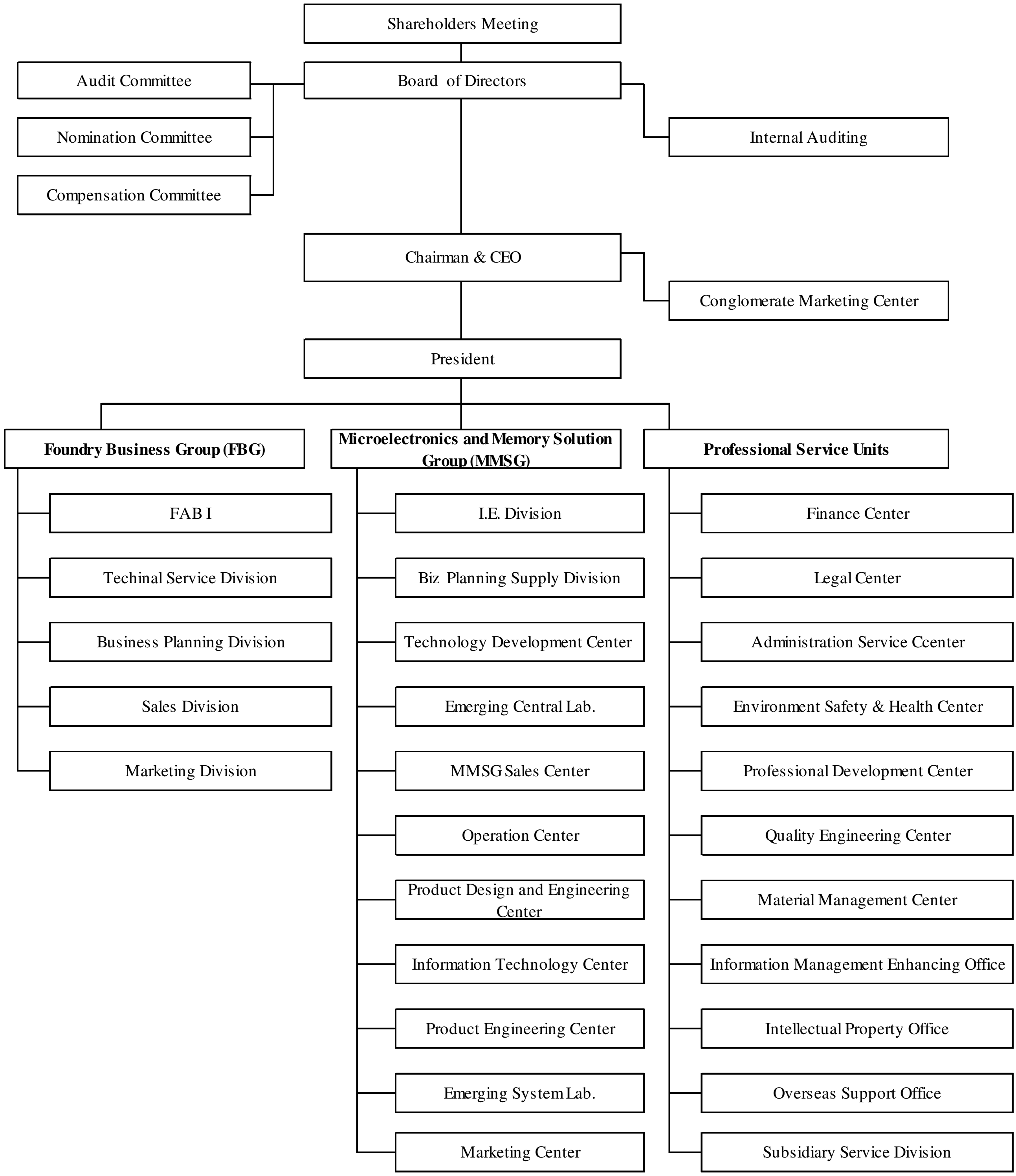
Month/Year	Milestones
Nov.	• Mr. Chih-Yuan Lu, President of Macronix was awarded of The World Academy of Sciences (TWAS) Prize in Engineering Sciences.
Feb. 2016 Dec.	• Mass production of 55nm 1.8V Serial Flash products. • Mr. Miin Chyou Wu, Chairman & CEO of Macronix was awarded of Honorary Doctorate by National Cheng Kung University.
May. 2017 Dec.	• Capital reduction plan resolved by the annual shareholders meeting. • Mr. Chih-Yuan Lu, President of Macronix, was awarded of 19th "Outstanding Performance Award in the Field of Management of Technology" of Chinese Society for Management of Technology. • Mr. Miin Chyou Wu, Chairman & CEO of Macronix, was awarded of Social Education Contribution Awards of the Ministry of Education.
Apr. 2018 Jul. Nov.	• Mr. Chih-Yuan Lu, President of Macronix was elected as Fellow of the US National Academy of Inventors. • Mr. Chih-Yuan Lu, President of Macronix was elected as Academician of Academia Sinica. • Mr. Chih-Yuan Lu, President of Macronix was awarded of Materials Technology Contribution Award of Materials Research Society Taiwan. • Mr. Miin Chyou Wu, Chairman & CEO of Macronix was awarded of "Country Winner" and "Business Paradigm Entrepreneur" of EY Entrepreneur Of The Year.
Feb. 2019 Dec.	• Mass production of 19nm 3V NAND Flash products. • Mr. Chih-Yuan Lu, President of Macronix was elected as Fellow of The World Academy of Sciences (TWAS) of 2020.

(VII) CSR Milestones and Other Awards: Please refer to page 50 of this annual report.

Chapter III. Corporate Governance Report

I. Organization

(I) Organizational Structure



(II) Responsibilities and Functions of Major Departments

Unit	Functions
Internal Auditing	Audit in accordance with the annual audit plan and responsible for integrating internal control assessments and recommendations.
Conglomerate Marketing Center	Responsible for developing and planning marketing strategies for Macronix and its affiliated companies.
Microelectronics and Memory Solution Group (MMSG)	Responsible for the market analysis and planning for memory and microelectronics in line with the Macronix's development strategy, as well as the planning and leading related products' operation. It's also responsible for developing and/or control critical advanced technologies for the manufacture of high-quality products to be provided to Macronix's customers.
Foundry Business Group (FBG)	A business unit with marketing, manufacturing, and sales capacity to provide professional wafer foundry services to Macronix or third party.
Professional Service Units	Responsible for finance, legal, administration, environmental safety & health, human resource, quality engineering and/or procurement as well as related services.

II. Profile of Directors, Supervisors, the President, Vice Presidents, Assistant Managers, and Department Directors

(I) Directors and Supervisors

1. Profile of Directors and Supervisors

March 29, 2020

Title	Nationality or Place of registration	Name	Gender	Date Elected	Term (yrs)	Date First Elected	Shareholding When Elected		Shares currently held		Shares held by spouse and underage children		Shares held in the name of others		Education/ work experience	Other positions at the Company or elsewhere	Other officer, director or supervisor who is the spouse or a relative within second degree		
							Shares	%	Shares	%	Shares	%	Shares	%			Title	Name	Relation
Chairman	R.O.C	Miin Chyou Wu (Note 1)	Male	2019.06.18	3	1989.11.25	12,371,859	0.67%	12,740,809	0.69%	None	None	None	None	M.S. degree in Material Science and Engineering from Stanford University	Chairman & CEO of Macronix International Co., Ltd. Director of Macronix America, Inc. Director of Macronix (BVI) Co., Ltd. Representative (Director) of Hui Ying Investment Ltd. Representative (Director) of Run Hong Investment Ltd. Chairman of Mxtran Inc. Director of Macronix Europe N.V. Director of Macronix (Hong Kong) Co., Ltd. Chairman of Macronix Microelectronics (Suzhou) Co., Ltd. Director of Macronix (Asia) Limited Managing Director of Eastern Electronics Co., Ltd.	None	None	None
Director	R.O.C	Chien Hsu Investment Corporation (Note 2)	-	2019.06.18	3	2016.06.16	811,421	0.04%	811,421	0.04%	None	None	None	None	None	Director of ZOWIE Technology Corporation Director / supervisor of Homey Consulting Corp. Supervisor of Andes Technology Corporation	None	None	None
	R.O.C	Former Representative: Ding-Hua Hu	Male	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
	R.O.C	Representative: Ching-Yun Li	Female	Omitted	Omitted	2019.07.26	Omitted	Omitted	1,441,799	0.08%	None	None	None	None	Public relations from Shih Hsin School of Journalism	Chairman of Champion Investment Corporation Chairman of Chien Hsu Investment Corporation Representative (Director) of Ardentec Corporation Representative (Chairman) of Homey Consulting Corp.	None	None	None

Title	Nationality or Place of registration	Name	Gender	Date Elected	Term (yrs)	Date First Elected	Shareholding When Elected		Shares currently held		Shares held by spouse and underage children		Shares held in the name of others		Education/ work experience	Other positions at the Company or elsewhere	Other officer, director or supervisor who is the spouse or a relative within second degree		
							Shares	%	Shares	%	Shares	%	Shares	%			Title	Name	Relation
Director	R.O.C	Chih-Yuan Lu	Male	2019.06.18	3	2003.04.18	2,300,395	0.13%	2,521,766	0.14%	None	None	None	None	Ph.D. degree in Physics from Columbia University	President of Macronix International Co., Ltd. Chairman of Macronix America, Inc. Director of Macronix Europe N.V. Director of Macronix (Hong Kong) Co., Ltd. Chairman & CEO of Ardentec Corporation Director of Ardentec Korea Co., Ltd. Director of Ardentec Singapore Pte. Ltd. Representative (Chairman) of Sheng Tang Investment Co., Ltd. Representative (Chairman) of Ardentec Semiconductor Co. Ltd. Representative (Chairman) of Giga Solution Tech. Co., Ltd. Independent Director of Hong Tai Electric Industrial Co. Ltd. Director of ValuTest Incorporated Director of Valucom Investment Inc. Director of Feng Chia University	None	None	None
Director	R.O.C	Shun Yin Investment Ltd.	-	2019.06.18	3	2004.06.18	22,587,265	1.23%	22,587,265	1.23%	None	None	None	None	None	None	None	None	None
	Japan	Representative: Shigeki Matsuoka	Male	2019.06.18	3	2011.08.08	None	None	None	None	None	None	None	None	M.S. degree in electronics engineering from Kyoto University	Adviser of MegaChips Corporation	None	None	None
Director	R.O.C	Cheng-Yi Fang	Male	2019.06.18	3	2001.04.19	353,026	0.02%	353,026	0.02%	129,047	0.01%	None	None	B.B.A. degree in Business Administration Department from National Taiwan University	Director of Mercuries & Associates, Holding Ltd.	None	None	None
Director	R.O.C	Chung-Laung Liu	Male	2019.06.18	3	2003.06.27	80,986	0.00%	80,986	0.00%	None	None	None	None	Ph.D.degree in Electrical Engineering from Massachusetts Institute of Technology	Chairman of TrendForce Corp. Director of United Microelectronics Corp. Director of UBI Pharma Inc. Independent Director of Powerchip Technology Corporation Independent Director of Accton Technology Corp. Independent Director of Microelectronics technology Corp. Independent Director of Far EasTone Telecommunications Co., Ltd.	None	None	None
Director	R.O.C	Achi Capital Limited (Note3)	-	2019.06.18	3	2010.06.09	902,456	0.05%	902,456	0.05%	None	None	None	None	None	Director of Mxtran Inc.	None	None	None
	R.O.C	Representative: Guei-Min Lee	Female	Omitted	Omitted	2007.06.29	Omitted	Omitted	None	None	None	None	None	None	Ph.D. degree in Law, University of the Pacific	Representative (Director) of Mxtran Inc. Adjunct Professor of National Chiao Tung University Adjunct Associate Professor of Soochow University	None	None	None

Title	Nationality or Place of registration	Name	Gender	Date Elected	Term (yrs)	Date First Elected	Shareholding When Elected		Shares currently held		Shares held by spouse and underage children		Shares held in the name of others		Education/ work experience	Other positions at the Company or elsewhere	Other officer, director or supervisor who is the spouse or a relative within second degree		
							Shares	%	Shares	%	Shares	%	Shares	%			Title	Name	Relation
Director	R.O.C	Che-Ho Wei	Male	2019.06.18	3	2016.06.16	None	None	None	None	None	None	None	None	Ph. D. degree in electronic engineering from the University of Washington, Seattle, USA.	Director of Taipei Medical University Director of Arcadyan Technology Corporation Director of Unizyx Holding Corporation Independent Director of Sunplus Technology Co., Ltd. Independent Director of Genesis Photonics Inc.	None	None	None
Director	R.O.C	Dang-Hsing Yiu	Male	2019.06.18	3	1995.06.05	6,557,048	0.36%	6,601,322	0.36%	1,272,084	0.07%	None	None	M.S. degree in Electronic Engineering from University of California, Berkeley	Senior V.P. & Chief Marketing Officer of Macronix International Co., Ltd. Director of Macronix America, Inc. Representative (Director) of Mxtran Inc. Director of SiTime Corporation	None	None	None
Director	R.O.C	Ful-Long Ni	Male	2019.06.18	3	2007.06.29	1,647,732	0.09%	1,787,933	0.10%	340,333	0.02%	None	None	M.S. degree in Electronic Engineering from University of Michigan	Vice President of Macronix International Co., Ltd. Chairman of Macronix Europe N.V. Director of Macronix Pte Ltd. Director of Macronix (Hong Kong) Co., Ltd.	None	None	None
Director	R.O.C	Hui Ying Investment Ltd. (Note4)	-	2019.06.18	3	2001.04.19	1,956,619	0.11%	1,956,619	0.11%	None	None	None	None	None	None	None	None	None
	R.O.C	Representative: Pei-Fu Yeh	Male	Omitted	Omitted	2007.07.18	Omitted	Omitted	2,667,174	0.14%	4,985	0.00%	None	None	MBA, degree in Business Administration,of National Chengchi University	Vice President of Macronix International Co., Ltd. Director of New Trend Technology Inc. Director of Macronix Europe N.V. Director of Macronix (Hong Kong) Co., Ltd. Representative (supervisor) of Mxtran Inc.	None	None	None
Independent Director	R.O.C	Tyzz-Jiun Duh (Note5)	Male	2019.06.18	3	2019.06.18	None	None	None	None	None	None	None	None	Ph.D., Institute of Forestry, National Taiwan University	Adjunct Associate Professor of Soochow University Independent Director of USI Corporation Independent Director of CHINA DEVELOPMENT FINANCIAL HOLDING CORP. Independent Director of CDIB Capital Group	None	None	None
Independent Director	R.O.C	Chiang Kao	Male	2019.06.18	3	2007.06.29	None	None	None	None	None	None	None	None	Ph.D. degree in Forest Management from Oregon State University	Chair Professor of Department of Industrial and Information Management of National Cheng Kung University	None	None	None

Title	Nationality or Place of registration	Name	Gender	Date Elected	Term (yrs)	Date First Elected	Shareholding When Elected		Shares currently held		Shares held by spouse and underage children		Shares held in the name of others		Education/ work experience	Other positions at the Company or elsewhere	Other officer, director or supervisor who is the spouse or a relative within second degree		
							Shares	%	Shares	%	Shares	%	Shares	%			Title	Name	Relation
Independent Director	R.O.C	Yan-Kuin Su	Male	2019.06.18	3	2007.06.29	None	None	None	None	None	None	None	None	Ph.D. degree in electrical engineering from National Cheng Kung University	Independent Director of Himax Technologies, Inc Independent Director of Epileds Technologies.Inc Independent Director of Universal Cement Corporation Honorary Professor of National Cheng Kung University Professor of Kun Shan University Chief Director of Kun Shan University Green Energy Technology Research Center	None	None	None
Independent Director	R.O.C	John C.F. Chen	Male	2019.06.18	3	2007.06.29	None	None	None	None	None	None	None	None	B.S. degree in Accounting & Statistics from National Cheng Kung University	Chairman of Chen Chow Investment Inc. Representative (Director) of Chan Chun Investment Inc. Representative (Director) of ReaLy Development & Construction Corp. Director of Diwan Investment Inc.	None	None	None

Note 1: Where the chairman and president or equivalent position (the highest level managerial officer) is the same person, the reason, reasonableness, necessity, and response measures must be disclosed:

Mr. Miin Chyou Wu founded Macronix in 1989 and served as its President, who has been elected as the Chairman since 2005 and successfully have Macronix become the global leader in non-volatile memory (NVM) with his forward-looking perspective and innovative business strategy. In 2019, he was elected as the chairman and CEO of the 11th-term Board of Directors. Considering that Macronix has four independent director, and more than half of its directors are non employee nor manager of Macronix the independence of the Board of Directors can be ensured. Also, to continue the forward-looking and innovative business philosophy, and Macronix's worldwide reputation, image and competitiveness, it is necessary to have Chairman Miin Chyou Wu concurrently serving as Macronix’s highest level manager (CEO) to improve operational efficiency and decision-making, and further enhance its value, which is therefore reasonable and necessary.

Note 2: Mr. Ding-Hua Hu passed away on July 11, 2019, and Chien Hsu Investment Co., Ltd. appointed Ms. Ching-Yun Li on July 26, 2019, to attend the 11th Term of the Board of Directors and exercised any and all Director’s rights thereof.

Note 3: Ms. Guei-Min Lee was appointed to represent it to attend the 11th Term of the Board of Directors and exercised any and all Director’s rights thereof.

Note 4: Mr. Pei-Fu Yeh was appointed to represent it to attend the 11th Term of the Board of Directors and exercised any and all Director’s rights thereof.

Note 5: Mr. Tyzz-Jiun Duh was elected as an 11th Term Independent Director of the Company on June 18, 2019.

Major Shareholders of Institutional Shareholders

March 29, 2020

Name of institutional shareholder	Major shareholders of institutional shareholders
Chien Hsu Investment Corporation	Ching-Yun Li (46.08%) Ding-Hua Hu (26.67%) Champion Investment Corporation (16.56%) Chih-To Lee (4.04%) Pao-Yueh Chang (1.94%) Chih-Te Yeh (1.83%) Guang-Hui Chu (1.76%) Hsiu-Chu Lin (0.60%) Mei-Chih Chen (0.52%)
Shun Yin Investment Ltd.	MegaChips Corporation (Japan) (100%)
Achi Capital Limited	Top Harvest Investment Ltd. (Samoa) (100%)
Hui Ying Investment Ltd.	Macronix International Co., Ltd. (100%)

Major Shareholders Who are Institutional Investors and Their Major Shareholders

March 29, 2020

Name of institutional shareholder	Major shareholders of institutional shareholders
Champion Investment Corporation	Ding-Hua Hu (26.18%) Ching-Yun Li (21.48%) Lin-Fang Li Hu (9.77%) Tsung-Tsan Su (5.98%) Bands Technology Co., Ltd. (5.67%) Hsiu-Tzu Chen (4.71%) Tsung-Shen Chen (4.71%) Chiu-Hua Tsai (4.12%) Chih-Hua Li (2.85%) Chih-Ho Tsai (2.67%)
MegaChips Corporation (Japan)	Shindo Kogyo Corporation (5.70%) Megachips Corporation and Associates (5.70%) Japan Trustee Services Bank, Ltd. (Trust Location No.) (5.58%) Shigeki Matsuoka (3.72%) The Master Trust Bank of Japan, Ltd. (Trust Location) (3.06%) THE BANK OF NEW YORK MELLON 140051 (3.03%) Akihiro Shindo (2.58%) Ritsuko Shindo (2.56%) Noriko Matsui (2.38%) Mika Aoki (2.32%)
Top Harvest Investment Ltd. (Samoa).	Guemin Lee (100%)
Macronix International Co., Ltd.	Cathay Life Insurance (3.10%) Credit Suisse Securities (Europe) Limited (2.11%) New Labor Pension Fund (1.91%) JPMorgan Chase Bank N.A. Taipei Branch in custody for Vanguard Total International Stock Index Fund a series of Vanguard Star Funds (1.66%) JPMorgan Chase Bank N.A. Taipei Branch in custody for Schroder International Selection Fund Emerging Asia (1.50%) Vanguard Emerging Markets Stock Index Fund a Series of Vanguard International Equity Index Funds (1.43%) Public Service Pension Fund Management Board (1.39%) Shun Yin Investment Ltd. (1.23%) Yuanta Commercial Bank is entrusted with trust property account (1.10%) Morgan Stanley & Co. International Plc (1.03%)

2. Professional Expertise and Independence of directors and supervisors

March 29, 2020

Criteria / Name	Meets One of the Following Professional Qualification Requirements, Together with at Least Five Years' Work Experience			Independence Criteria (Note4)												Number of Other Public Companies in which Serves Concurrently as an Independent director
	An instructor or higher position in a department of commerce, law, finance, accounting, or other academic department related to the business needs of the Company in a public or private junior college, college or university	A judge, public prosecutor, attorney, Certified Public Accountant, or other professional or technical specialist who has passed a national examination and been awarded a certificate in a profession necessary for the business of the Company	Has work experience in the areas of commerce, law, finance, or accounting, or otherwise necessary for the business of the Company	1	2	3	4	5	6	7	8	9	10	11	12	
Miin Chyou Wu			✓			✓			✓		✓	✓	✓	✓	✓	0
Chien Hsu Investment Corporation (Note 1) Former Representative：Ding-Hua Hu			✓	✓	✓	✓	✓		✓		✓	✓	✓	✓		0
Representative: Ching-Yun Li				✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		0
Chih-Yuan Lu	✓		✓			✓		✓	✓		✓	✓	✓	✓	✓	1
Shun Yin Investment Ltd. Representative：Shigeki Matsuoka			✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		0
Cheng-Yi Fang			✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0
Chung-Laung Liu	✓		✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	4
Achi Capital Limited Representative：Guei-Min Lee (Note 2)	✓	✓	✓	✓		✓	✓	✓	✓		✓		✓	✓		0
Che-Ho Wei	✓		✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	2
Dang-Hsing Yiu			✓			✓		✓	✓		✓	✓	✓	✓	✓	0
Ful-Long Ni			✓			✓		✓	✓	✓	✓	✓	✓	✓	✓	0
Hui Ying Investment Ltd. Representative ：Pei-Fu Yeh (Note 3)			✓			✓		✓	✓	✓	✓	✓	✓	✓		0
Tyzz-Jiun Duh (Note 4)	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3
Chiang Kao	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0
Yan-Kuin Su	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	2
John C.F. Chen		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0

Note 1: Mr. Ding-Hua Hu passed away on July 11, 2019, and Chien Hsu Investment Co., Ltd. appointed Ms. Ching-Yun Li on July 26, 2019, to attend the 11th Term of the Board of Directors and exercised any and all Director's rights thereof.

Note 2: Ms. Guei-Min Lee was appointed to represent it to attend the 11th Term of the Board of Directors and exercised any and all Director's rights thereof.

Note 3: Mr. Yeh-Pei Fu was appointed to represent it to attend the 11th Term of the Board of Directors and exercised any and all Director's rights thereof.

Note 4: Mr. Tyzz-Jiun Duh was elected as an 11th Term Independent Director of the Company on June 18, 2019.

Note 5:Please tick the corresponding boxes that apply to the directors or supervisors during the two years prior to being elected or during the term of office.

(1) Not an employee of the Company or any of its affiliates.

(2) Not a director or supervisor of the Company or an affiliated enterprise (does not apply to independent directors concurrently appointed by the Company or its parent company, subsidiary, or the subsidiary of the parent company pursuant to the Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies or local laws and regulations).

(3) Not a natural-person shareholder who holds shares, together with those held by the person's spouse, minor children, or held by the person under others' names, in an aggregate amount of 1% or more of the total number of outstanding shares of the Company or ranking in the top 10 in holdings.

(4) Not a manager listed in (1) or a spouse, relative within the second degree of kinship, or lineal relative within the third degree of kinship of any of the above persons listed in (2) and (3).

(5) Not a director, supervisor, or employee of a corporate shareholder that directly holds 5% of the Company's total outstanding shares, is a top 5 shareholder, or appointed a representative to serve as the Company's director or supervisor in accordance with Article 27, Paragraph 1 or 2 of the Company Act (does not apply to independent directors concurrently appointed by the Company or its parent company, subsidiary, or the subsidiary of the parent company pursuant to the Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies or local laws and regulations).

(6) Not a director, supervisor, or employee of a company controlled by a single person with over half of the Company's director seats or shares with voting rights (does not apply to independent directors concurrently appointed by the Company or its parent company, subsidiary, or the subsidiary of the parent company pursuant to the Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies or local laws and regulations).

(7) Not a director, supervisor, or employee of another company or institution that is the same person or the spouse of the Company's chairperson, president, or equivalent position (does not apply to independent directors concurrently appointed by the Company or its parent company, subsidiary, or the subsidiary of the parent company pursuant to the Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies or local laws and regulations).

(8) Not a director, supervisor, manager, or shareholder with 5% or more shares of a specific company or institution with financial or business dealings with the Company (does not apply to independent directors concurrently appointed by a specific company or institution that holds 20% or more but not more than 50% of the Company's outstanding shares, and the Company or its parent company, subsidiary, or the subsidiary of the parent company pursuant to the Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies or local laws and regulations).

(9) Not a professional individual who, or an owner, partner, director, supervisor, or manager of a sole proprietorship, partnership, company or institution that provides commercial, legal, financial, accounting services or consultation with cumulative remuneration in the most recent two years not exceeding NT$500,000 to the Company or to any affiliate of the company, or a spouse thereof. This does not apply to members of the compensation committee, public tender offer review committee, or merger and acquisition special committee that performs duties in accordance with the Securities Exchange Act or Business Mergers and Acquisitions Act.

(10) Not having a marital relationship, or a relative within the second degree of kinship to any other director of the Company.

(11) Not been a person of any conditions defined in Article 30 of the Company Law.

(12) Not a governmental, juridical person or its representative as defined in Article 27 of the Company Law.

(II) President, Vice Presidents, Assistant Managers, and Department Directors

March 29, 2020

Title	Nationality	Name	Gender	Date appointed	Shares currently held		Shares held by spouse and underage children		Shares held in the name of others		Education/work experience	Other positions at the Company or elsewhere	Other officer, director or supervisor who is the spouse or a relative within second degree		
					Shares	%	Shares	%	Shares	%			Title	Name	Relation
CEO	R.O.C	Miin Chyou Wu (Note)	Male	2007.07.30	12,740,809	0.69%	None	None	None	None	M.S. degree in Material Science and Engineering from Stanford University	Director of Macronix America, Inc. Director of Macronix (BVI) Co., Ltd. Representative (Director) of Hui Ying Investment Ltd. Representative (Director) of Run Hong Investment Ltd. Chairman of Mxtran Inc. Director of Macronix Europe N.V. Director of Macronix (Hong Kong) Co., Ltd. Chairman of Macronix Microelectronics (Suzhou) Co., Ltd. Director of Macronix (Asia) Limited Managing Director of Eastern Electronics Co., Ltd.	None	None	None
President	R.O.C	Chih-Yuan Lu	Male	2007.07.30	2,521,766	0.14%	None	None	None	None	Ph.D. degree in Physics from Columbia University	Chairman of Macronix America, Inc. Director of Macronix Europe N.V. Director of Macronix (Hong Kong) Co., Ltd. Chairman & CEO of Ardentec Corporation Director of Ardentec Korea Co., Ltd. Director of Ardentec Singapore Pte. Ltd. Representative (Chairman) of Sheng Tang Investment Co., Ltd. Representative (Chairman) of Ardentec Semiconductor Co. Ltd. Representative (Chairman) of Giga Solution Tech. Co., Ltd. Independent Director of Hong Tai Electric Industrial Co., Ltd. Director of ValuTest Incorporated Director of Valucom Investment Inc. Director of Feng Chia University	None	None	None
Senior Vice President & Chief Marketing Officer	R.O.C	Dang-Hsing Yiu	Male	2007.01.01	6,601,322	0.36%	1,272,084	0.07%	None	None	M.S. degree in Electronic Engineering from University of California, Berkeley	Director of Macronix America, Inc. Representative (Director) of Mxtran Inc. Director of SiTime Corporation	None	None	None
Vice President	R.O.C	Ful-Long Ni	Male	2006.06.27	1,787,933	0.10%	340,333	0.02%	None	None	M.S. degree in Electronic Engineering from University of Michigan	Chairman of Macronix Europe N.V. Director of Macronix Pte Ltd. Director of Macronix (Hong Kong) Co., Ltd.	None	None	None
Vice President	R.O.C	Pei-Fu Yeh	Male	2007.10.30	2,667,174	0.14%	4,985	0.00%	None	None	MBA degree in Business Administration, of National Chengchi University	Director of New Trend Technology Inc. Director of Macronix Europe N.V. Director of Macronix (Hong Kong) Co., Ltd. Representative (supervisor) of Mxtran Inc.	None	None	None

Title	Nationality	Name	Gender	Date appointed	Shares currently held		Shares held by spouse and underage children		Shares held in the name of others		Education/work experience	Other positions at the Company or elsewhere	Other officer, director or supervisor who is the spouse or a relative within second degree		
					Shares	%	Shares	%	Shares	%			Title	Name	Relation
Vice President	R.O.C	Yen-Hie Chao	Male	2013.05.02	1,416,541	0.08%	35,108	0.00%	None	None	B.S. degree in Materials Science and Engineering of National Tsing Hua University	Representative (Director) of Ardentec Corporation	None	None	None
Vice President	R.O.C	Chun-Hsiung Hung	Male	2015.10.28	338,593	0.02%	2,833	0.00%	None	None	M.S. degree in Electronics Engineering of National Chiao Tung University	None	None	None	None
Vice President	R.O.C	Jui-Kun Chen	Male	2016.12.20	298,040	0.02%	None	None	None	None	M.S. degree in Accounting of National Taiwan University	None	None	None	None
Vice President	R.O.C	Jon-Ten Chung	Male	2018.02.01	501,774	0.03%	158,059	0.01%	None	None	M.S. degree in Economics of University of Arizona	Director of Macronix Pte Ltd. Director of Macronix Europe N.V. Director of Macronix (Hong Kong) Co., Ltd.	None	None	None
Associate V.P	R.O.C	Kuang-Chao Chen	Male	2015.10.28	652,448	0.04%	1,511	0.00%	None	None	M.S. degree in Chemistry of National Sun Yat-sen University	None	None	None	None
Executive Director	R.O.C	Wen-Pin Lu	Male	2015.10.28	240,037	0.01%	None	None	None	None	M.S. degree in Electronic Engineering of National Taiwan University	None	None	None	None
Project Executive Director	R.O.C	Chuan-Hsien Wen	Male	2017.10.01	436	0.00%	276	0.00%	None	None	B.S. degree in Chemical Engineering of National Cheng Kung University	None	None	None	None
Project Executive Director	R.O.C	Hui-Chi Li	Male	2017.10.11	310,182	0.02%	3,066	0.00%	None	None	M.S. degree in Ceramic Engineering of Alfred University	None	None	None	None

Note: Where the chairman and president or equivalent position (the highest level managerial officer) is the same person, the reason, reasonableness, necessity, and response measures must be disclosed:

Mr. Miin Chyou Wu founded Macronix in 1989 and served as its President, who has been elected as the Chairman since 2005 and successfully have Macronix become the global leader in non-volatile memory (NVM) with his forward-looking perspective and innovative business strategy. In 2019, he was elected as the chairman and CEO of the 11th-term Board of Directors. Considering that Macronix has four independent director, and more than half of its directors are non employee nor manager of Macronix the independence of the Board of Directors can be ensured. Also, to continue the forward-looking and innovative business philosophy, and Macronix's worldwide reputation, image and competitiveness, it is necessary to have Chairman Miin Chyou Wu concurrently serving as Macronix’s highest level manager (CEO) to improve operational efficiency and decision-making, and further enhance its value, which is therefore reasonable and necessary.

III Remuneration of Directors, Supervisors, President, and Vice Presidents in the Most Recent Fiscal Year

(I). Remuneration of Directors and Independent Directors

December 31, 2019
Unit: NT$ thousands

Title	Name	Remuneration								Ratio of Total Remuneration (A+B+C+D) to Net Income (%)		Relevant Remuneration Received by Directors Who are Also Employees								Ratio of Total Compensation (A+B+C+D+E+F+G) to Net Income (%)		Remuneration received from invested companies other than subsidiaries or the parent company
		Base Compensation (A)		Severance Pay (B) (Note 1)		Directors Compensation(C) (Note 2)		Allowances (D)				Salary, Bonuses, and Allowances (E)		Severance Pay (F) (Note 1)		Employee Compensation (G) (Note 2)						
		The Company	Companies in the consolidated financial statements	The Company	Companies in the consolidated financial statements	The Company	Companies in the consolidated financial statements	The Company	Companies in the consolidated financial statements	The Company	Companies in the consolidated financial statements	The Company	Companies in the consolidated financial statements	The Company	Companies in the consolidated financial statements	The Company		Companies in the consolidated financial statements		The Company	Companies in the consolidated financial statements	
																Cash	Stock	Cash	Stock			
Chairman	Miin Chyou Wu	0	0	0	0	18,144	18,144	120	120	0.61%	0.61%	17,514	17,514	961	961	32,600	0	32,600	0	2.30%	2.30%	0
Director	Chien Hsu Investment Corporation	0	0	0	0	9,072	9,072	120	120	0.31%	0.31%	0	0	0	0	0	0	0	0	0.31%	0.31%	0
Director	Chih-Yuan Lu	0	0	0	0	9,072	9,072	120	120	0.31%	0.31%	13,429	13,429	961	961	15,159	0	15,159	0	1.29%	1.29%	34,971
Director	Shun Yin Investment Ltd. Representative: Shigeki Matsuoka	0	0	0	0	9,072	9,072	120	120	0.31%	0.31%	0	0	0	0	0	0	0	0	0.31%	0.31%	0
Director	Cheng-Yi Fang	0	0	0	0	3,024	3,024	120	120	0.10%	0.10%	0	0	0	0	0	0	0	0	0.10%	0.10%	0
Director	Chung-Laung Liu	0	0	0	0	3,024	3,024	120	120	0.10%	0.10%	0	0	0	0	0	0	0	0	0.10%	0.10%	0
Director	Achi Capital Limited	0	0	0	0	9,072	9,072	120	120	0.31%	0.31%	0	0	0	0	0	0	0	0	0.31%	0.31%	0
Director	Dang-Hsing Yiu	0	0	0	0	3,024	3,024	120	120	0.10%	0.10%	6,980	6,980	961	961	4,890	0	4,890	0	0.53%	0.53%	0
Director	Ful-Long Ni	0	0	0	0	3,025	3,025	120	120	0.10%	0.10%	9,059	9,059	961	961	8,802	0	8,802	0	0.73%	0.73%	0
Director	Hui Ying Investment Ltd.	0	0	0	0	3,024	3,024	120	120	0.10%	0.10%	0	0	0	0	0	0	0	0	0.10%	0.10%	0
Director	Che-Ho Wei	0	0	0	0	3,024	3,024	120	120	0.10%	0.10%	0	0	0	0	0	0	0	0	0.10%	0.10%	0
Independent Director	Tyzz-Jiun Duh(Note 3)	1,930	1,930	0	0	0	0	64	64	0.07%	0.07%	0	0	0	0	0	0	0	0	0.07%	0.07%	0
Independent Director	Chiang Kao	3,600	3,600	0	0	0	0	120	120	0.12%	0.12%	0	0	0	0	0	0	0	0	0.12%	0.12%	0
Independent Director	Yan-Kuin Su	3,600	3,600	0	0	0	0	120	120	0.12%	0.12%	0	0	0	0	0	0	0	0	0.12%	0.12%	0
Independent Director	John C.F. Chen	3,600	3,600	0	0	0	0	120	120	0.12%	0.12%	0	0	0	0	0	0	0	0	0.12%	0.12%	0

1. Please describe the policy, system, standard, and structure of remuneration to independent directors, and the correlation between duties, risk, and time input with the amount of remuneration:
   The Board of Directors is authorized to determine the remuneration of independent directors based on participation in the Company's operations, value of contributions, and domestic and overseas industry standards in accordance with the Articles of Incorporation. The independent director 's remuneration is a fixed monthly remuneration and does not participate in the company's earnings distribution
2. Other than as disclosed in the above table, the remuneration earned by Directors providing services (e.g. providing consulting services as a non-employee) to the Company and all consolidated entities in the latest fiscal year: None.

Note 1: Estimated amount.
Note 2: Proposed amount.
Note 3: Mr. Tyzz-Jiun Duh was elected as an 11th Term Independent Director of the Company on June 18, 2019.
Note 4: Explanation of the correlation and rationality of changes in the after tax profit and loss and remuneration.

(1) The Company's 2018 net profit after tax was NT$8,993,006,000. The net profit for 2019 was NT$ 3,011,960,000. According to the Articles of Incorporation, bonuses are distributed to Directors and employees as incentive (proposed amount). The Company's net profit after tax for 2019 decreased from 2018, which was in line with the decrease in the "Remuneration of Directors" and "Relevant Remuneration Received by Directors Who are Also Employees."

(2) The Company's shares distribution is calculated while taking the industry standard, duration of employment for directors (and representatives), and actual participation and contributions into consideration. The remuneration is reasonable.

(II). Remuneration of the President and Vice Presidents

December 31, 2019
Unit: NT$ thousands

Title	Name	Salary (A)		Severance Pay (B) (Note 1)		Bonuses and Allowances (C)		Emplopensatiyee Comon (D) (Note 2)				Ratio of total compensation (A+B+C+D) to net income (%)		Remuneration received from invested companies other than subsidiaries or the parent company
		The Company	Companies in the consolidated financial statements	The Company	Companies in the consolidated financial statements	The Company	Companies in the consolidated financial statements	The Company		Companies in the consolidated financial statements		The Company	Companies in the consolidated financial statements	
								Cash	Stock	Cash	Stock			
CEO	Miin Chyou Wu	60,591	60,591	8,651	8,651	23,771	23,771	98,523	0	98,523	0	6.35%	6.35%	34,971
President	Chih-Yuan Lu													
Senior Vice President & Chief Marketing Officer	Dang-Hsing Yiu													
Vice President	Ful-Long Ni													
Vice President	Pei-Fu Yeh													
Vice President	Yen-Hie Chao													
Vice President	Chun-Hsiung Hung													
Vice President	Jui-Kun Chen													
Vice President	Jon-Ten Chung													

Note 1: Estimated amount.
Note 2: Proposed amount

Range of Remuneration for Presidents and Vice Presidents

Range of Remuneration Paid to Each President and Vice President	Name of President and Vice Presidents	
	The Company	Companies in the consolidated financial statements (Note)
Under NT$ 1,000,000		
NT$1,000,000 (inclusive) – NT$2,000,000 (exclusive)		
NT$2,000,000 (inclusive) – NT$3,500,000 (exclusive)		
NT$3,500,000 (inclusive) – NT$5,000,000 (exclusive)		
NT$5,000,000 (inclusive) – NT$10,000,000 (exclusive)		
NT$10,000,000 (inclusive) – NT$ 15,000,000 (exclusive)	Dang-Hsing Yiu/ Pei-Fu Yeh/ Yen-Hie Chao/ Jon-Ten Chung	Dang-Hsing Yiu/ Pei-Fu Yeh/ Yen-Hie Chao/ Jon-Ten Chung
NT$15,000,000 (inclusive) – NT$ 30,000,000 (exclusive)	Chih-Yuan Lu/ Ful-Long Ni/ Chun-Hsiung Hung / Jui-Kun Chen	Ful-Long Ni/ Chun-Hsiung Hung / Jui-Kun Chen
NT$30,000,000 (inclusive) – NT$ 50,000,000 (exclusive)		
NT$50,000,000 (inclusive) – NT$ 100,000,000 (exclusive)	Miin Chyou Wu	Miin Chyou Wu/Chih-Yuan Lu
Over NT$100,000,000		
Total	9	9

Note: The total amount of A +B+C+D and remuneration received from subsidiaries or the parent company other than invested companies.

(III). Employees Compensation Distributed to Management Team

December 31, 2019
Unit: NT$ thousands

	Title	Name	Stock (Fair Market Value)	Cash	Total	Ratio of Total Amount to Net Income (%)
Managers	CEO	Miin Chyou Wu	0	112,450,000	112,450,000	3.73%
	President	Chih-Yuan Lu				
	Senior Vice President & Chief Marketing Officer	Dang-Hsing Yiu				
	Vice President	Ful-Long Ni				
	Vice President	Pei-Fu Yeh				
	Vice President	Yen-Hie Chao				
	Vice President	Chun-Hsiung Hung				
	Vice President	Jui-Kun Chen				
	Vice President	Jon-Ten Chung				
	Senior Associate Manager	Guang-Chao Chen				
	Associate Manager	Wen-Bin Lu				
	Project Associate Manager	Chuan-Hsien Wen				
	Project Associate Manager	Hui-Ji Li				

(IV) The Ratio of Total Remuneration Paid by the Company and by All Companies Included In the Consolidated Financial Statements for the Two Most Recent Fiscal Years to Directors, Supervisors, President and Vice Presidents of the Company, to the Net Income As Well As the Policies, Standards, and Portfolios for the Payment of Remuneration, the Procedures for Determining Remuneration, and the Correlation with Risks and Business Performance

1. The ratio of the total remuneration paid by the Company and by all companies included in the consolidated financial statements for the two most recent fiscal years to directors, supervisors, president and vice presidents of the Company, to the net income.

	2018		2019	
	The Company	Companies in the consolidated financial statements	The Company	Companies in the consolidated financial statements
Directors	2.57%	2.57%	2.89%	2.89%
Presidents and Vice Presidents	4.68%	4.68%	6.35%	6.35%

2. The policy, standards and packages of remunerations, the procedures for such decisions and relation to business performance and future risks.

(1) Remuneration to the Company's directors and managers are distributed in accordance with the Articles of Incorporation and the law, after referring to industry standards in Taiwan and overseas, the length of the tenure of related members, actual participation, and contributions. Remunerations are summarized below:

- Independent Director: Receives NT$300,000 and travel allowance on a monthly basis regardless of the Company's profit or loss, but does not participate in earning distribution.
- Non-Independent Director: Calculated and distributed based on the director's (including representatives) length of tenure, actual participation, and contributions in accordance with the Company's Articles of Incorporation and the law, after referring to industry standards in Taiwan and overseas, provided that it does not exceed 2% of profits after deducting accumulated losses.

(2) Transportation allowance for directors: NT$10,000 per month.

(3) Compensation for managers: Reviewed and approved by the Compensation Committee and submitted to the Board of Directors for resolution.

(4) Others: With consideration to future changes in the economic environment, remuneration paid to our management team will be carefully established in accordance with the law, based on business performance and future risks, as well as industry standards in Taiwan and overseas.

IV. Implementation of Corporate Governance

(I) Board of Directors

A total of 7 (A) meetings of the Board of Directors were held in the previous period. The attendance of director and supervisor were as follows:

Title	Name	Attendance in Person (B)	By Proxy	Attendance Rate (%)(B/A) (Note 1)	Remarks
Chairman	Miin Chyou Wu	7	0	100%	Re-elected
Director	Chien Hsu Investment Corporation(Note2) Former Representative: Ding-Hua Hu Representative: Ching-Yun Li	6	1	100%	Re-elected
Director	Chih-Yuan Lu	7	0	100%	Re-elected
Director	Shun Yin Investment Ltd. Representative: Shigeki Matsuoka	7	0	100%	Re-elected
Director	Cheng-Yi Fang	7	0	100%	Re-elected
Director	Chung-Laung Liu	5	2	71%	Re-elected
Director	Achi Capital Limited Representative: Guei-Min Lee (Note 3)	7	0	100%	Re-elected
Director	Che-Ho Wei	7	0	100%	Re-elected
Director	Dang-Hsing Yiu	7	0	100%	Re-elected
Director	Ful-Long Ni	7	0	100%	Re-elected
Director	Hui Ying Investment Ltd. Representative: Pei-Fu Yeh (Note 4)	7	0	100%	Re-elected
Independent Director	Tyzz-Jiun Duh (Note 5)	4	0	100%	new appointment
Independent Director	Chiang Kao	7	0	100%	Re-elected
Independent Director	Yan-Kuin Su	6	1	85%	Re-elected
Independent Director	John C.F. Chen	7	0	100%	Re-elected

Other items that shall be recorded:

I. If any of the following circumstances occur to the operation of the Board of Directors, the date of the meeting, session, content of the motion, all independent directors' opinions, and the Company's response to independent directors' opinions should be specified:

(I) Matters referred to in Article 14-3 of the Securities and Exchange Act.

1. The 17th meeting of the 10th Term of the Board of Directors (March 12, 2019)

<table>
<tr><th>Motion</th><th>Independent Directors' Opinions</th><th>The Company's Response to Independent Directors' Opinions</th><th>Resolution</th></tr>
<tr><td>(1) In compliance with the applicable restated regulations, it is proposed to amend the Company's "Procedures for Acquisition or Disposal of Assets" and the "Procedures for Financial Derivatives Transactions"</td><td rowspan="3">Approved</td><td rowspan="3">Not applicable</td><td rowspan="3">The motion was unanimously adopted and approved by all attendant Directors, and will be submitted to the annual shareholders meeting for follow up.</td></tr>
<tr><td>(2) Approval of fund raising by issuance of new shares, overseas depositary receipts through cash capital increase, and/or the private placement of common shares and/or domestic or overseas convertible bonds.</td></tr>
<tr><td>(3) Approval of the issuance of new shares for employee Restricted Stock Awards ("RSA")</td></tr>
</table>

2. The 18th meeting of the 10th Term of the Board of Directors (April 23, 2019)

<table>
<tr><th>Motion</th><th>Independent Directors' Opinions</th><th>The Company's Response to Independent Directors' Opinions</th><th>Resolution</th></tr>
<tr><td>(1) In compliance with the amendments of applicable regulations, it is hereby proposed to amend the Company's "Procedures Rules for Loans to Others" and the "Procedures for Endorsement and Guarantee".</td><td rowspan="2">Approved</td><td rowspan="2">Not applicable</td><td rowspan="2">The motion was unanimously adopted and approved by all attendant Directors.</td></tr>
<tr><td>(2) Pursuant to the amendments of applicable regulations, it is hereby proposed to amend the Company's Internal Control System for Shareholders Services Process.</td></tr>
</table>

(3) Submitted for approval of 2018 employee bonus to be distributed to the managers as defined under Company Law and/or Securities and Exchanged Act ("Company Managers").	Approved	Not applicable	The motion was duly resolved by the Company's Compensation Committee and unanimously adopted and approved by attendant Directors other than those who have conflict interests, i.e. Chairman Wu, Director Lu, Director Yiu, Director Ni, and the representative of Director Hui Ying Investment, Ltd., Mr. Yeh, and/or their respective delegator (if any).
(4) Submitted for approval of 2019 annual incentive bonus of the Company Managers.			

3. The 3rd meeting of the 11th Term of the Board of Directors (December 23, 2019)

Motion	Independent Directors' Opinions	The Company's Response to Independent Directors' Opinions	Resolution
(1) Submitted for approval of the Company's financial and tax accountants for Year 2020 ("CPAs") as resolved by the Audit Committee.	Approved	Not applicable	The motion was unanimously adopted and approved by all attendant Directors.
(2) Submitted for approval of the fees and expenses of CPAs ("Compensations") for Year 2020 resolved by the Audit Committee.			
(3) Submitted for approval of the 2019 salary adjustment of the Company's Managers ("Adjustments").	Approved	Not applicable	The motion was duly resolved by the Company's Compensation Committee and unanimously adopted and approved by attendant Directors other than those who have conflict interests, i.e. Chairman Wu, Director Lu, Director Yiu, Director Ni, and the representative of Director Hui Ying Investment, Ltd., Mr. Yeh, and/or their respective delegator (if any).

(II) In addition to the aforementioned matters, other motions resolved by the Board of Directors that are objected to by Independent Directors or expressed reservations and recorded or declared in writing: None.

II. If there is Directors' avoidance of motions in conflicts of interest, the Directors' names, content of the motion, causes of avoiding conflicts of interest, and the voting participation should be specified:

(1) Directors' names: Pei-Fu Yeh
Content of the motion: Propose to nominate Pei-Fu Yeh, the Company's vice president in charge of financial matters as the Company's Corporate Governance Officer ("CGO").
Causes of avoiding conflicts of interest: Related persons
Voting participation: The resolution was unanimously adopted and approved by all attendant Directors other than Director Hui Ying Investment, its Representative Mr. Yeh, and/or their delegator (if any).

(2) Directors' names: Miin Chyou Wu, Chih-Yuan Lu, Dang-Hsing Yiu, Ful-Long Ni, and Hui Ying Investment, Ltd.
Content of the motion: Submitted for approval of 2018 employee bonus to be distributed to the managers as defined under Company Law and/or Securities and Exchanged Act ("Company Managers").
Causes of avoiding conflicts of interest: Related persons
Voting participation: The resolution was unanimously adopted and approved by all attendant Directors other than those who have conflict interests, i.e. Chairman Wu, Director Lu, Director Yiu, Director Ni, and the representative of Director Hui Ying Investment, Ltd., Mr. Yeh, and/or their respective delegator (if any).

(3) Directors' names: Miin Chyou Wu, Chih-Yuan Lu, Dang-Hsing Yiu, Ful-Long Ni, and Hui Ying Investment, Ltd.
Content of the motion: Submitted for approval of 2019 annual incentive bonus of the Company Managers.
Causes of avoiding conflicts of interest: Related persons
Voting participation: The resolution was unanimously adopted and approved by all attendant Directors other than those who have conflict interests, i.e. Chairman Wu, Director Lu, Director Yiu, Director Ni, and the representative of Director Hui Ying Investment, Ltd., Mr. Yeh, and/or their respective delegator (if any).

(4) Directors names: Miin Chyou Wu, Chih-Yuan Lu, Dang-Hsing Yiu, Ful-Long Ni, and Hui Ying Investment, Ltd.
Content of the Motion: Submitted for approval of the registry of employees and the number of 2019 Employee Restricted Stock Awards ("2019 RSA") to be granted for its first issuance.
Causes of avoiding conflicts of interest: Related persons
Voting participation: The resolution was unanimously adopted and approved by all attendant Directors other than those who have conflict interests, i.e. Chairman Wu, Director Lu, Director Yiu, Director Ni, and the representative of Director Hui Ying Investment, Ltd., i.e., Mr. Yeh, as well as their respective delegator (if any).

(5) Directors' names: Miin Chyou Wu, Chih-Yuan Lu, Dang-Hsing Yiu, Ful-Long Ni, and Hui Ying Investment, Ltd.
Content of the motion: Submitted for approval of the 2019 salary adjustment of the Company's Managers ("Adjustments").
Causes of avoiding conflicts of interest: Related persons
Voting participation: The resolution was unanimously adopted and approved by all attendant Directors other than those who have conflict interests, i.e. Chairman Wu, Director Lu, Director Yiu, Director Ni, and the representative of Director

Hui Ying Investment, Ltd., Mr. Yeh, and/or their respective delegator (if any).

III. Evaluation of the board of directors:

Assessment cycle	**Assessment period**	**Assessment scope**	**Assessment method**	**Assessment content**	**Overall average (out of 5)**
Performed once per year	January 1, 2019 to December 31, 2019	each member of the board of directors	Self-assessment of each member of the board of directors	1. Understanding of the Company's Objectives and Tasks 2. Directors' Responsibilities 3. Participation in the Company's Operations 4. Management and Communication of Internal Relations 5. Directors' Expertise and Continuous Education 6. Internal controls	4.88
Performed once per year	January 1, 2019 to December 31, 2019	the Audit Committee	Self-assessment of the Audit Committee	1. Participation in the Company's Operations 2. Audit Committee's Responsibilities 3. Raising the Quality of the Audit Committee's Decisions 4. Composition and Membership of the Audit Committee 5. Internal controls	4.94
Performed once per year	January 1, 2019 to December 31, 2019	the Compensation Committee	Self-assessment of the Compensation Committee	1. Participation in the Company's Operations 2. Compensation Committee's Responsibilities 3. Raising the Quality of the Compensation Committee's Decisions 4. Composition and Membership of the Compensation Committee	4.90
Performed once per year	January 1, 2019 to December 31, 2019	the Nomination Committee	Self-assessment of the Nomination Committee	1. Participation in the Company's Operations 2. Nomination Committee's Responsibilities 3. Raising the Quality of the Nomination Committee's Decisions 4. Composition and Membership of the Nomination Committee	4.92

IV. Measures taken to strengthen the functions of the Board (for example, establishing an Audit

Committee and enhancing information transparency) for the current year and the most recent year and the implementation:

The Company has functional committees, including the Audit Committees, Compensation Committees and Nomination Committees, to review and resolve proposals within its authority and to submit to the Board of Directors for decision to enhance supervision and strengthen management. Board members continue to participate in continuing education to enhance their professional knowledge as well as communication to improve the Board's performance. In order to encourage the Directors to continue studies, the Company regularly arranges corporate governance courses and provides course information from external institutions for the Directors' reference. Please refer to page 59 of this annual report for the Company's Director training in the most recent year.

Note 1: A total of 7 meetings were convened by the Board of Directors in the most recent year. The 10th-term convened 3 meetings and the 11th-term convened 4 meetings. Attendance rate (%) is calculated based on the number of meetings convened by the Board of Directors and attendance.

Note 2: Mr. Ding-Hua Hu passed away on July 11, 2019, and Chien Hsu Investment Co., Ltd. appointed Ms. Ching-Yun Li on July 26, 2019, to attend the 11th Term of the Board of Directors and exercised any and all Director's rights thereof.

Note 3: Ms. Guei-Min Lee was appointed to represent it to attend the 11th Term of the Board of Directors and exercised any and all Director's rights thereof.

Note 4: Mr. Pei-Fu Yeh was appointed to represent it to attend the 11th Term of the Board of Directors and exercised any and all Director's rights thereof.

Note 5: Mr. Tyzz-Jiun Duh was elected as an 11th Term Independent Director of the Company on June 18, 2019.

(II) Audit Committee

The Company's Audit Committee is comprised of four independent directors to carry out supervision under applicable laws and regulations, including ensuring proper statements of the Company's financial reports, engaging or dismissal of auditing CPAs and theirs independence as well as performance, effective implementation of internal audit, compliance of applicable laws and regulations, and control of the Company's existing and potential risks. In the most recent year, the following have been duly reviewed and resolved by the Audit Committee:

1. Assessment of the internal control system and efficiency.
2. The offering, issuance, or private placement of equity securities.
3. Engaging and/or dismissal of auditing CPA and the compensation.
4. Annual and second quarter financial reports.
5. Business report and earnings distribution
6. The amendment of the procedures for handling financial or business activities of a material nature, such as acquisition or disposal of assets, derivatives trading, loaning of funds to others, and endorsements or guarantees for others.

A total of 6 (A) Audit Committee meetings were held in the most recent year. The attendance of the independent directors was as follows:

Title	Name	Attendance in Person (B)	By Proxy	Attendance Rate (%)(B/A)(Notes1)	Remarks
Independent Director	Tyzz-Jiun Duh (Notes2)	3	0	100%	new appointment
Independent Director	Chiang Kao	6	0	100%	Re-elected
Independent Director	Yan-Kuin Su	6	0	100%	Re-elected
Independent Director	John C.F. Chen	6	0	100%	Re-elected

Other items that shall be recorded:

I. When one of the following situations has occurred to the operations of the Audit Committee, the date, term, and agenda of the Board of Directors, resolution of the Audit Committee, and the Company's response to the comments of the Audit Committee shall be stated:

(I) Items specified in Article 14-5 of the Securities and Exchange Act

1. The 17th meeting of the 10th Term of the Board of Directors (March 12, 2019)

<table>
<tr><th>Motion</th><th>Resolution results of the Audit Committee</th><th>The Company's response to the comments of the Audit Committee</th><th>Resolutions of the Board of Directors</th></tr>
<tr><td>(1) 2018 Business Report and Financial Statements</td><td rowspan="4">Unanimously approved by all members of the Audit Committee attending the meeting and will be submitted to the Board of Directors meeting for approval.</td><td rowspan="4">Not applicable</td><td rowspan="4">The resolution of the Audit Committee was unanimously adopted and approved by all attendant Directors.</td></tr>
<tr><td>(2) In compliance with the applicable restated regulations, it is proposed to amend the Company's "Procedures for Acquisition or Disposal of Assets" and the "Procedures for Financial Derivatives Transactions".</td></tr>
<tr><td>(3) Approval of fund raising by issuance of new shares, overseas depositary receipts through cash capital increase, and/or the private placement of common shares and/or domestic or overseas convertible bonds.</td></tr>
<tr><td>(4) Approval of the issuance of new shares for employee Restricted Stock Awards ("RSA")</td></tr>
</table>

2. The 18th meeting of the 10th Term of the Board of Directors (April 23, 2019)

Motion	Resolution results of the Audit Committee	The Company's response to the comments of the Audit Committee	Resolutions of the Board of Directors
(1) In compliance with the amendments of applicable regulations, it is hereby proposed to amend the Company's "Procedures Rules for Loans to Others" and the "Procedures for Endorsement and Guarantee".	Unanimously approved by all members of the Audit Committee attending the meeting and will be submitted to the Board of Directors meeting for approval.	Not applicable	The resolution of the Audit Committee was unanimously adopted and approved by all attendant Directors.
(2) Pursuant to the amendments of applicable regulations, it is hereby proposed to amend the Company's Internal Control System for Shareholders Services Process.			

3. The 1st meeting of the 11th Term of the Board of Directors (July 23, 2019)

Motion	Resolution results of the Audit Committee	The Company's response to the comments of the Audit Committee	Resolutions of the Board of Directors
2019 Q2 Consolidated Financial Statements.	Unanimously approved by all members of the Audit Committee attending the meeting and will be submitted to the Board of Directors meeting for approval.	Not applicable	2019 Q2 Consolidated Financial Statements have been reported to the Board of Directors.

4. The 3rd meeting of the 11th Term of the Board of Directors (December 23, 2019)

Motion	Resolution results of the Audit Committee	The Company's response to the comments of the Audit Committee	Resolutions of the Board of Directors
(1) According to the resolution of the Audit Committee of the Company, it is proposed that CPAs Allen Yeh and Benjamin Shih (with Deloitte & Touche) are appointed as the Company's Independent Auditors for the 2020 financial and/or tax matters	Unanimously approved by all members of the Audit Committee attending the meeting and will be submitted to the Board of Directors meeting for approval.	Not applicable	The motion was unanimously adopted and approved by all attendant Directors.
(2) According to the resolution of the Audit Committee of the Company, it is proposed that the fees and expenses of the Company 2020 financial and/or tax auditing service			

(II) Except the items in the preceding issues, other resolutions approved by two-thirds of all Directors but yet to be approved by the Audit Committee: None.

II. Names, content of the motion, cause of the conflict of interest, and participation in the voting of Independent Directors who have abstained from voting for proposals that are considered to present conflicts of the interest: None.

III. Communication between Directors and the head of internal auditing and CPAs (including important issues, audit methods, and results relating to the Company's finance and business):

1. The Company's head of internal auditor, in addition to regularly sending various audit reports to independent directors, also attends the reports of the Audit Committee. The head of internal auditor also responds at all times to any questions that the independent directors may have, and the interactions between them were good.
2. CPAs appointed by the Company also attended the Audit Committee and the Board of Directors, where they explained financial/accounting matters to the independent directors, and the interactions between them were good.
3. The head of internal auditor and CPAs also directly contact independent directors at all times and according to need, and the communication channel between them is unimpeded.

- Communications between independent directors and the head of internal auditor are as follows:

Audit Committee date	Key points of communication	Results of communication
January 22, 2019	· Audit report for Q4 2018 · 2018 Statement on Internal Control	Full attendance No objections from independent directors
April 23, 2019	· Audit report for Q1 2019	
July 23, 2019	· Audit report for Q2 2019	
October 21, 2019	· Audit report for Q3 2019	
December 23, 2019	· 2020 Audit plan	

Note: The Company re-elected its directors in 2019. The head of internal auditor described the Company's annual audit plan and current implementation situation to the new independent directors on June 26, 2019.

- Summary of communications between independent directors and CPAs in recent years:

Audit Committee date	Key points of communication	Results of communication
January 22, 2019	· Review results and key review items for the 2018 stand-alone and consolidated financial statements	Full attendance No objections from independent directors
April 23, 2019	· Results of review of the consolidated financial statements for Q1 2019	
July 23, 2019	· Results of review of the consolidated financial statements for Q2 2019	
October 21, 2019	· Results of review of the consolidated financial statements for Q3 2019	

Notes1: A total of 6 meetings were convened by the Audit Committee in the most recent year. The 10th-term convened 3 meetings and the 11th-term convened 3 meetings. Attendance rate (%) is calculated based on the number of meetings convened by the Audit Committee and attendance.

Notes2: Mr. Tyzz-Jiun Duh was elected as an 11th Term Independent Director of the Company on June 18, 2019.

(III)Corporate Governance Implementation Status and Deviations from “the Corporate Governance Best-Practice Principles for TWSE/TPEx Listed Companies” and Reasons

The Company attaches great importance to corporate governance. Not only has it introduced the corporate governance systems in advance by taking overseas norms into consideration, but has also adopted the “Corporate Governance Best-Practice Principles for TWSE/TPEx Listed Companies” as its guideline. In 2003, the Company added two independent directors to the Board of Directors in accordance with the US Securities Laws and Regulations. The following year, three Independent Directors were elected. The Company also established an Audit Committee, which was later renamed the Auditing Committee. The Compensation Committee was set up in 2005, with internal auditing being directly subordinate to the Board.

In 2007, the Company adopted the candidate nomination system for the first time for the election of the Board and Supervisors (including three Independent Directors). In June 2009, the Company set up the Audit Committee to replace Supervisors in accordance with Article 14-4 of the Securities and Exchange Act. In January 2019, the "Compensation Committee" was set up in accordance with Article 14-6 of the Securities and Exchange Act. In January 2019, the Company voluntarily set up the "Nomination Committee" to assist the operation of Board.

In 2007 and 2011, the company passed the Taiwan Corporate Governance Association CG6002 and CG6006 evaluations in the corporate governance system respectively and was ranked in the top 5% of all listed companies in the first corporate governance evaluation in 2014. This reaffirms Macronix's implementation and active promotion of corporate governance.

Evaluation Item	Implementation Status			Deviations from “the Corporate Governance Best-Practice Principles for TWSE/TPEx Listed Companies” and Reasons
	Yes	No	Abstract Illustration	
I. Does the company establish and disclose the Corporate Governance Best-Practice Principles" based on “Corporate Governance Best-Practice Principles for TWSE/TPEx Listed Companies”?	✓		The Company has established the "Corporate Governance Principles" based on “Corporate Governance Best-Practice Principles for TWSE/TPEx Listed Companies” and disclosed them on the company website.	None
II. Shareholding structure & shareholders’ rights (I) Does the company establish an internal operating procedure to deal with shareholders’ suggestions, doubts, disputes, and litigations, and implement based on the procedure?	✓		(I) The Company has established an Investor Relations Office and a legal center. Dedicated personnel are assigned to address issues such as shareholder suggestions, inquiries, and disputes. The legal actions taken by the shareholders are also properly addressed through internal operating procedures, and records are kept for future reference.	None

Evaluation Item	Implementation Status			Deviations from "the Corporate Governance Best-Practice Principles for TWSE/TPEx Listed Companies" and Reasons
	Yes	No	Abstract Illustration	
(II) Does the company possess the list of its major shareholders as well as the ultimate owners of those shares?	✓		(II) The Company possesses the list of its directors, managers, and shareholders with more than 10% of the shares as well as their major shareholders. Relevant information is routinely disclosed.	None
(III) Does the company establish and execute the risk management and firewall system within its conglomerate structure?	✓		(III) The Company has established the "Relevant Financial and Business Operations Rules between Relation Parties" and "Regulations of the Supervision and Management of Subsidiaries" to clearly distinguish the assets, finance, and operations between the Company and its affiliated companies, as well as execute the risk management and firewall system.	None
(IV) Does the company establish internal rules against insiders trading with undisclosed information?	✓		(IV) The Company has established the "Code of Business Conduct and Ethics" and "Preventing Insider Trading" to clearly regulate matters regarding the staff purchasing the Company's securities.	None
III. Composition and Responsibilities of the Board of Directors				
(I) Does the Board develop and implement a diversified policy for the composition of its members?	✓		(I) The Company's corporate governance principles stipulate that the composition of the Board of directors shall take diversity into consideration. The authorized Nomination Committee shall also formulate criteria regarding the diversity and independence of the directors' professional knowledge, expertise, experience, and gender. These criteria will be adopted in the search, review, and nomination of director candidates. The Company's Board of Directors is currently comprised of 15 professionals with backgrounds in industrial technology, law, financial accounting, marketing, and public relations. See page 64 of this Annual Report for the implementation of the Board	None

Evaluation Item	Implementation Status			Deviations from "the Corporate Governance Best-Practice Principles for TWSE/TPEx Listed Companies" and Reasons
	Yes	No	Abstract Illustration	
			diversity policy.	
(II) Does the company voluntarily establish other functional committees in addition to the Compensation Committee and the Audit Committee?	✓		(II) The Company voluntarily set up the Nomination Committee on January 22, 2019, comprised of the Chairman and two Independent Directors. The functional authority is handled in accordance with the Company's "Nominating Committee Charter." The members and operations are disclosed on the Market Observation Post System.	None
(III) Does the Company establish standards and methods for evaluating board performance, conduct annual performance evaluations, submit performance evaluation results to the Board, and use the results as a basis for determining the remuneration and nomination renewal of individual directors?	✓		(III) The Company has established the" Rules for Board of Directors Performance Assessments" to clearly regulate the evaluation cycle, period, scope, execution unit, and procedures. The 2019 Board Performance Evaluation was conducted via self-evaluation by Board members and self-evaluation by functional committees. See page 28 of this Annual Report for implementation status. The overall average score in the 2019 performance evaluation shows that the Company's Board of Directors and functional committees are functioning well. The results were submitted to the Company's Nomination Committee and Board of Directors.	None
(IV) Does the company regularly evaluate the independence of CPAs?	✓		(IV) The company engaged a professional accounting firm to conduct financial and tax compliance audits. The appointment is decided by the Audit Committee and submitted to the Board of Directors for resolution. In addition to the independence requirements for accountants, the Company evaluates the independence of CPAs by the following criteria every year: 1. Not appointing the same accountant to perform audits for more than seven consecutive years, 2. Obtaining a	None

Evaluation Item	Implementation Status			Deviations from "the Corporate Governance Best-Practice Principles for TWSE/TPEx Listed Companies" and Reasons
	Yes	No	Abstract Illustration	
			statement of independence, including but not limited to whether the accountant has direct or indirect significant financial interests in the Company; whether there is kinship or business relations that might have an impact on the independence with the Company's directors, supervisors and managers; whether they concurrently serve as the Company's directors and supervisors during the audit period or hold positions that have direct and significant influence on the audit.	
IV. Does the TWSE listed company have a suitable number of competent corporate governance personnel, and has it appointed a corporate governance supervisor responsible for corporate governance matters (including but not limited to providing information for directors and supervisors to perform their duties, assisting directors and supervisors with regulatory compliance, handling matters related to Board meetings and shareholders' meetings, and preparing proceedings for Board meetings and shareholders' meetings)?	✓		The Board of Directors has designated the Board Secretariat Department to handle administrative matters for the Board. On March 12th, 2019, the Corporate Governance Officer was also set up to handle corporate governance Officer as per the requests of the directors. The terms of reference are set out below: (1) Responsibilities: 1.Matters related to the meetings of the Board of Directors and shareholders' meetings in accordance with the law; 2.Prepare the minutes of the Board and Shareholders' Meeting; 3.Assist the directors and supervisors in continuous education; 4.Provide information necessary for the Directors and Supervisors; 5.Assist Directors and Supervisors to comply with the laws and regulations; 6. Other matters stipulated in the Articles of Incorporation or the contract. (2)Key points of execution of work in 2019: 1. Supervise the notification of shareholders' meetings and Board meetings, provision of meeting materials, and	None

Evaluation Item	Implementation Status			Deviations from "the Corporate Governance Best-Practice Principles for TWSE/TPEx Listed Companies" and Reasons
	Yes	No	Abstract Illustration	
			preparation of meeting minutes. 2. Assist in the appointment and continuing education of directors. 3. Assist independent directors in communicating with the chief internal auditor, CPA, or related supervisors. 4. Assist in providing directors with the data and related laws they need to perform their duties. 5. Evaluate and purchase suitable liability insurance for directors, supervisors, and managers. 6. Supervise the implementation of the Company's Corporate Governance Principles. (3) See page 62 of this annual report for education of corporate governance supervisor within the first year after being appointed.	
V. Does the company establish a communication channel and build a designated section on its website for stakeholders (including but not limited to shareholders, employees, customers, and suppliers), as well as handle all the issues they care for in terms of corporate social responsibilities?	✓		The Company understands and responds to the stakeholders' reasonable expectations for the Company, needs, and topics of concern through a number of communication channels, and such communications with stakeholders are reported to the Board of Directors every year. All types of stakeholders can access the Company's contact information and communication channels through the "Contact Us" on the company website, and ask questions or express opinions. Please refer to the Company's Corporate Social Responsibility (CSR) Report for the identification method and identity of stakeholders, topics of concern, and response method.	None
VI. Does the company appoint a professional shareholder service agency to deal with shareholder affairs?		✓	The Company has set up an Investor Relations office since 1997 dedicated to handling matters related to the Company's shareholders. All shareholders' equity operations are carried out in accordance with the "Standards for the Internal	Please refer to Implementation Status

Evaluation Item	Implementation Status			Deviations from "the Corporate Governance Best-Practice Principles for TWSE/TPEx Listed Companies" and Reasons
	Yes	No	Abstract Illustration	
			Control System of the Stock Department", and the same applies to shareholders' meetings.	
VII. Information Disclosure (I) Does the company have a corporate website to disclose both financial standings and the status of corporate governance?	✓		(I) The Company has established a corporate website to disclose information on financial operations and corporate governance.	None
(II) Does the company have other information disclosure channels (e.g. building an English website, appointing designated people to handle information collection and disclosure, creating a spokesman system, webcasting investor conferences)?	✓		(II) The Company has established an English website to disclose relevant information and set up dedicated departments for collecting and disclosing company information. Furthermore, to implement the spokesperson system, the Company has designated a spokesperson and a deputy spokesperson for speaking on behalf of the Company. The briefing and procedures of investor conferences are available in the "Investor Relations/Financial Information/Quarterly Results" section of the company website.	None
(III)Does the company announce and report annual financial statements within two months after the end of each fiscal year, and announce and report Q1, Q2, and Q3 financial statements, as well as monthly operation results, before the prescribed time limit?	✓		(III)The Company announces and reports quarterly financial statements and monthly operation results within the prescribed time limit, and the 2019 financial statements were announced and reported within two months after the end of the fiscal year.	None
VIII. Is there any other important information to facilitate a better understanding of the company's corporate governance practices (e.g., including but not limited to employee rights, employee wellness, investor relations, supplier relations, rights of stakeholders, directors' and supervisors' training records, the implementation	✓		1. Status of employee rights and employee wellness: Please refer to the Company's "Corporate Social Responsibility Report." 2. Status of risk management policies and risk evaluation: Please refer to (IX) on Page 59 of this annual report for important information that can enhance the 3.Directors' training: The Company arranges training courses	None

Evaluation Item	Implementation Status			Deviations from "the Corporate Governance Best-Practice Principles for TWSE/TPEx Listed Companies" and Reasons
	Yes	No	Abstract Illustration	
of risk management policies and risk evaluation measures, the implementation of customer relations policies, and purchasing insurance for directors and supervisors)?			for directors annually. Each director also participates in relevant courses organized by external institutions when necessary. Newly elected directors all received 12 hours of training in 2019, and reelected directors all received 6 hours of training. See page 59 of this annual report for Directors' training records. 4. Directors' Liability Insurance: The Company has taken out liability insurance for Directors and Supervisors since October 15th, 1999. For the status of maintaining the insurance and submission to the Board of Directors, please refer to the Market Observation Post System (MOPS).	
IX. Please describe the improvements your company has made based on the corporate governance evaluation results released by the Corporate Governance Center of Taiwan Stock Exchange in the most recent year, and list priorities and measures for matters that still require improvement. The Company was ranked in the top 21-35% of listed companies and top 21-40% of electronics companies with a market capitalization of NT$10 billion or above in the 2018 (fifth) Corporate Governance Evaluation. We referenced the competent authority's new corporate governance blueprint (2018-2020) and the Corporate Governance Best-Practice Principles for TWSE/TPEx Listed Companies, added one independent director in 2019 to strengthen board operations, and provided such disclosures of information on shareholders' meetings in English, material information in English, and remuneration of individual directors.				

(IV) Composition, Functional Authority, and Operations of the Compensation Committee

1. Information on committee members

Title	Criteria / Name	Has at least 5 years of work experience and meets one of the following professional qualifications			Compliance of independence (Note)										Number of other public companies in which the member concurrently as a member of their Compensation Committee	Remarks
		An instructor or higher position in a department of commerce, law, finance, accounting, or other academic department related to the business needs of the Company in a public or private junior college, college or university	A judge, public prosecutor, attorney, certified public accountant, or other professional or technical specialist who has passed a national examination and been awarded a certificate in a profession related to the business needs of the Company	Has work experience in the areas of commerce, law, finance, or accounting, or otherwise necessary for the business of the Company	1	2	3	4	5	6	7	8	9	10		
Independent Director	Chiang Kao	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	
Independent Director	Yan-Kuin Su	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	2	
Independent Director	John C. F. Chen		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	

Note: If the committee member meets any of the following criteria in the two years before being appointed or during the term of office, please check "✓" in the corresponding boxes:

(1) Not an employee of the Company or any of its affiliates.

(2) Not a director or supervisor of the Company or an affiliated enterprise (does not apply to independent directors concurrently appointed by the Company or its parent company, subsidiary, or the subsidiary of the parent company pursuant to the Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies or local laws and regulations).

(3) Not a natural-person shareholder who holds shares, together with those held by the person's spouse, minor children, or held by the person under others' names, in an aggregate amount of 1% or more of the total number of outstanding shares of the Company or ranking in the top 10 in holdings.

(4) Not a manager listed in (1) or a spouse, relative within the second degree of kinship, or lineal relative within the third degree of kinship of any of the above persons listed in (2) and (3).

(5) Not a director, supervisor, or employee of a corporate shareholder that directly holds 5% of the Company's total outstanding shares, is a top 5 shareholder, or appointed a representative to serve as the Company's director or supervisor in accordance with Article 27, Paragraph 1 or 2 of the Company Act (does not apply to independent directors concurrently appointed by the Company or its parent company, subsidiary, or the subsidiary of the parent company pursuant to the Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies or local laws and regulations).

(6) Not a director, supervisor, or employee of a company controlled by a single person with over half of the Company's director seats or shares with voting rights (does not apply to independent directors concurrently appointed by the Company or its parent company, subsidiary, or the subsidiary of the parent company pursuant to the Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies or local laws and regulations).

(7) Not a director, supervisor, or employee of another company or institution that is the same person or the spouse of the Company's chairperson, president, or equivalent position (does not apply to independent directors concurrently appointed by the Company or its parent company, subsidiary, or the subsidiary of the parent company pursuant to the Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies or local laws and regulations).

(8) Not a director, supervisor, manager, or shareholder with 5% or more shares of a specific company or institution with financial or business dealings with the Company (does not apply to independent directors concurrently appointed by a specific company or institution that holds 20% or more but not more than 50% of the Company's outstanding shares, and the Company or its parent company, subsidiary, or the subsidiary of the parent company pursuant to the Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies or local laws and regulations).

(9) Not a professional individual who, or an owner, partner, director, supervisor, or manager of a sole proprietorship, partnership, company or institution that provides commercial, legal, financial, accounting services or consultation with cumulative remuneration in the most recent two years not exceeding NT$500,000 to the Company or to any affiliate of the company, or a spouse thereof. This does not apply to members of the compensation committee, public tender offer review committee, or merger and acquisition special committee that performs duties in accordance with the Securities Exchange Act or Business Mergers and Acquisitions Act.

(10) Not a governmental, juridical person or its representative as defined in Article 27 of the Company Law.

2. Responsibilities

(1) Establishes and periodically reviews the performance evaluation and policies, system, standards, and structure of the compensations for Directors, supervisors, and managers.

(2) Periodically evaluates and establishes compensations and benefits for Directors, supervisors, and managers.

3. Implementation status

(1) The Company has a Compensation Committee composed of 3 members.

(2) The term of the current directors is from July 23, 2019 to June 17, 2022, in coordination with the total re-election of directors during the Director's meeting on June 18, 2019.

(3) The Compensation Committee convened 5 times (A) in the last fiscal year. The qualifications of the members and attendance are as follows:

Title	Name	Attendance in Person (B)	By Proxy	Attendance Rate (%)(B/A)(Note)	Remarks
Convener	Chiang Kao	5	0	100%	Re-elected
Committee Member	Yan-Kuin Su	5	0	100%	Re-elected
Committee Member	John C. F. Chen	5	0	100%	Re-elected

Other items that shall be recorded::

I. The main items that discussion the conference of Compensation Committee in the recent years were as follows

1. The 18th meeting of the 10th Term Board of Directors (April 23, 2019)

Motion	Resolution results of the Compensation Committee	The Company's response to the comments of the Compensation Committee	Resolution of the Board of Directors
(1) Submitted for approval of 2018 employee bonus to be distributed to the managers as defined under Company Law and/or Securities and Exchanged Act ("Company Managers"). (2) Submitted for approval of 2019 annual incentive bonus of the Company Managers.	Unanimously approved by all members of the Compensation Committee attending the meeting and will be submitted to the Board of Directors meeting for approval.	Not applicable	The resolution of the Compensation Committee was unanimously adopted and approved by attendant Directors other than those who have conflict interests, i.e. Chairman Wu, Director Lu, Director Yiu, Director Ni, and the representative of Director Hui Ying Investment, Ltd., Mr. Yeh, and/or their respective delegator (if any).

2. The 2nd meeting of the 11th Term Board of Directors (October 21, 2019)

Motion	Resolution results of the Compensation Committee	The Company's response to the comments of the Compensation Committee	Resolution of the Board of Directors
Submitted for approval of the registry of employees and the number of 2019 Employee Restricted Stock Awards("2019 RSA") to be	List of managers and number of shares unanimously approved by all	Not applicable	The resolution of the Compensation Committee was unanimously adopted and approved by attendant Directors other than those

granted for its first issuance.	members of the Compensation Committee in attendance, and submitted to the Board of Directors.		who have conflict interests, i.e. Chairman Wu, Director Lu, Director Yiu, Director Ni, and the representative of Director Hui Ying Investment, Ltd., Mr. Yeh, and/or their respective delegator (if any).

3. The 3rd meeting of the 11th Term Board of Directors (December 23, 2019)

Motion	Resolution results of the Compensation Committee	The Company's response to the comments of the Compensation Committee	Resolution of the Board of Directors
Submitted for approval of 2019 salary adjustment of the Company Managers.	Unanimously approved by all members of the Compensation Committee attending the meeting and will be submitted to the Board of Directors meeting for approval.	Not applicable	The resolution of the Compensation Committee was unanimously adopted and approved by attendant Directors other than those who have conflict interests, i.e. Chairman Wu, Director Lu, Director Yiu, Director Ni, and the representative of Director Hui Ying Investment, Ltd., Mr. Yeh, and/or their respective delegator (if any).

II. If the Board of Directors chooses not to adopt or revise recommendations proposed by the Compensation Committee, the date of the meeting, term, agenda, resolution results, and - 46- the Company's response to the comments provided by the Salary and Compensation Committee shall be described: None.

III. For the decisions made by the Compensation Committee, if there are documented records of members who veto or withhold from expressing their opinions, the date, term, agenda, all members' comments, and the measures for handling these comments shall be elaborated: None.

Notes: A total of 5 meetings were convened by the compensation committee in the most recent year. The 10th-term convened 2 meetings and the 11th-term convened 3 meetings. Attendance rate (%) is calculated based on the number of meetings convened by the compensation committee and attendance.

(V) Composition, Functional Authority, and Operations of the Nomination Committee

1. Composition

The Nomination Committee is comprised of the chairman (Mr. Miin Chyou Wu) and two independent directors (Mr. Chiang Kao and Mr. Yan-Kuin Su), all of which have a professional background in industrial technology, who are capable of performing their duties

2. Responsibilities

(1) Formulate the standards for directors and senior executives, such as specialized knowledge, skills , experience, and gender. As well as searching, reviewing, and nominating directors and senior executive candidates..

(2) Establish and develop organizational structure of the Board of Directors and various committees. Evaluate the performance of the Board of Directors, various committees, directors, senior executives, and the independence of independent directors.

(3) Establish and periodically review the continuing education plan of directors and succession plan of directors and senior executives.

(4) Other matters entrusted to the committee by resolution of the Board of Directors.

3. Implementation status

(1) The Company's decided to establish the Nomination Committee on January 22, 2019.

(2) The term of the Nomination Committee of the 11th term Board of Directors is from July 23, 2019 to June 17, 2022 in coordination with the total re-election of directors during the shareholder's meeting on June 18, 2019.

(3) The Nomination Committee convened 5 times (A) in the most recent year. The attendance of members is as follows:

Title	Name	Attendance in Person (B)	By Proxy	Attendance Rate (%) (B/A)(Note)	Remarks
Convener	Miin Chyou Wu	5	0	100%	Re-elected
Committee Member	Chiang Kao	5	0	100%	Re-elected
Committee Member	Yan-Kuin Su	5	0	100%	Re-elected
Other items that shall be recorded: 1. If the Board of Directors chooses not to adopt or revise recommendations proposed by the Nomination Committee, the date of the meeting, term, agenda, resolution results, and the Company’s response to the comments provided by the Salary and Nomination Committee shall be described: None. 2. For the decisions made by the Nomination Committee, if there are documented records of members who veto or withhold from expressing their opinions, the date, term, agenda, all members’ comments, and the measures for handling these comments shall be elaborated: None.					

Notes: In the most recent year, a total of 5 meetings were convened by the Nomination Committee, the 10th-term convened 2 meetings, and the 11th-term convened 3 meetings. Attendance rate (%) is calculated based on the number of meetings convened by the Nomination Committee and attendance.

(VI) Fulfillment of corporate social responsibility and deviations from "the Corporate Social Responsibility Best-Practice Principles for TWSE/TPEx Listed Companies" and Reasons

Evaluation Item	Implementation Status			Deviations from "the Corporate Social Responsibility Best-Practice Principles for TWSE/TPEx Listed Companies" and Reasons
	Yes	No	Abstract Explanation	
I. Does the company assess ESG risks associated with its operations based on the principle of materiality, and establish related risk management policies or strategies?	✓		The Company plans and implements its CSR strategy based on the requirement of GRI (Global Reporting Initiative) Standards, assesses materiality based on the level of concern among stakeholders and the extent of impact on the Company's operations, and ranks and responds to issues based on their materiality.	None
II. Has the company established a fully (or partially) dedicated unit to promote CSR? Does the Board of Directors authorize the senior management to handle such matters and report its implementation to the Board of Directors?	✓		The Company promotes CSR operations through the Environment, Safety and Health Center, the Administration Service Center, and the Professional Development Center. The corporate social responsibility management system is continuous improvement by both internal and external audits. The audit results are reviewed by the management to ensure continuous effectiveness of the management system. CSR related issues and management performance are reported to the Board of Directors each year.	None
III. Environmental issues (I) Has the Company established a suitable environmental management system based on the characteristics of the industry?	✓		(I) The company established and passed the ISO 14001 Environmental Management System certification in 1997. In 2007, the IECQ QC 080000 Hazardous Substance Process Management System was established and passed to promote environmental management on both the operational and product aspects.	None

Evaluation Item	Implementation Status			Deviations from "the Corporate Social Responsibility Best-Practice Principles for TWSE/TPEx Listed Companies" and Reasons
	Yes	No	Abstract Explanation	
(II) Is the Company committed to improving the efficiency of various resources and utilizing renewable materials to reduce the environmental impact?	✓		(II) The Company continues to engage in energy conservation and carbon reduction by purchasing products with green and eco-friendly labels. The Company has spared no effort in improving resource efficiency and producing green products to reduce the environmental impact of its operations and enhance corporate competitiveness.	None
(III) Does the company evaluate potential risks and opportunities brought by climate change, and take response measures to climate-related issues?	✓		(III) We have conducted evaluations of the short-term, mid-term, and long-term based on our current capabilities and commitment to the environment. Semiconductor processes continue to emit greenhouse gas and use large amounts of power. Hence, we have begun to plan and manage green electricity management and greenhouse gas reduction mechanisms in response to short-term regulatory impact. We have evaluated the possibility of installing renewable energy devices and local scrubbers in order to reduce fluorinated greenhouse gas emissions. Despite there not being any external requirements, we made the devices mandatory for new production lines in hopes of lowering the main factor that causes climate change.	None
(IV) Does the company compile statistics of greenhouse gas emissions, water use, and total weight of waste in the past two years, and does it establish policies for energy conservation & carbon reduction, greenhouse gas emission reduction, water use reduction, and other waste management?	✓		(IV) Macronix cooperates with the Environmental Protection Administration's annual inspection of GHG emissions and files reports accordingly. The Company set the policy of energy conservation and carbon reduction in its ISO 14001 Environmental Management System, and promotes water conservation, waste reduction, and waste recycling and reuse based on the Macronix EHS policy and CSR	None

Evaluation Item	Implementation Status			Deviations from "the Corporate Social Responsibility Best-Practice Principles for TWSE/TPEx Listed Companies" and Reasons
	Yes	No	Abstract Explanation	
			management approach. Macronix sets annual goals for water consumption and waste generation, and conducts quarterly reviews to verify that operations are on track to achieving the goals: The water consumption data and water balance chart submitted to the Science Park Bureau each month are used to regularly track and manage the usage data of water resources, and conduct risk assessment and management. Our internal units also monitor the process water recycling rate on a daily basis through wastewater recycling technology and the SCADA system. We set up a rainwater harvesting tank at our head office and store rainwater in the water tower. The water is then used to water plants and flush toilets. We are continuing to actively develop a water resource recycling strategy to achieve the water conservation and increase the efficiency of water use. As for waste reduction, we compile statistics of waste storage, generation, and clearance on a monthly basis to determine the generation of waste in our plants. We reduce waste by cutting down the consumption of materials through the joint efforts of engineering departments based on a feasible reduction plan. As for improving waste recycling and reuse, prior to waste disposal, we verify if the way contractors process the waste is appropriate, giving priority to reuse. We also audit waste treatment contractors on an annual basis with an emphasis on if waste is properly cleared in the treatment process. We set the goal in 2019 to maintain waste recycling and reuse rate ≧ 88%.	

Evaluation Item	Implementation Status			Deviations from "the Corporate Social Responsibility Best-Practice Principles for TWSE/TPEx Listed Companies" and Reasons
	Yes	No	Abstract Explanation	
			We hope to reduce the environmental load caused by production through vendor selection, auditing, and self-management measures.	
IV. Social issues (I) Has the Company formulated management policies and procedures in accordance with relevant laws and regulations as well as the International Bill of Human Rights?	✓		(I) The Company's management rules are superior to the Labor Standards Act. Similarly, the international social responsibility standard SA 8000 and RBA Code of Conducts are the Company's basic requirements. The Company's corporate social responsibility policy, HR compilation and procedures not only satisfy the legal requirements but also take employee rights and interests into consideration. Regular reviews are conducted to achieve continuous improvement.	None
(II) Does the company have reasonable employee benefit measures (including salaries, leave, and other benefits), and do business performance or results reflect on employee salaries?	✓		(II) The Company has established and implemented reasonable employee benefit measures; please refer to V. Labor/Management Relations on page 94 of this Annual Report. The Company's performance is reflected by the employees' and directors' salaries; please refer to (VIII) Remuneration of employees, Directors and Supervisors on page 79 of this Annual Report.	None
(III) Has the Company provided employees with a safe and healthy working environment, and routinely implemented safety and health education for employees?	✓		(III) The Company has established a safety and healthy work environment that is better than other company in the same sector based on the ideal of providing a warm and happy environment for employee's growth. The Company provides comprehensive training for the employees, which has	None

Evaluation Item	Implementation Status			Deviations from “the Corporate Social Responsibility Best-Practice Principles for TWSE/TPEx Listed Companies” and Reasons
	Yes	No	Abstract Explanation	
			received recognition from the competent authority, including the National Work Safety Award from the Executive Yuan, Contribution to Work Opportunity Creation from the Ministry of Economic Affairs, and the Excellent Employee Assistance Program Award from the Ministry of Labor.	
(IV) Has the Company established an effective career developmental plan for its employees?	✓		(IV) The individual development plan of Macronix employees is closed connected to the performance management system. The Company conducts a performance review once every year to examine individual and organizational performance. Employees can have face face-to-face discussions with their supervisor to develop their personalized development plan based on their performance and the needs for career development, in order to gradually develop various professional knowledge and skills.	None
(V) Does the company comply with relevant regulations and international standards in customer health and safety, customer privacy, and marketing and labeling its goods and services, and has it established consumer rights protection policies and complaint procedures?	✓		(V) The Company's products have green product labeling and are lead-free and halogen-free. The products meet the requirements of the European Union's RoHS directive and SVHC (Substances of Very High Concern). We comply with NDAs with customers and the Personal Data Protection Act to maintain customer privacy, and we also established a personal data protection policy, which employees are required to comply with when performing work that may not be disclosed. Labeling on our products comply withthe Commodity Labeling Act, this involves clearly labeling all necessary information, such as product datasheets, outer box and all	None

Evaluation Item	Implementation Status			Deviations from “the Corporate Social Responsibility Best-Practice Principles for TWSE/TPEx Listed Companies” and Reasons
	Yes	No	Abstract Explanation	
(VI) Does the company have a supplier management policy, require suppliers to comply with regulations on environmental protection, occupational safety and health, and labor rights, and what is its implementation status?	✓		necessary labels with product specifications and manufacturing information. The Company established a dedicated unit for customer complaint handling procedures, and management process to properly handle customer complaints. (VI) We proposed due diligence for suppliers in our CSR policy for supplier management. We make suppliers aware of the importance of CSR during annual supplier meetings, and require suppliers to jointly achieve RBA Code of Conducts requirements together with us. We also transformed our expectations for suppliers into actual management requirements on the Code of Conducts Compliance Certificate, which suppliers must sign and submit to us. Responsible units conduct on-site audits or documentary audits of suppliers each year based on their risk, so as to verify whether or not suppliers met our requirements.	Nine
V. Does the company reference internationally accepted reporting standards or guidelines, and prepare reports that disclose non-financial information of the company, such as corporate social responsibility reports? Have the reports above obtained assurance from a third party verification unit?	✓		Macronix began structuring its CSR Report in accordance with the GRI Standards in 2014, and obtained a third party assurance report that there are no deviations in the CSR Report.	None
VI. If the Company has established corporate social responsibility principles based on "Corporate Social Responsibility Best Practice Principles for TWSE/TPEx Listed Companies", please describe any discrepancy between the principles and their implementation: There was no substantial difference.				
VII. Other important information helpful in understanding CSR operations: Relevant information is detailed in the Corporate Social Responsibility Report of the Company, the Company website, and the Macronix Education Foundation website (http://www.macronix.com).				

CSR Milestones for Macronix

Year	Milestones
2000	• Founded the first "Golden Silicon Award – Semiconductor Design and Application Contest"
2001	• Established the Macronix Education Foundation
2002	• Held The first "Macronix Science Award"
2004	• Awarded as an Excellent Energy Conservation Enterprise by the Bureau of Energy, Ministry of Economic Affairs • Became the first company in the science park to complete the greenhouse inventory and verification • Established the "Macronix Science Award Winners' Club"
2005	• Passed the BSI ISO 14001: 2004 Environmental Management System Certification • Won the 14th Enterprise Environmental Protection Award for four consecutive years
2006	• Achieved RoHS compliance and awarded green product certificates from internationally-renowned companies such as SONY, CANON, and LG
2007	• Obtained verification from the IECQ QC080000 Hazardous Substance Process Management System • Awarded as the "Excellent Enterprise for Voluntary Greenhouse Gas Reduction" by the Industrial Development Bureau, Ministry of Economic Affairs • Certified by the British Standards Institute (BSI)and obtained the "ISO 14064 Greenhouse Gas Inventory and Reduction Certificate" • Obtained the CG6002 Corporate Governance System Assessment Certification from the Corporate Governance Association of the Republic of China
2008	• Became the first semiconductor company in the science park certified by the "SA 8000 Enterprise Social Responsibility Management System" • Donated NT$300 million to Tsinghua University for the new learning resource center, Macronix Hall • The Group donated RMB5 million for the Sichuan Earthquake. • Promoted the "Code of Conduct for Electronic Industry" for the upstream and downstream supply chain partners • Passed the new SGS OHSAS 18001: 2007 certification • Passed the TOSHMS (Taiwan Occupational Safety and Health Management System) certification • Awarded the Green Procurement Award by the Environmental Protection Administration
2009	• Won the 3rd National Work Safety Award • Became a semiconductor company that obtained a quality enterprise certificate • Donated NT$100 million to relieve the damage caused by Typhoon Morakot to Taiwan • Won the "Role Model Award" from 5th Global Views Monthly's CSR Awards
2010	• Won the first prize "Five-Star Award" at the 6th Global Views Monthly's CSR Awards • Won the "Corporate Citizen Award" from the Common Wealth Magazine in 2010 • Increased the donation to the Macronix Hall, Tsinghua University by NT$ 100 million • Awarded the "Contribution to Work Opportunity Creation Award" by the Executive Yuan
2011	• Donated NT$30 million for the aftermath of the 2011 Tohoku earthquake and tsunami • Awarded the "Contribution to Work Opportunity Creation Award" by the Executive Yuan • Received the "Top 100 Brand in Taiwan" award from the Ministry of Economic Affairs • Won the Corporate Citizen Award from the Common Wealth Magazine again • Won the 2011 National Invention Award • Awarded the Corporate Governance System Assessment Certificate by CG 6006 • Awarded as the enterprise for offering an excellent "Employee Assistance Program" by the Council of Labor and Welfare, Executive Yuan

Year	Milestones
2012	• Won the 8th "Corporate Social Responsibility Award" from Global Views Monthly • Won the Corporate Citizen Award from the Common Wealth Magazine again
2013	• Macronix Hall, the new learning resource center of Tsinghua University, was officially put to use. • The Macronix Education Foundation was given the Award of Excellence by the Ministry of Education among education foundations.
2014	• Hong-chi Wang, the Deputy Head, was chosen as an "Excellent Internal Auditor" by the Internal Audit Committee of the Republic of China. • Won the "Balanced Lifestyle" and "Healthy Happy Life" awards from the first work-life balance competition held by the Ministry of Labor
2015	• Received the "Excellent Healthy Workplace" from the Health Promotion Administration, Ministry of Health and Welfare • Ranked in the top 5% in the first corporate governance evaluation of Taiwan Stock Exchange
2016	• The Water Conservation Plant V was awarded the 2016 Water Conservation Excellence Award by the National Water Conservation Agency, the Ministry of Economic Affairs.
2017	• Mr. Miin Chyou Wu, Chairman & CEO of Macronix was awarded of social Education Contribution Award from the Ministry of Education.
2018	• Mr. Miin Chyou Wu, Chairman & CEO of Macronix was awarded of ‘’Country Winner’’ and ’’ Business Paradigm Entrepreneur "of EY’s Entrepreneur of the Year.
2019	• Company receives CSR Annual Sustainable Elite Award

(VII) Ethical corporate management, and departure from the Ethical Corporate Management Best Practice Principles for TWSE/TPEx Listed Companies, and reasons thereof

Evaluation Item	Implementation Status			Deviations from "Ethical Corporate Management Best Practice Principles for TWSE/TPEx Listed Companies" and Reasons
	Yes	No	Abstract Illustration	
I. Establishment of ethical corporate policies and programs				
(I) Does the Company establish a board-approved ethical corporate management policy and state in its regulations or external correspondence the policies and practices of the ethical corporate management policy? Are the board of directors and the managerial officers committed to fulfilling this commitment?	✓		(I) The Ethical Corporate Management Best Practice Principles and the Code of Conduct and Ethics of the Company are approved by the board of directors and published on the Company website and internal electronic bulletin board, and they require our employees and the employees of subsidiaries included in our consolidated financial statements to exhibit honest and ethical conduct when performing their duties.	None
(II) Does the Company establish mechanisms to assess the risks of unethical conduct and perform regular analysis and assessment of operating activities with higher risks of unethical conduct? Does the Company implement programs to prevent unethical conduct based on the above and ensure the programs cover at least precautionary measures described in Article 7, Paragraph 2 of the Ethical Corporate Management Best Practice Principles for TWSE/TPEx Listed Companies?	✓		(II) Macronix developed ethical and social responsibility risk assessments for each department, which are carried out on a regular basis and cover all departments of the Company. The Company has established the " Ethical Corporate Management Principles " and " Code of Business Conduct and Ethics " which prohibit giving and taking bribes, receiving unreasonable gifts, benefits, and other improper benefits (avoiding conflicts of interest); intellectual property rights, confidential information, and personal data infringement; and unfair competition and discrimination. The above regulations apply to all Macronix staff. The promotion is further strengthened for departments with a higher risk of integrity violation. The effectiveness is regularly	None

Evaluation Item	Implementation Status			Deviations from "Ethical Corporate Management Best Practice Principles for TWSE/TPEx Listed Companies" and Reasons
	Yes	No	Abstract Illustration	
(III) Does the Company establish procedures, guidelines of conduct, punishment for violation, and reporting system clearly stated in the mechanisms to prevent unethical conduct? Does the Company enforce the programs effectively and perform regular reviews of the preceding?	✓		evaluated. Suppliers must sign the "Code of Conducts Compliance Certificate" which stipulates that suppliers shall not conduct any inappropriate commercial behavior such as bribery. Should any incidents occur, the Company can terminate the contract or transactions with the supplier as well as request compensation for any damages. (III) The Company has established the "Ethical Corporate Management Principles" and "Code of Business Conduct and Ethics". In addition to promoting these principles to the Directors and managers, the Company has also included relevant educational training and testing for employees as well as taking the employees' implementation status into consideration in the annual performance evaluation. The task force established under the Company's Committee for the Promotion of Ethical Corporate Management Best Practice Principles host regular meetings to establish and enhance relevant measures as well as follow-up procedures of the Ethical Corporate Management based on related laws and regulations, Macronix's Ethical Corporate Management Best Practice Principles, resolutions of the board of directors and functional committees, and procedures of the Committee for the Promotion of Ethical Corporate Management Best Practice Principles.	None

Evaluation Item	Implementation Status			Deviations from “Ethical Corporate Management Best Practice Principles for TWSE/ TPEx Listed Companies” and Reasons
	Yes	No	Abstract Illustration	
II、Fulfill operations integrity policy (I) Does the company evaluate business partners’ ethical records and include ethics-related clauses in business contracts?	✓		(I) Before engaging in business, the company conducts a credit investigation on the potential partner's records to avoid doing business with those who have records of illegal or unethical behavior. The Company has drafted the "Code of Conducts Compliance Certificate" to regulate supplier behavior. Should a supplier engage in improper business conduct such as bribery, the Company may terminate the contract or transaction at any time as well as request damages.	None
(II) Does the Company have a unit under the board of directors to promote ethical corporate management on a full-time basis, report ethical corporate management, and regularly report on the programs for the prevention of unethical conduct (at least once a year) to the board of directors, and oversee the operations thereof?	✓		(II) In addition to establishing functional committees under the board of directors, the Company also established the Committee for the Promotion of Ethical Corporate Management under the management executives that consists of the president as the chairperson and level-1 managers of all departments as committee members. The committee aims to establish an ethical corporate management policy that will be submitted for discussion during the meeting of the board of directors and report the implementation status of the policy to the board at least once a year. Macronix’s Committee for the Promotion of Ethical Corporate Management shall hold a meeting at least once a year. The task forces established under the committee should host regular meetings to establish and enhance relevant measures as well as follow-up procedure of the	None

Evaluation Item	Implementation Status			Deviations from "Ethical Corporate Management Best Practice Principles for TWSE/TPEx Listed Companies" and Reasons
	Yes	No	Abstract Illustration	
			Ethical Corporate Management based on related laws and regulations, Macronix's Ethical Corporate Management Best Practice Principles, resolutions of the board of directors and functional committees, and procedures of the Committee for the Promotion of Ethical Corporate Management Best Practice Principles.	
(III) Does the company establish policies to prevent conflicts of interest and provide appropriate communication channels, and implement it?	✓		(III) The Company has established the "Ethical Corporate Management Principles" and "Code of Business Conduct and Ethics" to prevent conflicts of interests. The Audit Committee has been set up to assist the Board in overseeing the Company's implementation status. Directors shall be excused from voting or discussions during the Board meeting when their interests as individuals or representatives of institutions are in potential conflicts.	None
(IV) Does the Company have an effective accounting system and internal control system set up to facilitate ethical corporate management? Does the internal audit unit follow the results of unethical conduct risk assessments and devise audit plans to audit compliance to the prevention of unethical conduct? Or are the audits commissioned to a CPA?	✓		(IV) The Company's accounting and internal control systems are approved by the Audit Committee and the Board. The internal auditing unit is responsible for auditing the actual operations as well as preparing the draft and report of the audit results for the Audit Committee. The goal is to effectively prevent malpractices and oversee the implementation of the Company's policies and ensure the effectiveness of the internal control system.	None
(V) Does the company provide educational training on corporate social responsibility on a regular basis?	✓		(V) The Company has established the "Ethical Corporate Management Principles " and " Code of	None

Evaluation Item	Implementation Status			Deviations from "Ethical Corporate Management Best Practice Principles for TWSE/ TPEx Listed Companies" and Reasons
	Yes	No	Abstract Illustration	
			Business Conduct and Ethics " which are published on the Company's website and the internal e-bulletin system. The employees' implementation status is taken into consideration in the annual performance evaluation. To implement ethical corporate management and ethical behavior, the Company arranges courses for directors and online courses for employees every year and organizes educational courses on business secrets, domestic and international data privacy regulations, information security management, and the prevention of insider trading for the purpose of raising the awareness of corporate ethics and compliance. In 2019, there were a total of 18,573 participants, and the number of training hours amounted to 11,603. Suppliers were also invited to the courses to ensure that they understand the regulations of Macronix's ethical corporate management. In 2019, there were a total of 98 supplier participations, and the number of training hours received amounted to 392.	
III、Operation of the integrity channel (I) Does the company establish both a reward/punishment system and an integrity hotline? Can the accused be reached by an appropriate person for a follow-up?	✓		(I) The Company has set up a "No Topic is Off Limits" suggestion box and a hotline.. The staff can report any fraud they discover to prevent damages to the Company's image caused by dishonest behavior. The Company also enhanced internal and external reporting channels, and set up an audit office	None

Evaluation Item	Implementation Status			Deviations from "Ethical Corporate Management Best Practice Principles for TWSE/ TPEx Listed Companies" and Reasons
	Yes	No	Abstract Illustration	
			hotline (03-5786688 ext. 78119). In addition, the Company established a process for reporting breaches of ethical corporate management. Once a case is reported and accepted for processing, a task force is established based on the nature and type of the case the case is sent to the relevant units for investigation.. The board of directors will also be informed.	
(II) Does the Company establish standard operating procedures for investigating reported cases, the follow-up measures after investigations, and relevant confidentiality mechanisms?	✓		(II) All cases reported through the "No Topic is Off Limits" suggestion box, the reporting hotline, and the audit office hotline will be given file numbers, documented, investigated, handled, and stored as required by the law. Once a case is reported and accepted for processing, a task force isestablished based on the nature and type of the case, the case is sent to relevant units for investigation. The board of directors will also be informed. Macronix takes measures to maintain the confidentiality of previous cases to guarantee the legal rights of members.	None
(III) Does the company provide proper whistleblower protection?	✓		(III) The management regulations of the "No Topic is Off Limits" suggestion box and the reporting hotline specify that the Company will strictly fulfill its responsibility to maintain the confidentiality of whistleblowers and prohibit retaliation against reports made with good intentions. The Company will impose an appropriate penalty for any violations thereof.	None

Evaluation Item	Implementation Status			Deviations from "Ethical Corporate Management Best Practice Principles for TWSE/ TPEx Listed Companies" and Reasons
	Yes	No	Abstract Illustration	
			Macronix takes measures to maintain the confidentiality of cases reported through the audit office hotline to guarantee the legal rights of members.	
IV. Strengthening information disclosure (I) Does the company disclose its ethical corporate management policies and the results of its implementation on the company's website and MOPS?	✓		The Company has disclosed the content and relevant effectiveness of the Company's "Code of Business Conduct and Ethics " on the Company's website and MOPS. The content of the "Ethical Corporate Management Principles " is disclosed on the Company's website. There was no violation of the "the Ethical Corporate Management Best Practice Principles" in the year 2019.	None
V、If the company has established the ethical corporate management policies based on the Ethical Corporate Management Best-Practice Principles for TWSE/GTSM Listed Companies, please describe any discrepancy between the policies and their implementation: There was no substantial difference.				
VI、Other important information to facilitate a better understanding of the company's ethical corporate management policies (e.g., review and amend its policies) The Company believes that a corporate culture of integrity is a key factor for the sustainable and sound development of the Company. Therefore, the Company has actively complied with the Responsible Business Alliance (RBA) code of conduct. A supplier conference is held annually to announce and promote important policies and messages of the Company. The Company also conducts regular training courses for its suppliers to ensure their quality. In the future, the Company will continue to pay attention to the development of domestic regulations related to integrity and review relevant Company regulations accordingly in order to enhance the effectiveness of the Company's corporate governance.				

(VIII) The Method for Inquiry if the Company has Established Corporate Governance Principles and Relevant Regulations

The Company has set up the "Corporate Governance" section for investors to inquire about the Company's corporate governance information or regulations.

(IX) Other Important Information for Better Understanding of Implementation of Corporate Governance

1. Implementation of risk management policies and risk assessment standards:
   To protect the Company's assets, the health of all employees and the interests of Stakeholder , the Company has implemented risk management in accordance with the "Risk Management Policy" and "Corporate Social Responsibility Policy", as well as taking out insurance to avoid risks. To ensure the quality of the Company's internal control system, the internal audit regularly and irregularly reviews the implementation status and reports to the Audit Committee and the Board of Directors.
2. Handling of Company's Internal Material Information
   The Company has established the "Code of Business Conduct and Ethics" and "Preventing Insider Trading" and announced that the content on the company website for all directors, managers, and employees to avoid violation.
   Material information disclosure shall be conducted in compliance with the provisions of Regulations Governing the Scope of Material Information and the Means of its Public Disclosure Under Article 157-1, Paragraphs 5 and 6 of the Securities and Exchange Act as well as Taiwan Stock Exchange Corporation Procedures for Verification and Disclosure of Listed Exchange Traded Notes by Securities Firms .The Company has three principles for public disclosure: (1) accurate, complete and timely, (2) information disclosure shall have a solid base, and (3) fair disclosure to ensure that the interests of the Company and all stakeholders are protected.
3. Directors' training records
   The Directors' training records for the most recent year are set out in the table below. For further information, please refer to the Market Observation Post System (MOPS).

Title	Name	Date	Organizer	Course Name	Hours
Chairman	Miin Chyou Wu	2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3

Title	Name	Date	Organizer	Course Name	Hours
Director Representative of the Corporation	Ching-Yun Li	2019/09/24	Taiwan Corporate Governance Association	Legal Matters the Board of Directors Must Understand when Supervising Companies Be Careful Not to Cross the Line of Concerted Action	3
		2019/10/01	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3
		2019/10/31	Taiwan Corporate Governance Association	The effect of economic substance law and global anti-tax evasion on corporate governance from the perspective of directors and supervisors	3
Director	Chih-Yuan Lu	2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/05/02	Taiwan Corporate Governance Association	Reconstructing information security from the perspective of digital forensics	3
		2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3
		2019/10/31	Taiwan Corporate Governance Association	The effect of economic substance law and global anti-tax evasion on corporate governance from the perspective of directors and supervisors	3
Director	Cheng-Yi Fang	2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/06/20	Taiwan Securities Association	Equity Transfer and Tax Planning Practices for Directors, Supervisors, and Supervisors	3
		2019/09/11	Taiwan Securities Association	Introduction to the Money Laundering Control Act and Cases	3
		2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3
Director Representative of the Corporation	Shigeki Matsuoka	2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3
Director	Chung-Laung Liu	2019/08/02	Taiwan Corporate Governance Association	Digital Transformation and Cloud Computing: Benefit and Risk	3
		2019/09/03	Securities and Futures Institute	Principles for Directors and Supervisors in Performing Duties and Business Judgment	3
		2019/09/03	Securities and Futures Institute	International and Domestic Anti-tax Evasion Developments and Response of Companies	3

Title	Name	Date	Organizer	Course Name	Hours
Director Representative of the Corporation	Guei-Min Lee	2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/07/05	Taiwan Corporate Governance Association	Major Corporate Corruption Trends and Prevention	3
		2019/07/12	Taiwan Corporate Governance Association	How to Read Financial Statements – A Course for Directors and Supervisors without a Financial Background	3
		2019/10/18	Taiwan Corporate Governance Association	Nomination Committee Succession Planning	3
		2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3
		2019/11/12	Taiwan Corporate Governance Association	Effect of the Latest International Tax Law Changes on Corporate Operations and Response	3
Director	Che-Ho Wei	2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3
Director	Dang-Hsing Yiu	2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3
Director	Ful-Long Ni	2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3
Director Representative of the Corporation	Pei-Fu Yeh	2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/08/05	Securities and Futures Institute	AML/CFT Practices	3
		2019/08/21	Taiwan Corporate Governance Association	Practices of Audit Committee Operations	3
		2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3
		2019/11/11 to 2019/11/12	Accounting Research and Development Foundation	Continuing Education Course for Chief Accounting Officers of Issuers, Securities Firms, and Securities Exchanges	12
Independent Director	Tyzz-Jiun Duh	2019/04/19	Taiwan Corporate Governance Association	FinTech and Financial Regulatory Technology Practices and Case Study	3

Title	Name	Date	Organizer	Course Name	Hours
		2019/07/15	Securities and Futures Institute	Impact of US-China Trade Conflicts on Taiwanese Businesses and Response	3
		2019/08/16	Taiwan Corporate Governance Association	Analysis of Disputes Between Directors Over Untrue Financial Statements	3
		2019/09/24	Taiwan Corporate Governance Association	Introduction to Due Diligence and Commercial Contracts for Mergers and Acquisitions	3
		2019/10/08	Securities and Futures Institute	Response measures of companies and individuals to the implementation of economic substance law and global anti-tax evasion	3
		2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3
Independent Director	Chiang Kao	2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3
Independent Director	Yan-Kuin Su	2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3
Independent Director	John C.F. Chen	2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3

4. Education of corporate governance supervisor within the first year after being appointed is shown in the table below:

Date	Organizer	Course Name	Hours
2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
2019/08/05	Securities and Futures Institute	AML/CFT Practices	3
2019/08/21	Taiwan Corporate Governance Association	Practices of Audit Committee Operations	3
2019/10/21	Taiwan Corporate Governance Association	Trends and challenges of information security governance	3
2019/11/11	Accounting Research and Development Foundation	Continuing Education Course for Chief Accounting Officers of Issuers, Securities Firms, and Securities Exchanges – Practices in Response to the Employee Reward System in the Latest Amendment to the Company Act	3
2020/03/10	Taiwan Corporate Governance Association	Response Strategy for Company Changes	3
Total Hours of Education within the First Year of Appointment			18

5. Manager Training Records

Miin Chyou Wu, Chih-Yuan Lu, Dang-Hsing Yiu, Ful-Long Ni, and Pei-Fu Yeh are also managers of the Company. Please refer to the table above for the training records. Corporate governance training records for other managers and the audit supervisors of the Company in the most recent year are as follows:

Title	Name	Date	Organizer	Course Name	Hours
Vice President	Yen-Hai Chao	2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/05/02	Taiwan Corporate Governance Association	Reconstructing information security from the perspective of digital forensics	3
		2019/10/21	Deloitte Taiwan	Trends and challenges of information security governance	3
		2019/10/31	Taiwan Corporate Governance Association	The effect of economic substance law and global anti-tax evasion on corporate governance from the perspective of directors and supervisors	3
Deputy Director of the Auditing Office	Hong-Chi Wang	2019/04/23	Taiwan Corporate Governance Association	Responsibilities of directors and risk management under the latest corporate governance blueprint	3
		2019/08/14	The Institute of Internal Auditors, R.O.C.	Analysis of the latest corporate governance in Taiwan and the implementation control environment	6
		2019/10/21	Deloitte Taiwan	Trends and challenges of information security governance	3
		2019/10/24	The Institute of Internal Auditors, R.O.C.	Strengthening functions of the three lines of defense and analysis of Board of Directors operating mechanisms (including reporting mechanisms)	6

6. Implementation of Board Diversity Policy

Name	Gender	Nationality	Age			Professional Background				
			51 – 60 years old	61 – 70 years old	Over 71 years old	Industrial Technology	Law	Financial Accounting	Marketing	public relations
Miin Chyou Wu	Male	R.O.C			✓	✓			✓	
Chien Hsu Investment Corporation Representative: Ching-Yun Li	Female	R.O.C			✓					✓
Chih-Yuan Lu	Male	R.O.C		✓		✓				
Shun Yin Investment Ltd. Representative: Shigeki Matsuoka	Male	Japan		✓		✓				
Cheng-Yi Fang	Male	R.O.C			✓	✓			✓	
Chung-Laung Liu	Male	R.O.C			✓	✓				
Achi Capital Limited Representative: Guei-Min Lee	Female	R.O.C	✓			✓	✓			
Che-Ho Wei	Male	R.O.C			✓	✓				
Dang-Hsing Yiu	Male	R.O.C		✓		✓				
Ful-Long Ni	Male	R.O.C		✓		✓				
Hui Ying Investment Ltd. Representative: Pei-Fu Yeh	Male	R.O.C		✓		✓		✓		
Tyzz-Jiun Duh	Male	R.O.C	✓			✓				
Chiang Kao	Male	R.O.C		✓		✓				
Yan-Kuin Su	Male	R.O.C			✓	✓				
John C.F. Chen	Male	R.O.C			✓	✓		✓		

(X) Implementation of Internal Control System

1. Internal Control System Statement

Macronix International Co., Ltd.
Statement on Internal Control System

Date: 17 February 2020

The Company states the following with regard to its internal control system during the period from 1 January 2019 to 31 December 2019, based on the findings of a self-assessment:

1. The Company is fully aware that establishing, operating, and maintaining an internal control system are the responsibility of its Board of Directors and management. The Company has established such a system aimed at providing reasonable assurance of the achievement of objectives in the effectiveness and efficiency of operations (including profits, performance, and safeguard of asset security), reliability, timeliness, transparency and regulatory compliance of reporting, and compliance with applicable laws, regulation and bylaws.
2. An internal control system has inherent limitations. No matter how perfectly designed, an effective internal control system can provide only reasonable assurance of accomplishing the three goals mentioned above. Furthermore, the effectiveness of an internal control system may change along with changes in environment or circumstances. The internal control system of the Company contains self-monitoring mechanisms, however, and the Company takes corrective actions as soon as a deficiency is identified.
3. The Company judges the design and operating effectiveness of its internal control system based on the criteria provided in the Regulations Governing the Establishment of Internal Control Systems by Public Companies (herein below, the "Regulations"). The internal control system judgment criteria adopted by the Regulations divide internal control into five elements based on the process of management control: (1). control environment (2). risk assessment (3). control activities (4). information and communications (5). monitoring activities. Each element further contains several items. Please refer to the Regulations for details.
4. The Company has assessed the design and operating effectiveness of its internal control system according to the aforesaid criteria.
5. Based on the findings of the assessment mentioned in the preceding paragraph, the Company believes that as of December 31, 2019 its internal control system (including its supervision of subsidiaries), encompassing internal controls for understanding of the degree of achievement of operational effectiveness and efficiency objectives, reliability, timeliness, transparency and regulatory compliance of reporting, and compliance with applicable laws, regulation and bylaws, was effectively designed and operating, and reasonably assured the achievement of the above-stated objectives.
6. This Statement will become a major part of the content of the Company's Annual Report and Prospectus, and will be made public. Any falsehood, concealment, or other illegality in the content made public will entail legal liability under Articles 20, 32, 171, and 174 of the Securities and Exchange Law.
7. This statement has been approved by the Board of Directors Meeting of the Company held on 17 February 2020, with zero of the 15 attending directors expressing dissenting opinions, and the remainder all affirming the content of this Statement.

Macronix International Co., Ltd.
Chairman: Miin Wu
President: C.Y. Lu

2. If the company engages an accountant to examine its internal control system, disclose the CPA examination report: None.

(XI) Penalty against the company or its internal personnel, or any disciplinary penalty by the company against its internal personnel for violation of the internal control system, during the most recent fiscal year or during the current fiscal year up to the publication date of the annual report, where the result of such penalty could have a material effect on shareholder equity or securities prices, the annual report shall disclose the penalty, the main shortcomings, and condition of improvement： None.

(XII) Major Resolutions of Shareholders’ Meeting and Board Meetings during the Most Recent Fiscal Year and Up to the Printing Date of this Annual Report:

1.2019 Major Resolutions of Shareholders’ Meeting

Major resolutions	Review of implementation
1. Ratification of 2018 Business Report and Financial Statements	Resolution announced in accordance with Article 230 of the Company Act
2. Ratification of the Company’s 2018 Distribution	Cash dividends were issued on September 12, 2019
3. Approval of the amendment of the internal rules	Implemented in accordance with the resolution of the shareholders' meeting.
4. Approval of fund raising by issuance of new shares, overseas depositary receipts through cash capital increase, and/or the private placement of common shares and/or domestic or overseas convertible bonds	Was not carried out in 2019. The proposal was approved by the Board of Directors again on March 6, 2020 and submitted to the 2020 Annual Shareholders’ Meeting.
5. Approval of the issuance of new shares for employee Restricted Stock Awards	On October 8, 2019, with the approval of the Financial Supervisory Commission, the board of directors decided to be distributed in installments.
6. Election of the directors for the 11th term of the Board of Directors	The elected directors were approved and registered by the Hsinchu Science Park Bureau on July 5, 2019.
7. Approval of releasing competition restrictions of the directors	Announce the resolution according to the regulations.

2. Major resolutions adopted by the Board of Directors in the Most Recent Year up to the Publication Date

Board of Directors	Date	Major Resolutions
The sixteenth meeting of the 10th term of the board of directors	2019.01.22	1. Approval of the record date of the capital reduction for the redeemed shares of employee Restricted Stock Awards (RSA) 2. To establish the Nomination Committee and appoint its members
The seventeenth meeting of the 10th term of the board of directors	2019.03.12	1. Approval of the Company’s 2018 Distribution Plan 2. Approval of fund raising by issuance of new shares, overseas depositary receipts through cash capital increase, and/or the private placement of common shares and/or domestic or overseas convertible bonds 3. To resolve the matters for convening the 2019 Annual Shareholders Meeting (“AGM”)

Board of Directors	Date	Major Resolutions
		4. Approval of the issuance of new shares for employee Restricted Stock Awards 5. The appointment of Corporate Governance Officer 6. The Board of Directors resolved to build and donate the "Macronix innovation Building" to National Cheng Kung University
The eighteenth meeting of the 10^{th} term of the board of directors	2019.04.23	1. Approval of the record date of the capital reduction for the redeemed shares of employee Restricted Stock Awards (RSA) 2. For adding donation alternative to the "Macronix Innovation Building".
The first meeting of the 11^{th} term of the board of directors	2019.07.23	1. Approval of the record date of the capital reduction for the redeemed shares of employee Restricted Stock Awards (RSA) 2. Board of Directors appointed its Compensation Committee Members 3. Board of Directors appointed its Nomination Committee Members
The second meeting of the 11^{th} term of the board of directors	2019.10.21	1. Approval of the record date of the capital reduction for the redeemed shares of employee Restricted Stock Awards (RSA)
The third meeting of the 11^{th} term of the board of directors	2019.12.23	1. Board of Directors approved the capital expenditure budget 2. Board of Directors approved the year 2020 donation to Macronix Education Foundation
The fourth meeting of the 11^{th} term of the board of directors	2020.02.17	1. Approval of the record date of the capital reduction for the redeemed shares of employee Restricted Stock Awards (RSA)
The fifth meeting of the 11^{th} term of the board of directors	2020.03.06	1. Approval of the Company's 2019 Distribution Plan 2. Approval of fund raising by issuance of new shares, overseas depositary receipts through cash capital increase, and/or the private placement of common shares and/or domestic or overseas convertible bonds 3. Board of Directors resolved to convene the 2020 Annual Shareholders Meeting. 4. Board of Directors approved the proposal of "Terminating 6-inch Fab Operation".

(XIII) Major Issues of Record or Written Statements Made by Any Director or Supervisor Dissenting to Important Resolutions Passed by the Board of Directors： None.

(XIV) In the Most Recent Fiscal Year and Up to the Printing Date of this Annual Report, A Summary of the Resignation and Dismissal of Chairman, President, and Heads of Accounting, Finance, Internal Audit, Corporate Governance and R&D: None.

V. CPA Fees

Unit: NT$ thousands

Accounting Firm	Name of CPA	Audit Fee	Non-Audit Fee					Period Covered by CPA's Audit	Remarks
			System of Design	Company Registration	Human Resource	Others	Subtotal		
Deloitte & Touche	Ming hui Chen Ching Pin Shih	6,645	-	105	-	960	1,065	1/1/2019 ~12/31/2019	Other non-audit fees are mainly for the transfer pricing service fees and other services.

(I) When the Non-Audit Fees Paid to the CPAs, their Firm, and the Affiliated Companies Account for 25% or more of the Audit Fees, the Sum of the Audit and Non-Audit Fees and the Content of Non-Audit Service Must be Disclosed: Not applicable.

(II) Where The Accounting Firm Changed the Audit Partners and the Audit Fee Paid for the Year is Less than that of the Previous Year, the Sum, Proportion, and Cause of the Reduction Shall be Disclosed: Not applicable.

(III) Where the Audit Fee Paid for the Year is Reduced by more than 10% Compared to that of the Previous Year, the Sum, Proportion, and Cause of the Reduction Shall be Disclosed: Not applicable.

VI. CPA Information: Deloitte & Touche did not change the auditor partners for Macronix in the last two years.

VII. If Chairman, President, or Chief Financial Officer Holding Positions at the Independent Audit Firm or its Affiliated Company within the Most Recent Fiscal Year: None.

VIII. Equity Transfer and Pledge by Directors, Supervisors, Managers and/or More Than 10% Shareholders in the Most Recent Fiscal Year and Up to the Printing Date of this Annual Report

Title	Name	2019		up to March 29 2020	
		Increase (decrease) in shares held	Increase (decrease) in shares pledged	Increase (decrease) in shares held	Increase (decrease) in shares pledged
Chairman / CEO	Miin Chyou Wu	368,950	0	0	0
Director	Chien Hsu Investment Corporation(Note 1)	0	0	0	0
	Former Representative：Ding-Hua Hu	NA	NA	NA	NA
	Representative：Ching-Yun Li	0	0	0	0

Title	Name	2019		up to March 29 2020	
		Increase (decrease) in shares held	Increase (decrease) in shares pledged	Increase (decrease) in shares held	Increase (decrease) in shares pledged
Director / President	Chih-Yuan Lu	221,371	0	0	0
Director	Shun Yin Investment Ltd.	0	0	0	0
	Representative：Shigeki Matsuoka	0	0	0	0
Director	Cheng-Yi Fang	0	0	0	0
Director	Chung-Laung Liu	0	0	0	0
Director	Achi Capital Limited Representative：	0	0	0	0
	Guei-Min Lee (Note 2)	0	0	0	0
Director	Che-Ho Wei	0	0	0	0
Director / Senior Vice President & Chief Marketing Officer	Dang-Hsing Yiu	44,274	0	0	0
Director / Vice President	Ful-Long Ni	140,201	0	0	0
Director / Vice President	Hui Ying Investment Ltd. Representative：	0	0	0	0
	Pei-Fu Yeh (Note 3)	43,547	0	0	0
Independent Director	Tyzz-Jiun Duh	0	0	0	0
Independent Director	Chiang Kao	0	0	0	0
Independent Director	Yan-Kuin Su	0	0	0	0
Independent Director	John C.F. Chen	0	0	0	0
Vice President	Yen-Hie Chao	73,790	0	0	0
Vice President	Chun-Hsiung Hung	125,443	0	(56,000)	0
Vice President	Jui-Kun Chen	88,547	0	0	0
Vice President	Jon-Ten Chung	118,064	0	0	0
Associate V.P	Kuang-Chao Chen	103,306	0	0	0
Executive Director	Wen-Pin Lu	(51,694)	0	(50,000)	0
Project Executive Director	Chuan-Hsien Wen	0	0	0	0
Project Executive Director	Hui-Chi Li	5,904	0	0	0

Note :1: Mr. Ding-Hua Hu passed away on July 11, 2019, and Chien Hsu Investment Co., Ltd. appointed Ms. Ching-Yun Li on July 26, 2019, to attend the 11th Term of the Board of Directors and exercised any and all Director's rights thereof.

Note 2: Ms. Guei-Min Lee was appointed to represent it to attend the 11th Term of the Board of Directors and exercised any and all Director's rights thereof.

Note 3: Mr. Pei-Fu Yeh was appointed to represent it to attend the 11th Term of the Board of Directors and exercised any and all Director's rights thereof.

Note 4: Mr. Tyzz-Jiun Duh was elected as an 11th Term Independent Director of the Company on June 18, 2019.

Note 5: The counterparts of equity transfer or equity pledge in the table above are not related party.

IX. Relationship Among the Top Ten Shareholders

March 29 2020

Name	Current Shareholding		Spouse's/minor's Shareholding		Shareholding by Nominee Arrangement		Name and Relationship Between the Company's Top Ten Shareholders, or Spouses or Relatives Within Two Degrees		Remarks
	Shares	%	Shares	%	Shares	%	Name	Relationship	
Cathay Life Insurance Representative: Tiao-Kuei Huang	57,077,000	3.10%	None	None	None	None	None	None	
Credit Suisse Securities (Europe) Limited	38,874,254	2.11%	None	None	None	None	None	None	
New Labor Pension Fund	35,121,906	1.91%	None	None	None	None	None	None	
JPMorgan Chase Bank N.A. Taipei Branch in custody for Vanguard Total International Stock Index Fund a series of Vanguard Star Funds	30,560,546	1.66%	None	None	None	None	None	None	
JPMorgan Chase Bank N.A. Taipei Branch in custody for Schroder International Selection Fund Emerging Asia	27,645,000	1.50%	None	None	None	None	None	None	
Vanguard Emerging Markets Stock Index Fund a Series of Vanguard International Equity Index Funds	26,401,917	1.43%	None	None	None	None	None	None	
Public Service Pension Fund Management Board	25,502,000	1.39%	None	None	None	None	None	None	
Shun Yin Investment Ltd.	22,587,265	1.23%	None	None	None	None	None	None	
Representative: Shigeki Matsuoka	None	None	None	None	None	None	None	None	
Yuanta Commercial Bank is entrusted with trust property account Trustee: Syue-Rong Shen	20,300,000	1.10%	None	None	None	None	None	None	
Morgan Stanley & Co. International Plc	18,984,937	1.03%	None	None	None	None	None	None	

Notes: There was no information on the person responsible for the investment account.

X. The Total and Combined Shareholding in A Single Enterprise by the Company, its Directors, Supervisors, Managers, and the Directly or Indirectly Controlled Entities

December 31, 2019
Unit: shares/ %

Affiliated Enterprises (Note)	Ownership by the Company		Direct or Indirect Ownership by Directors/Supervisors/ Managers		Total Ownership	
	Shares	%	Shares	%	Shares	%
Macronix America, Inc.	100,000	100.00%	0	0%	100,000	100.00%
Macronix (BVI) Co., Ltd.	212,048,000	100.00%	0	0%	212,048,000	100.00%
Hui Ying Investment Ltd.	None	100.00%	None	0%	None	100.00%
Run Hong Investment Ltd.	None	100.00%	None	0%	None	100.00%
Mxtran Inc.	69,627,323	90.43%	3,614,600	4.69%	73,241,923	95.12%

Note: Invested by the Company using the equity method.

Chapter IV Capital Overview

I. Capital and Shares

(I) Source of capital

Year/ month	Issue price	Authorized capital		Paid-up capital		Comments		
		Shares (1,000 shares)	Amount (NT$1,000)	Shares (shares)	Amount (NTD)	Source of capital	Subscriptions paid with property other than cash	Other
1989.12	-	150,000	1,500,000	81,583,000	815,830,000	Established with a capital of NT$815,830,000	5,200,000 technology shares	-
1990.12	10	300,000	3,000,000	209,717,000	2,097,170,000	Cash capital increase in the amount of NT$1,281,340,000	-	Note 1
1992.06	10	300,000	3,000,000	239,717,000	2,397,170,000	Cash capital increase in the amount of NT$300,000,000	-	Note 2
1993.05	10	300,000	3,000,000	300,000,000	3,000,000,000	Cash capital increase in the amount of NT$602,830,000	-	Note 3
1995.02	28.5	500,000	5,000,000	350,000,000	3,500,000,000	Cash capital increase in the amount of NT$500,000,000	-	Note 4
1995.08	-	500,000	5,000,000	433,218,172	4,332,181,720	Capital increase out of earnings in the amount of NT$832,181,720	-	-
1995.12	40	500,000	5,000,000	500,000,000	5,000,000,000	Cash capital increase in the amount of NT$667,818,280	-	Note 5
1996.05	48	850,000	8,500,000	600,000,000	6,000,000,000	Issuance of GDRs in the amount of NT$1,000,000,000 for cash capital increase	-	Note 6
1996.08	-	1,160,000	11,600,000	941,676,940	9,416,769,400	Earnings and capital surplus in the amount of NT$3,416,769,400 transferred to capital	-	-
1997.04	-	1,160,000	11,600,000	945,824,135	9,458,241,350	Corporate bonds conversion in the amount of NT$41,471,950	-	-
1997.07	-	2,500,000	25,000,000	1,274,939,621	12,749,396,210	Earnings and capital surplus in the amount of NT$3,291,154,860 transferred to capital	-	-
1997.08	-	2,500,000	25,000,000	1,415,586,910	14,155,869,100	Corporate bonds conversion in the amount of NT$1,406,472,890	-	-
1997.12	-	2,500,000	25,000,000	1,441,815,433	14,418,154,330	Corporate bonds conversion in the amount of NT$262,285,230	-	-
1998.03	-	2,500,000	25,000,000	1,442,334,998	14,423,349,980	Corporate bonds conversion in the amount of NT$5,195,650	-	-
1998.08	-	2,500,000	25,000,000	1,785,823,693	17,858,236,930	Earnings and capital surplus in the amount of NT$3,434,886,950 transferred to capital	-	-
1999.09	-	2,500,000	25,000,000	1,964,406,063	19,644,060,630	Capital surplus in the amount of NT$1,785,823,700 transferred to capital	-	-
2000.03	30	2,500,000	25,000,000	2,099,996,063	20,999,960,630	Cash capital increase in the amount of NT$1,355,900,000	-	Note 7
2000.03	-	2,500,000	25,000,000	2,126,074,584	21,260,745,840	Convertible bonds conversion in the amount of NT$260,785,210	-	-
2000.03	-	2,500,000	25,000,000	2,127,526,851	21,275,268,510	Convertible bonds conversion in the amount of NT$14,522,670	-	-
2000.07	-	3,500,000	35,000,000	2,404,105,343	24,041,053,430	Earnings and capital surplus in the amount of NT$2,765,784,920 transferred to capital	-	-
2000.07	-	3,500,000	35,000,000	2,472,586,493	24,725,864,930	Corporate bonds conversion in the amount of NT$684,811,500	-	-
2000.12	-	3,500,000	35,000,000	2,474,409,144	24,744,091,440	Corporate bonds conversion in the amount of NT$18,226,510	-	-
2001.06	-	4,500,000	45,000,000	3,359,342,613	33,593,426,130	Earnings and capital surplus in the amount of NT$8,849,334,690 transferred to capital	-	-

Year/ month	Issue price	Authorized capital		Paid-up capital		Comments		
		Shares (1,000 shares)	Amount (NT$1,000)	Shares (shares)	Amount (NTD)	Source of capital	Subscriptions paid with property other than cash	Other
2002.08	-	5,350,000	53,500,000	3,691,276,875	36,912,768,750	Capital surplus in the amount of NT$3,319,342,620 transferred to capital	-	-
2003.04	-	5,350,000	53,500,000	3,733,149,529	37,331,495,290	Corporate bonds conversion in the amount of NT$418,726,540	-	-
2003.07	-	5,350,000	53,500,000	3,779,349,500	37,793,495,000	Corporate bonds conversion in the amount of NT$461,999,710	-	-
2003.11	-	5,350,000	53,500,000	3,927,758,305	39,277,583,050	Corporate bonds conversion in the amount of NT$1,484,088,050	-	-
2003.12	**8.11**	**6,550,000**	**65,500,000**	**4,402,758,305**	**44,027,583,050**	**Cash capital increase in the amount of NT$4,750,000,000**	**-**	**Note 8**
2004.03	-	6,550,000	65,500,000	4,430,251,943	44,302,519,430	Corporate bonds conversion in the amount of NT$274,936,380	-	-
2004.04	10.9	6,550,000	65,500,000	4,955,251,943	49,552,519,430	Issuance of GDRs in the amount of NT$5,250,000,000 for cash capital increase	-	Note 9
2004.05	-	6,550,000	65,500,000	5,003,704,439	50,037,044,390	Corporate bonds conversion in the amount of NT$484,524,960	-	
2004.09	-	6,550,000	65,500,000	5,034,928,514	50,349,285,140	Corporate bonds conversion in the amount of NT$312,240,750	-	-
2004.11	-	6,550,000	65,500,000	5,035,296,328	50,352,963,280	Corporate bonds conversion in the amount of NT$3,678,140	-	-
2005.09	-	6,550,000	65,500,000	4,995,296,328	49,952,963,280	Decrease in treasury stock in the amount of NT$400,000,000	-	-
2006.03	-	6,550,000	65,500,000	2,915,821,786	29,158,217,860	Capital reduction in the amount of NT$20,794,745,420	-	Note 10
2006.03	**8.07**	**6,550,000**	**65,500,000**	**2,915,921,786**	**29,159,217,860**	**Private placement in the amount of NT$1,000,000**	**-**	**-**
2007.02	-	6,550,000	65,500,000	2,916,157,808	29,161,578,080	Exercise of employee stock options in the amount of NT$2,360,220	-	-
2007.04	-	6,550,000	65,500,000	2,916,415,946	29,164,159,460	Exercise of employee stock options in the amount of NT$2,581,380	-	-
2007.09	-	6,550,000	65,500,000	2,917,058,354	29,170,583,540	Exercise of employee stock options in the amount of NT$6,424,080	-	-
2007.10	-	6,550,000	65,500,000	2,978,817,751	29,788,177,510	Capital increase out of earnings in the amount of NT$617,593,970	-	-
2007.11	-	6,550,000	65,500,000	3,050,653,298	30,506,532,980	Exercise of employee stock options in the amount of NT$718,355,470	-	-
2008.02	-	6,550,000	65,500,000	3,060,226,622	30,602,266,220	Exercise of employee stock options in the amount of NT$95,733,240	-	-
2008.05	-	6,550,000	65,500,000	3,062,751,980	30,627,519,800	Exercise of employee stock options in the amount of NT$25,253,580	-	-
2008.08	-	6,550,000	65,500,000	3,063,677,465	30,636,774,650	Exercise of employee stock options in the amount of NT$9,254,850	-	-
2008.09	-	6,550,000	65,500,000	3,124,019,472	31,240,194,720	Capital increase out of earnings in the amount of NT$603,420,070	-	-
2008.11	-	6,550,000	65,500,000	3,126,296,368	31,262,963,680	Exercise of employee stock options in the amount of NT$22,768,960	-	-
2009.02	-	6,550,000	65,500,000	3,126,775,749	31,267,757,490	Exercise of employee stock options in the amount of NT$4,793,810	-	-
2009.02	-	6,550,000	65,500,000	3,123,962,749	31,239,627,490	Decrease in treasury stock in the amount of NT$28,130,000	-	-

Year/ month	Issue price	Authorized capital		Paid-up capital		Comments		
		Shares (1,000 shares)	Amount (NT$1,000)	Shares (shares)	Amount (NTD)	Source of capital	Subscriptions paid with property other than cash	Other
2009.05	-	6,550,000	65,500,000	3,135,134,847	31,351,348,470	Exercise of employee stock options in the amount of NT$111,720,980	-	-
2009.08	-	6,550,000	65,500,000	3,147,538,945	31,475,389,450	Exercise of employee stock options in the amount of NT$124,040,980	-	-
2009.09	-	6,550,000	65,500,000	3,272,552,230	32,725,522,300	Capital increase out of earnings in the amount of NT$1,250,132,850	-	-
2009.11	-	6,550,000	65,500,000	3,289,772,530	32,897,725,300	Exercise of employee stock options in the amount of NT$172,203,000	-	-
2010.02	-	6,550,000	65,500,000	3,303,027,880	33,030,278,800	Exercise of employee stock options in the amount of NT$132,553,500	-	-
2010.05	-	6,550,000	65,500,000	3,330,319,836	33,303,198,360	Exercise of employee stock options in the amount of NT$272,919,560	-	-
2010.08	-	6,550,000	65,500,000	3,350,388,992	33,503,889,920	Exercise of employee stock options in the amount of NT$200,691,560	-	-
2010.11	-	6,550,000	65,500,000	3,355,417,899	33,554,178,990	Exercise of employee stock options in the amount of NT$50,289,070	-	-
2011.02	-	6,550,000	65,500,000	3,362,301,642	33,623,016,420	Exercise of employee stock options in the amount of NT$68,837,430	-	-
2011.05	-	6,550,000	65,500,000	3,378,174,280	33,781,742,800	Exercise of employee stock options in the amount of NT$158,726,380	-	-
2011.08	-	6,550,000	65,500,000	3,381,545,259	33,815,452,590	Exercise of employee stock options in the amount of NT$33,709,790	-	-
2011.11	-	6,550,000	65,500,000	3,382,456,382	33,824,563,820	Exercise of employee stock options in the amount of NT$9,111,230	-	-
2012.02	-	6,550,000	65,500,000	3,384,748,566	33,847,485,660	Exercise of employee stock options in the amount of NT$22,921,840	-	-
2012.05	-	6,550,000	65,500,000	3,392,196,696	33,921,966,960	Exercise of employee stock options in the amount of NT$74,481,300	-	-
2012.08	-	6,550,000	65,500,000	3,392,302,064	33,923,020,640	Exercise of employee stock options in the amount of NT$1,053,680	-	-
2012.08	-	6,550,000	65,500,000	3,521,142,831	35,211,428,310	Capital increase out of earnings in the amount of NT$1,288,407,670	-	-
2012.11	-	6,550,000	65,500,000	3,521,369,314	35,213,693,140	Exercise of employee stock options in the amount of NT$2,264,830	-	-
2013.02	-	6,550,000	65,500,000	3,521,462,303	35,214,623,030	Exercise of employee stock options in the amount of NT$929,890	-	-
2014.02	-	6,550,000	65,500,000	3,521,473,020	35,214,730,200	Exercise of employee stock options in the amount of NT$107,170	-	-
2015.01	-	6,550,000	65,500,000	3,558,773,970	35,587,739,700	New restricted employee shares in the amount of NT$373,009,500	-	-
2015.08	-	6,550,000	65,500,000	3,620,052,730	36,200,527,300	New restricted employee shares in the amount of NT$612,787,600	-	-
2015.08	-	6,550,000	65,500,000	3,618,598,730	36,185,987,300	Reduction of new restricted employee shares in the amount of NT$14,540,000	-	-

Year/ month	Issue price	Authorized capital		Paid-up capital		Comments		
		Shares (1,000 shares)	Amount (NT$1,000)	Shares (shares)	Amount (NTD)	Source of capital	Subscriptions paid with property other than cash	Other
2015.11	-	6,550,000	65,500,000	3,617,848,930	36,178,489,300	Reduction of new restricted employee shares in the amount of NT$7,498,000	-	-
2016.02	-	6,550,000	65,500,000	3,617,159,130	36,171,591,300	Reduction of new restricted employee shares in the amount of NT$6,898,000	-	-
2016.05	-	6,550,000	65,500,000	3,616,471,930	36,164,719,300	Reduction of new restricted employee shares in the amount of NT$6,872,000	-	-
2016.08	-	6,550,000	65,500,000	3,615,716,830	36,157,168,300	Reduction of new restricted employee shares in the amount of NT$7,551,000	-	-
2016.11	-	6,550,000	65,500,000	3,615,353,570	36,153,535,700	Reduction of new restricted employee shares in the amount of NT$3,632,600	-	-
2017.01	-	6,550,000	65,500,000	3,672,829,150	36,728,291,500	New restricted employee shares in the amount of NT$574,755,800	-	-
2017.02	-	6,550,000	65,500,000	3,672,063,730	36,720,637,300	Reduction of capital for new restricted employee shares in the amount of NT$7,654,200	-	-
2017.05	-	6,550,000	65,500,000	3,671,002,330	36,710,023,300	Reduction of capital for new restricted employee shares in the amount of NT$10,614,000	-	-
2017.07	-	6,550,000	65,500,000	1,805,895,303	18,058,953,030	Capital reduction in the amount of NT$18,651,070,270	-	Note 11
2017.09	-	6,550,000	65,500,000	1,805,028,142	18,050,281,420	Reduction of capital for new restricted employee shares in the amount of NT$8,671,610	-	-
2017.11	-	6,550,000	65,500,000	1,804,938,491	18,049,384,910	Reduction of capital for new restricted employee shares in the amount of NT$896,510	-	-
2018.02	-	6,550,000	65,500,000	1,804,775,803	18,047,758,030	Reduction of capital for new restricted employee shares in the amount of NT$1,626,880	-	-
2018.05	-	6,550,000	65,500,000	1,804,478,493	18,044,784,930	Reduction of capital for new restricted employee shares in the amount of NT$2,973,100	-	-
2018.09	-	6,550,000	65,500,000	1,840,574,009	18,405,740,090	Capital increase out of earnings in the amount of NT$360,955,160	-	-
2018.11	-	6,550,000	65,500,000	1,840,291,935	18,402,919,350	Reduction of capital for new restricted employee shares in the amount of NT$2,820,740	-	-
2019.02	-	6,550,000	65,500,000	1,840,166,993	18,401,669,930	Reduction of capital for new restricted employee shares in the amount of NT$1,249,420	-	-
2019.05	-	6,550,000	65,500,000	1,840,144,856	18,401,448,560	Reduction of capital for new restricted employee shares in the amount of NT$221,370	-	-
2019.08	-	6,550,000	65,500,000	1,840,013,422	18,400,134,220	Reduction of capital for new restricted employee shares in the amount of NT$1,314,340	-	-
2019.11	-	6,550,000	65,500,000	1,839,927,014	18,399,270,140	Reduction of capital for new restricted employee shares in the amount of NT$864,080	-	-
2020.03	-	6,550,000	65,500,000	1,839,908,862	18,399,088,620	Reduction of capital for new restricted employee shares in the amount of NT$181,520	-	-

Note 1: Letter Tai-Cai-Zheng (1)-Zi No. 03305 dated December 7, 1990
Note 2: Letter Tai-Cai-Zheng (1)-Zi No. 03489 dated December 24, 1991
Note 3: Letter Tai-Cai-Zheng(1)-Zi No. 00335 dated February 15, 1993
Note 4: Letter Tai-Cai-Zheng(1)-Zi No. 43729 dated November 5, 1994
Note 5: Letter Tai-Cai-Zheng(1)-Zi No. 49345 dated September 25, 1995
Note 6: Letter Tai-Cai-Zheng(1)-Zi No. 18164 dated March 26, 1996

Note 7: Letter Tai-Cai-Zheng(1)-Zi No. 95699 dated November, 1999
Note 8: Letter Tai-Cai-Zheng-1-Zi No. 0920139445 dated October 15, 2003
Note 9: Letter Tai-Cai-Zheng-1-Zi No. 0920161647 dated January 30, 2004
Note 10: Letter Jin-Guan-Zheng-1-Zi No. 0940156791 dated February 3, 2006
Note 11: Letter Jin-Guan-Zheng-Fa-Zi No. 1060022715 dated June 26, 2017

March 29, 2020
Unit: shares

Type of stock	Authorized capital			Remarks
	Shares issued and outstanding (Note 1)	Un-issued shares	Total	
Common stocks	1,839,908,862	4,710,091,138	6,550,000,000	Note 2

Note 1: 1,839,853,211 shares are public shares; 55,651 shares are private placement shares.
Note 2: Retained 650,000,000 shares of authorized capital for employee stock option certificates, and authorized the Board of Directors to issue the certificates in batches as needed. Retained 864,703,672 for conversion to corporate bonds, which may be adjusted by resolution of the Board of Directors in view of the market situation and business needs.

(II) Composition of Shareholders

March 29, 2020

Type of Shareholders	Government Agencies	Financial Institutions	Other legal Persons	Domestic Natural Persons	Foreign Institutions and Natural Persons	Total
Number of Shareholders	15	72	410	310,678	658	311,833
Shareholding	74,258,391	90,753,169	97,208,255	1,208,593,390	369,095,657	1,839,908,862
Shareholding percentage (%)	4.04%	4.93%	5.28%	65.69%	20.06%	100.00%

(III) Distribution profile of Share Ownership

March 29, 2020

Class of Shareholding (Unit: Share)	Number of Shareholders	Shareholding	Shareholding percentage (%)
1 ~ 999	156,061	36,765,495	2.00%
1,000 ~ 5,000	113,236	241,767,979	13.14%
5,001 ~ 10,000	21,990	160,493,694	8.72%
10,001 ~ 15,000	7,307	87,711,951	4.77%
15,001 ~ 20,000	4,005	72,142,178	3.92%
20,001 ~ 30,000	3,539	87,372,794	4.75%
30,001 ~ 50,000	2,602	101,317,105	5.51%
50,001 ~ 100,000	1,807	127,891,533	6.95%
100,001 ~ 200,000	691	95,953,629	5.22%
200,001 ~ 400,000	314	88,149,164	4.79%
400,001 ~ 600,000	89	44,116,104	2.40%
600,001 ~ 800,000	43	29,509,350	1.60%
800,001 ~ 1,000,000	24	21,609,679	1.17%
1,000,001 or over	125	645,108,207	35.06%
Total	311,833	1,839,908,862	100.00%

(IV) Major Shareholders

March 29, 2020

Name of Shareholders	Shareholding	Shareholding percentage (%)
Cathay Life InsuranceCredit	57,077,000	3.10%
Suisse Securities (Europe) Limited	38,874,254	2.11%
New Labor Pension Fund	35,121,906	1.91%
JPMorgan Chase Bank N.A. Taipei Branch in custody for Vanguard Total International Stock Index Fund a series of Vanguard Star Funds	30,560,546	1.66%
JPMorgan Chase Bank N.A. Taipei Branch in custody for Schroder International Selection Fund Emerging Asia	27,645,000	1.50%
Vanguard Emerging Markets Stock Index Fund a Series of Vanguard International Equity Index Funds	26,401,917	1.43%
Public Service Pension Fund Management Board	25,502,000	1.39%
Shun Yin Investment Ltd.	22,587,265	1.23%
Yuanta Commercial Bank is entrusted with trust property	20,300,000	1.10%
accountMorgan Stanley & Co. International Plc	18,984,937	1.03%

(V) Market Price, Net Worth, Earnings, and Dividends Per Share

Unit: NT$

<table>
<tr><th colspan="3">Year
Item</th><th>2018</th><th>2019</th><th>2020 up to March 29</th></tr>
<tr><td rowspan="3">Market Price per Share (Note 1)</td><td colspan="2">Highest Market Price</td><td>55.5</td><td>39.1</td><td>40.9</td></tr>
<tr><td colspan="2">Lowest Market Price</td><td>15.15</td><td>16.85</td><td>22.05</td></tr>
<tr><td colspan="2">Average Market Price</td><td>34.38</td><td>28.03</td><td>34.69</td></tr>
<tr><td rowspan="2">Net Worth per Share</td><td colspan="2">Before Distribution</td><td>17.06</td><td>17.68</td><td rowspan="12">Not Applicable</td></tr>
<tr><td colspan="2">After Distribution</td><td>15.86</td><td>(Note 5)</td></tr>
<tr><td rowspan="2">Earnings per Share</td><td colspan="2">Weighted Average Shares (thousand shares)</td><td>1,822,137</td><td>1,831,825</td></tr>
<tr><td colspan="2">Earnings per Share</td><td>4.94</td><td>1.64</td></tr>
<tr><td rowspan="4">Dividends per Share</td><td colspan="2">Cash Dividends</td><td>1.20012595</td><td>1.2</td></tr>
<tr><td rowspan="2">Stock Dividends</td><td>Dividends from Retained Earnings</td><td>-</td><td>-</td></tr>
<tr><td>Dividends from Capital Surplus</td><td>-</td><td>-</td></tr>
<tr><td colspan="2">Accumulated Undistributed Dividends</td><td>-</td><td>-</td></tr>
<tr><td rowspan="3">Return on Investment</td><td colspan="2">Price / Earnings Ratio (Note 2)</td><td>7.30</td><td>16.12</td></tr>
<tr><td colspan="2">Price / Dividend Ratio (Note 3)</td><td>30.06</td><td>22.03</td></tr>
<tr><td colspan="2">Cash Dividend Yield Rate (Note 4)</td><td>3.33%</td><td>4.54%</td></tr>
</table>

Note 1: Source of data: Taiwan Stock Exchange.
Note 2: Price / Earnings Ratio = Average Market Price / Earnings per Share
Note 3: Price / Dividend Ratio = Average Market Price / Cash Dividends per Share
Note 4: Cash Dividend Yield Rate = Cash Dividends per Share / Average Market Price
Note 5: The distribution of earnings for 2019 will be resolved at the 2020 Shareholders' Meeting.

(VI) Dividend Policy and Implementation

1. Dividend policy in the articles of incorporation

   If there is a surplus in the Company's annual final accounts, it will first be used to pay taxes and make up for accumulated losses before the next 10% is taken for legal capital reserve (except when the legal capital reserve has reached the amount of the total capital). A special capital reserve is listed or reversed in accordance with relevant regulations. The remaining balance and the undistributed surplus of the previous year are the shareholder dividends.

   The Company belongs to a capital-intensive industry. In line with the long-term financial planning, all or part of the shareholder dividends in the preceding paragraph may be reserved as undistributed earnings depending on the resolution by the shareholders' meeting. The dividends will then be distributed in the following year, together or separately.

   The Company prioritizes cash dividends for surplus distribution. However, the Company shall still be able to distribute the surplus as shares depending on the financial, business, or operational status. The ratio follows the principle of not exceeding 50% of the total distributable surplus for the year.

2. Distribution of dividend proposed at the shareholders' meeting: NT$2,207,890,634 (NT$1.2 per share).
3. Expected material changes to the dividend policy: None.

(VII) Effect to Business Performance and EPS of the Proposed Stock Dividends Distribution: not applicable.

(VIII) Compensation for Employees, Directors, and Supervisors

1. Percentage or scope of compensation for employees, directors and supervisors provided in the Company's Articles of Incorporation

   According to the Articles of Incorporation, if there is profit for the year, 15% and 2% (or below) of the remaining balance should be allocated as employee and director compensation after accumulated losses have been deducted from the profit. Employee compensation should also be distributed to employees of subordinate companies that meet certain conditions.

2. The basis for estimating the amount of employee, director, and supervisor compensation, for calculating the number of shares to be distributed as employee compensation, and the accounting treatment of the discrepancy, if any, between the actual distributed amount and the estimated figure, for the current period

   The Company's employee and director compensation in 2019, as stipulated by the Articles of Incorporation, were NT$544,330,128 and NT$72,577,350 respectively. The basis of the above estimate is the balance after deducting accumulated losses from the profit of the previous year. If the actual distribution amount differs from the estimated figure, accounting treatment will be given to the changes. The amount will be adjusted in the following year.

3. Distribution of compensation approved in the board of directors meeting

   On February 17 2020, the Board of Directors approved NT$544,330,128 for employee compensation and NT$72,577,350 for Director compensation.

4. Information of distribution of compensation of employees, directors, and supervisors for the previous year, and, if there are any discrepancies between the actual distribution and the recognized employee, director, or supervisor compensation, and the discrepancy, cause, and its treatment: None.

(IX) Redemption of Common Stock： None.

II. Corporate Bonds： None.

III. Preferred Shares： None.

IV. Global Depository Receipts： None.

V. Employee Stock Options： None.

VI. New Shares of Employee Restricted Stock Awards

(I) New Shares of Employee Restricted Stock Awards

March 29, 2020

Types of new shares of employee Restricted Stock Awards	1st issuance of 2016 New shares of employee Restricted Stock Awards Plan	1st issuance of 2019 New shares of employee Restricted Stock Awards Plan
Effective date	October 17, 2016	October 8, 2019
Distribution date	October 25, 2016	October 21, 2019
Issue date	January 3, 2017	Note
New Shares of employee Restricted Stock Awards issued	57,475,580 shares	Note
Issued price	NT$ 0	Note
Ratio of New shares of employee Restricted Stock Awards to total issued	1.59%	Note
The vesting conditions of new shares of employee Restricted Stock Awards	(1)Remain employed by the Company within one year after the grant date; and has a current year's performance rating of Successful (or higher) /A0 or A1：40% of restricted shares will be vested. (2)Remain employed by the Company within two years after the grant date; and has a current year's performance rating of Successful (or higher) /A0 or A1：30% of restricted shares will be vested. (3)Remain employed by the Company within three years after the grant date; and has a current year's performance rating of Successful (or higher) /A0 or A1：30% of restricted shares will be vested.	
Restricted rights of new shares of employee Restricted Stock Awards	(1) Except for being inherited, the new shares of employee Restricted Stock Awards not be sold, transferred, pledged, or gifted to others or disposed of using any other methods. (2) The new shares of employee Restricted Stock Awards shall be kept in a stock trust. (3) When a new share is returned in cash due to the Company's capital reduction, the refund of the vested capital loss shall be under custodian trust. In accordance with the issuance method, such capital and shares shall be granted if the vesting conditions for new shares of employee restricted stock awards are met. The vested shares are granted to employees without interests; if the vested conditions are not met, such cash will be recovered by the Company (applicable to the 1st issuance of 2019 New shares of employee Restricted Stock Awards).	
Custody status of new shares of employee Restricted Stock Awards	Exercise of shareholder rights while the new shares of employee Restricted Stock Awards restricted are held during trust period shall be in accordance with the custodial agreement.	
Measures to handling employees that do not meet the vesting conditions for receiving or subscribing to new shares	The Company will redeem and cancel the granted but not yet vested shares	
Shares of new shares of employee Restricted Stock Awards taken back or bought back	2,834,700 shares	Note
Shares of released new shares of employee Restricted Stock Awards	26,319,058 shares	Note
Shares of new shares of employee Restricted Stock	28,302,044 shares	Note

Types of new shares of employee Restricted Stock Awards	1st issuance of 2016 New shares of employee Restricted Stock Awards Plan	1st issuance of 2019 New shares of employee Restricted Stock Awards Plan
Awards that were canceled due to participation in the Company's capital reduction		
Shares of unreleased new shares of employee Restricted Stock Awards	19,778 shares	Note
Ratio of unreleased new shares of employee Restricted Stock Awards to total issued (%)	0.00%	Note
Impact on shareholder’s equity	Dilution of the Company's EPS during the vesting period is limited and should not have a significant impact on shareholders' equity.	

Note：Not yet issued.

(II) New Shares of Employee Restricted Stock Awards received by Managers and the Top Ten Employees

March 29, 2020

<table>
<tr><th rowspan="2"></th><th rowspan="2">Title</th><th rowspan="2">Name</th><th rowspan="2">No. of New Restricted Shares</th><th rowspan="2">New Restricted Shares as a Percentage of Shares Issued</th><th colspan="4">Released</th><th colspan="4">Unreleased</th></tr>
<tr><th>No. of Shares</th><th>Issued Price (NT$)</th><th>Amount (NT$ thousands)</th><th>Released Restricted Shares as a Percentage of Shares Issued</th><th>No. of Shares</th><th>Strike Price (NT$)</th><th>Amount (NT$ thousands)</th><th>Unreleased Restricted Shares as a Percentage of Shares Issued</th></tr>
<tr><td rowspan="13">Managers</td><td>CEO</td><td>Miin Chyou Wu</td><td rowspan="13">8,091,015</td><td rowspan="13">0.440%</td><td rowspan="13">4,939,015</td><td rowspan="13">0</td><td rowspan="13">0</td><td rowspan="13">0.268%</td><td rowspan="13">3,152,000</td><td rowspan="13">0</td><td rowspan="13">0</td><td rowspan="13">0.172%</td></tr>
<tr><td>President</td><td>Chih-Yuan Lu</td></tr>
<tr><td>Senior Vice President & Chief Marketing Officer</td><td>Dang-Hsing Yiu</td></tr>
<tr><td>Vice President</td><td>Ful-Long Ni</td></tr>
<tr><td>Vice President</td><td>Pei-Fu Yeh</td></tr>
<tr><td>Vice President</td><td>Yen-Hie Chao</td></tr>
<tr><td>Vice President</td><td>Chun-Hsiung Hung</td></tr>
<tr><td>Vice President</td><td>Jui-Kun Chen</td></tr>
<tr><td>Vice President</td><td>Jon-Ten Chung</td></tr>
<tr><td>Associate V.P</td><td>Kuang-Chao Chen</td></tr>
<tr><td>Executive Director</td><td>Wen-Pin Lu</td></tr>
<tr><td>Project Executive Director</td><td>Chuan-Hsien Wen</td></tr>
<tr><td>Project Executive Director</td><td>Hui-Chi Li</td></tr>
<tr><td rowspan="10">Employees</td><td>Chief Scientist</td><td>Ke-Zhong Wang</td><td rowspan="10">2,170,686</td><td rowspan="10">0.118%</td><td rowspan="10">1,323,686</td><td rowspan="10">0</td><td rowspan="10">0</td><td rowspan="10">0.072%</td><td rowspan="10">847,000</td><td rowspan="10">0</td><td rowspan="10">0</td><td rowspan="10">0.045%</td></tr>
<tr><td>Senior Director</td><td>Kun-Lung Chang</td></tr>
<tr><td>Senior Director</td><td>Han-Song Chen</td></tr>
<tr><td>Senior Director</td><td>Ta-Hung Yang</td></tr>
<tr><td>Senior Director</td><td>Shuo-Nan Hung</td></tr>
<tr><td>Senior Director</td><td>Yen-Hao Shih</td></tr>
<tr><td>Division Director</td><td>Keng-Hui Chen</td></tr>
<tr><td>Project Director</td><td>Ming-Xiang Chen</td></tr>
<tr><td>Project Director</td><td>Suzuki Junhiro</td></tr>
<tr><td>Project Director</td><td>Ling-Wu Yang</td></tr>
</table>

VII. Mergers, Acquisitions or Issuance of New Shares for Acquisition of Shares of other Companies：None.

VIII. Financing Plans and Implementation

As of one quarter before the printing date of this annual report, the Company has not experienced any previous issuance or private placement of marketable securities that have not been completed, or that have been completed but any benefits are yet to be recorded within the past three fiscal years.

Chapter V. Operation Summary

I. Business Activities

(I) Scope of Business:

1. Main Business:

The Company's main business concentrates on the design, manufacture, sales, and foundry services of integrated circuits and memory chips, as well as the commissioned design, development, and consultancy of relevant products. The Company concurrently engages in the import and export of relevant affairs. For the main businesses of the consolidated company, please refer to the main section regarding the Consolidated Financial Report on page 155 of this annual report.

2. Business Proportion

Unit: NT$ thousands

Products	2018		2019	
	Net Revenue	%	Net Revenue	%
Flash	23,326,091	63.12%	19,481,027	55.67%
ROM	11,166,453	30.22%	13,290,888	37.98%
Foundry	2,445,263	6.62%	2,196,564	6.28%
Others	15,225	0.04%	26,932	0.07%
Total	36,953,032	100.00%	34,995,411	100.00%

3. Current Products of the Company

Product Category	Main Products
Non-Volatile Memory IC	Flash Memory (NOR Flash, NAND Flash)
	Read-Only Memory (ROM)
Wafer Foundry Services	Sub-micron logic process / high voltage CMOS and BCD process
	Embedded ROM/MTP/OTP process

Currently, most of Macronix's flash memory products are NOR Flash. With excellent technology and quality, the product range covers various storage capacities, including 3V or 1.8V operating voltage, Serial or Parallel interfaces, and mainstream or niche specifications. Macronix has all products ready, and they are widely adopted by customers around the world.

In addition to NOR Flash, the independently-developed NAND Flash product line has stable quality and mass production, making Macronix one of the few suppliers of both NOR Flash and NAND Flash in the world.

Macronix has also passed the IATF 16949 certification of the quality management system in the fast-growing automotive electronics industry. The Company has equally managed to win the reliability standard AEC-Q100 certification for the two main product categories, namely NOR Flash and NAND Flash. Passing the two most important standards in the electronic IC supply chain makes Macronix an important partner of the first-class automotive electronics manufacturers.

Macronix's read-only memory products adopt world-class technologies with a complete lineup of storage capacity and a high level of security. With rich manufacturing experience and a comprehensive management system, Macronix has reached the highest level in the world in terms of delivery speed and shipment volume.

4. Plans for New Product Development

(1) Non-Volatile Memory Product Line

The Company makes good use of the advantages of the new equipment in the 12-inch wafer lab to create a higher-level R&D environment, and continues to develop the following three core technologies of the new generation. The Company will create the innovative memory product series and combinations based on this foundation.

※ 3D NAND Flash: The first generation project

※ 2D NAND Flash: 19 nanometer plan

※ NOR Flash: 48 nanometer plan

(2) Wafer Foundry Service

※ Integrating Macronix's own embedded non-volatile memory logic platform technology into MCU and IoT markets

※ Embedded ROM and OTP are applied to voice ICs.

※ BCD (Bipolar-CMOS-DMOS) technology for analog and power management ICs

(II) State of the Industry

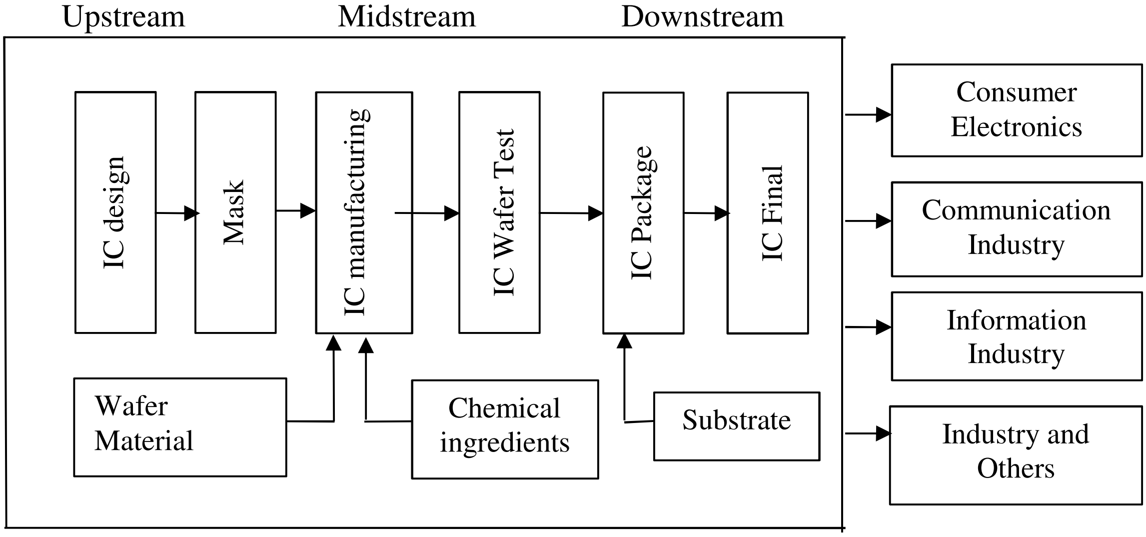
1. Industry Development and Competition

Memory IC can be divided into two types according to their functions. Volatile memory refers to the memory that loses data when the power has been switched off, such as DRAM and SRAM. On the other hand, non-volatile memory retains the memory even when the power is switched off. The Company specializes in non-volatile memory, especially Flash Memory and ROM (read-only memory).

Flash Memory can be read and written repeatedly, and is widely used in consumer electronics, communications, information, mobile phones, automotive, and industrial fields. Macronix is the world's leading supplier of NOR Flash and SLC NAND Flash. It has the advantages of sound finance, stable supply, a 12-inch wafer lab, and production capacity. It will grow with the development of emerging applications in the future.

A characteristic of ROM is that the data cannot be modified after storage. The main advantage is large storage capacity with low cost. Its application focuses on electronic gaming cards, electronic toys, and game consoles. The industry has become specific application-oriented. Macronix has long been ranked as the largest ROM supplier in the world, with more than half of the market share.

2. Correlation with Upstream, Midstream, and Downstream Sections of the Industry



Source: ITRI Industrial Economics and Knowledge Center

The Company provides customers with a complete range of flexible solutions from R&D, manufacturing to backend package testing and is one of the few professional suppliers in the world that specialize in non-volatile memory.

(III) Overview of Technology and Research & Development

1. R&D Expenses

Unit: NT$ thousands

Item / Year	2018	2019
R&D expenses	4,259,540	3,555,919
Operating Revenue	36,953,032	34,995,411
% of R&D expenses to Operating Revenue	11%	10%

2. Successfully Developed Technologies or Products

In 2019, Macronix successfully implemented product and technology innovations to extend its superior product competitiveness.

(1) Technology Innovation

※ The innovation and demonstration of the 3D NAND flash IC and control technology.

(2) Product Innovation

※ Suitable for automotive electronic applications, the innovation and mass production of the new-generation, ultra-fast NOR Flash.

※ Macronix's mature proprietary 0.11 μm embedded non-volatile memory technology and 0.18 μm BCD (Bipolar-CMOS-DMOS) technology are integrated to provide foundry services in MCU and analog IC related markets.

(3) Intellectual Rights Achievements

Macronix is persistent in its pursuit of innovation and invention. It is proactive in its application for patents and in its deployment of its international patent strategy network. The Company regularly reports on issues related to intellectual property in each quarterly meeting of the board of directors.

Intellectual Property Strategy: In today's international industrial environment, intellectual property rights are gradually becoming the weapons used in the competition for strategic technologies. To Macronix, a company that strives to become a mainstream leader and global provider of comprehensive solutions, the key strategy to sustainable operations is in the planning, deployment, production, and accumulation of equal amounts of quality and quantity in its patent rights strategy network, which entails the creation of high-quality innovative technology and intellectual property that can protect high-value-added products.

Intellectual Property Management: To encourage employees to pro-actively submit their inventions, Macronix has established the Patent Management and Incentive Guidelines, and has also introduced the Intellectual Property Rights and Patent Service Network, which incorporates patent engineers, developers, and the patent office and offers real-time control of each step in the intellectual property process.

Intellectual Property Risk and Countermeasures: The Company values R&D and innovation, and actively applies for patents as a form of intellectual property rights. As of 2019, the Company has obtained 3,025 patents in the U.S., 2,814 patents in Taiwan, 1,897 patents in China, and 282 patents in other countries. More than 1,200 patents are pending in the patent offices of different countries. The Company will continue to seek the protection of patent and intellectual property rights for the innovative technologies it has developed.

The Company will continue to seek the protection of patent and intellectual property rights for the innovative technologies it has developed.

(IV) Short- and Long-Term Business Development Plans

1. Short-term

※ Develop XtraROM® and NAND Flash product solutions for video games and entertainment to enhance the business growth of niche-based applications.

※ Provide customized services and promote the compact nature of NOR Flash in order to increase adoption in consumer electronics, information applications, and IoT.

※ Make good use of the high quality of the Company's products and the excellent production management to develop high value-added business in automotive electronics and medical electronics.

※ Macronix's mature proprietary embedded non-volatile memory logical platform and BCD (Bipolar-CMOS-DMOS) technology are integrated to provide foundry services in MCU, IoT, and analog and power management IC related markets.

2. Long-term

※ Develop high-capacity 2D and 3D NAND Flash technologies and products to provide solutions for niche applications.

II. Market and Sales Overview

(I) Market Analysis

1. Net Revenue by Geography

Unit: NT$ thousands

Geography \ Year		2018 Net revenue	2018 %	2019 Net revenue	2019 %
Domestic		7,998,367	21.64	6,320,298	18.06
Export	Japan	13,710,918	37.10	15,197,890	43.43
	USA	1,603,060	4.34	1,443,461	4.12
	Europe	2,437,895	6.60	2,493,995	7.13
	Asia	11,202,792	30.32	9,539,767	27.26
	Subtotal	28,954,665	78.36	28,675,113	81.94
Total		36,953,032	100.00	34,995,411	100.00

2. Market Share

(1) ROM

The Company's ROM products account for more than 50% of the global market and has been firmly established as the market leader for more than a decade.

(2) NOR Flash

The long-term market and technology development have won the trust and support of customers around the world. The Company's NOR Flash product line continues to lead the world's biggest market share.

NOR Flash Share Ranking

Rank	Company	Market Share
1	**Macronix**	**23.8%**
2	Winbond	23.8%
3	Cypress	19.4%
4	GigaDeivce	12.1%
5	Micron	10.6%
	Others	10.3%
Total		100%

Source: Omdia, 2020

3. Competitive Niches

The Company has been developing ROM and Flash technology and products for more than 30 years. The continuous innovation enhances competitiveness while maintaining stable product quality and supply. Recently, IoT and automotive electronics applications are in the ascendant. One of the trends is the need to integrate NOR Flash into compact wafer products. Macronix's emphasis on quality and supply is its competitive advantage.

4. Favorable and Unfavorable Factors Affecting the Company's Development Prospects and Corresponding Countermeasures

The Company's operations and finance are currently sound and stable. The independent technologies and production of Flash Memory and ROM, and stable supply has won customers' trust as Macronix’s competitive advantage.

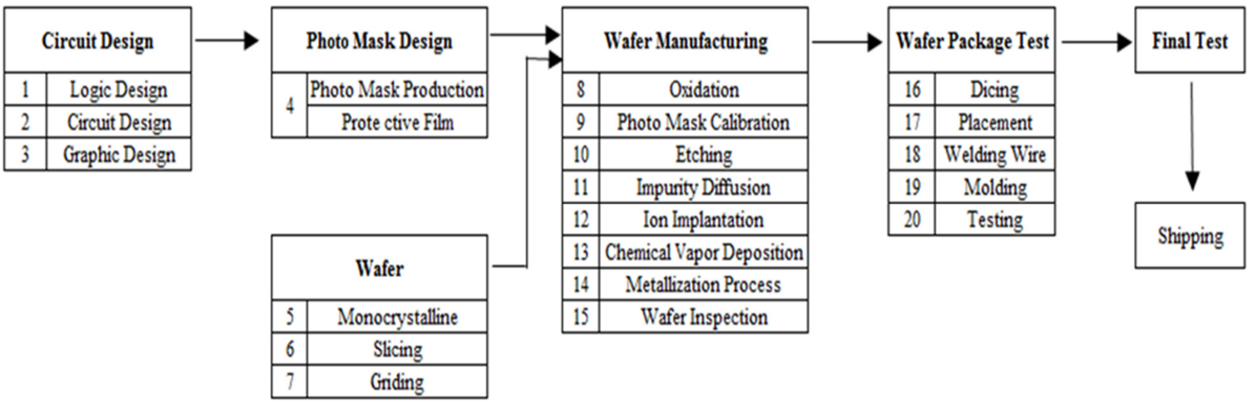
In order to achieve sustainable development, the Company will continue to develop advanced non-volatile memory technology and update the 12-inch fab equipment to create an advanced R&D environment and production base. Our goal is to provide customers with superior products and services in order to gain a stable foothold in the industry.

(II) Important Applications and Production Processes of the Primary Products

1. Major Uses of the Primary Products

Product Category	Primary Products	Use and Function
Non-Volatile Memory IC	Flash Memory	Used in mobile phones, set-top boxes, IoT, personal computers, digital cameras, automotive electronics, CD players, printers, hard drives, network devices, tablets, wireless communications (Bluetooth, WLAN), and large entertainment equipment.
	ROM	Mainly used in TV game cards, electronic entertainment equipment, electronic toys and so on.
Wafer Foundry Services	Sub-micron logic process / high voltage CMOS and BCD process	Providing high-voltage CMOS manufacturing technology in order to serve analog IC design customers.
	Embedded ROM/MTP/OTP Process	Providing embedded ROM/MTP/OTP integration technology to serve microcontroller IC design customers.

2. Production Process



(III) Supply of Primary Raw Materials

The ICs manufactured by our fabs are mainly made of silicon wafers, photoresist chemicals, and special gases. The suppliers are well-known large factories at home and abroad, with stable supply and excellent quality.

(IV) Suppliers/Customers Accounted for at Least 10% of Purchase/Sales and Respective Amount and Percentage

1. Information on Major Suppliers in the Last Two Fiscal Years

Unit: NT$ thousands

Item	2018				2019			
	Name	Amount	Percentage of Net Purchase for the Year (%)	Relationship with the Issuer	Name	Amount	Percentage of Net Purchase for the Year (%)	Relationship with the Issuer
1	Supplier A	11,056,200	60.83	Related party	Supplier A	2,800,371	34.10	Related party
	Others	7,119,378	39.17		Others	5,411,428	65.90	
	Net Purchase	18,175,578	100.00		Net Purchase	8,211,799	100.00	

Note 1: In line with regulations regarding IFRSs since 2013, the figures in this chart are based on the consolidated financial statements.

Note 2: List of suppliers taking up more than 10% of the total purchase for the last two years and the amount as well as percentage are listed. However, if the contract stipulates that the name of the supplier should not be disclosed, or the counterpart is an individual but not a related party, it can be represented by a code instead.

Note 3: The increase/decrease is caused by changes in market trends and customer demands.

2. Information on Major Customers in the Last Two Fiscal Years

Unit: NT$ thousands

Item	2018				2019			
	Customer	Net Revenue	Percentage of Annual Net Revenue for the Year (%)	Relationship with the Issuer	Customer	Net Revenue	Percentage of Annual Net Revenue for the Year (%)	Relationship with the Issuer
1	Customer A	11,104,912	30.05	Related party	Customer A	13,236,202	37.82	Related party
	Others	25,848,120	69.95		Others	21,759,209	62.18	
	Total Net Revenue	36,953,032	100.00		Total Net Revenue	34,995,411	100.00	

Note 1: The names, sales revenue and ratio of customers that accounted for at least 10% of net consolidated revenue in the two most recent years are listed. However, should the contract stipulate that information regarding the customer's name or transaction counterparty is a natural person (that is not a related party) is not to be disclosed, a code can be used in its place.

Note 2: The increase/decrease is caused by fluctuating customer needs.

(V) Table of Production Volume and Value in the Most Recent two Years

Capacity/Output Unit: Kea or PC
Revenue Unit: NT$ thousands

Year / Produce Amount / Main Products	2018			2019		
	Capacity	Output	Amount	Capacity	Output	Amount
Flash		2,196,429	11,782,840		2,105,506	11,040,634
ROM		98,890	8,660,474		100,688	8,954,454
Subtotal (Kea)		2,295,319	20,443,314		2,206,194	19,995,088
Foundry (PC)		279,706	1,732,240		255,366	1,607,755
Capacity (PC)	1,307,446			1,260,775		

Note 1: Capacity refers to the quantity that can be produced under normal operations using existing production equipment after the company has taken factors such as necessary downtime, holidays, etc. into consideration.

Note 2: If the product is substitutable, capacity can be jointly calculated and explained in the note.

Note 3: Capacity and Foundry output are estimated in 8-inch equivalent wafers.

Note 4: Amount refers to the manufacturing cost of the finish goods that are available for sale in the year.

(VI) Sales & Shipments in the Most Recent two Years

Unit: Shipments (Kea or PC)
Revenue Unit: NT$ thousands

Year / Sales & Shipments / Products	2018				2019			
	Domestic		Export		Domestic		Export	
	Shipments	Net revenue	Shipments	Net revenue	Shipments	Net revenue	Shipments	Net revenue
Flash	654,704	6,088,238	1,295,838	17,237,853	708,077	4,574,945	1,192,730	14,906,082
ROM	482	7,621	96,091	11,158,832	21	182	102,938	13,290,706
Foundry (Note)	215,333	1,900,252	62,999	545,011	196,513	1,744,740	56,421	451,824
Others	-	2,256	-	12,969	-	431	-	26,501
Total	655,186	7,998,367	1,391,929	28,954,665	708,098	6,320,298	1,295,668	28,675,113

Note: Unit of Foundry shipments is 8-inch equivalent wafers.

III. Employees Information

(I) Company Employees Information

Year		2018	2019	As of March 29, 2020
Number of employees	Management Personnel	703	686	679
	R&D and Technical Personnel	1,860	1,718	1,718
	Operators	1,487	1,430	1,444
	Total	4,050	3,834	3,841
Average age		37.5 years old	38.3 years old	39.1 years old
Average Length of Service		10 years and 10 months	11 years and 8 months	11 years and 8 months
Education Level (%)	Ph.D.	1.8	1.9	1.9
	Master's Degree	30.3	30	30.1
	Bachelor's	50.7	49.7	49.4
	High School	17.0	18.2	18.4
	Below High School	0.2	0.2	0.2

(II) Consolidated Employees information

Year		2018	2019	As of March 29, 2020
Number of employees	Management Personnel	117	117	119
	R&D and Technical Personnel	151	158	155
	Operators	0	0	0
	Total	268	275	274
Average age		39.3 years old	39.2 years old	39.6 years old
Average Length of Service		8 years and 4 months	8 years and 4 months	8 years and 5 months
Educational Level (%)	Ph.D.	0.0	0.0	0.0
	Master's Degree	34.7	37.1	36.5
	Bachelor's	63.4	61.1	61.7
	High School	1.9	1.8	1.8
	Below High School	0.0	0.0	0.0

IV. Environmental Protection Expenditures

(I) Any losses suffered by the company in the most recent fiscal year and up to the annual report publication date due to environmental pollution incidents (including any compensation paid and any violations of environmental protection laws or regulations found in environmental inspection, specifying the disposition dates, disposition reference numbers, the articles of law violated, and the content of the dispositions), and disclosing an estimate of possible expenses that could be incurred currently and in the future and measures being or to be taken. If a reasonable estimate cannot be made, an explanation of the facts of why it cannot be made shall be provided.

The Company has not been penalized for polluting the environment in the most recent fiscal year and up to the printing date of this annual report. The Company will continue to keep up with equipment maintenance and the implementation of an environmental management system in the future.

(II) Countermeasures and Expenditures

1.The Company's investment and improvement fees in environmental protection engineering, equipment operation maintenance fee, depreciation expenses for environmental protection equipment, clearance and disposal fees, and detection, project research, and training expenses amounted to NT$156,304,000 in 2019.

2. Impact on competitive position and capital expenditures:

(1) The Company promotes energy-saving, water-saving, and waste reduction by investing in and maintaining various pollution prevention equipment. The Company continues to work toward the goal of establishing a green wafer plant that is high in efficiency and low in pollution.

(2) The Company has established the "ISO 14001 Environmental Management System", "ISO 14064-1 Greenhouse Gas Inventory Management System", "IECQ-QC080000 Hazardous Substance Process Management System", etc., and continues to invest manpower in the promotion and maintenance of strengthening its competitive edge on the international stage.

(3) The Company has received the Green Partner certificate from customers in meeting their requirements for “Green Products”.

(4) The Company has received multiple awards from the competent authority in recent years. In 2019, the Company won awards including the "Outstanding Recognition of Environmental Preservation and Landscape", the "Awarded with Outstanding Green Procurement Enterprise", etc.

(5) The Company purchases products with the "Green Mark" from the Environmental Protection Administration or ones with the Ministry of Economic Affairs' "Energy Saving" and "Water Saving" labels, such as energy-saving lamps, water dispensers, personal computers, cleaner supplies, and peripheral equipment, etc., to fulfill its corporate social responsibilities.

(6) Based on respect and care toward social responsibility, the Company will continue to engage and invest in environmental protection in order to achieve the goal of sustainable development.

(III) The Company's Measures in Response to Restriction of Hazardous Substances (RoHS)

With the trend of green consumption awareness and the increasingly strict international environmental protection regulations, the Company strives to manage chemical substances in product components in addition to efforts of reducing environmental pollution caused by the production process.

1. Green Products

(1) The products comply with the requirements of the European Union's Restriction of Hazardous Substances (RoHS).

(2) The products do not use lead and halogen in manufacture process, and meet the requirements of the European Union's Substance of Very High Concern (SVHC).

(3) No "conflict minerals" are used in the products (conflict minerals refer to minerals such as gold, tin, tungsten, tantalum and those minerals related with labor exploitation in the Democratic

Republic of the Congo and its adjoining countries).

(4) The products have obtained green product certificates from internationally renowned customers such as Sony.

2. Management System

(1) In September 2007, the Company passed the certification of the IECQ QC 080000 Hazardous Substance Process Management System. It obtained the certification once again in 2019, which ensured the effectiveness of green products management.

(2) The Company implements Risk Assessment of Suppliers (RAS) to ensure that the EU RoHS Directive and the requirements of SVHC are implemented both for the upstream and downstream of the supply chain, in compliance with international regulations and customer specifications.

V. Labor Relations

(I) Employee Benefits

1. Labor insurance and national health insurance: Employees' insurance and national health insurance coverage is handled according to laws and regulations. The employees enjoy the protection of both labor insurance and national health insurance from the first day of work.
2. Group insurance: Employees are covered by the Company's group insurance policies since the first day of work. The premiums are paid by the Company according to their positions. Group insurance is also open to the employees' family members provided the employees pay the premiums, which provides extra protection and care for their families.
3. Cancer insurance: The employees receive cancer insurance coverage from the first day of work with the premiums borne by the Company. The employees can opt to pay for the same coverage for their spouses and children.
4. Travel insurance for business trips abroad: Employees' travel insurance is provided by the Company during business trips, covering incidents such as accidental death, injuries, and medical care.
5. Restaurants, accommodation, transportation, free parking space, and healthcare services.
6. Bonuses and employee benefits
7. Employee recreation and fitness center: The center is equipped with a 50-meter heated swimming pool, a hydrotherapy SPA, a children's swimming pool, an aerobics classroom, a fitness room, a massage room, karaoke, courses for billiard, table tennis, badminton, and squash, a family reading room, a children's play room, a video game room, and a common room.
8. Employee Welfare Committee: In order to promote employee welfare, the Company has set up the Employee Welfare Committee in accordance with the provisions of the Employee Welfare Fund Act. The Company sets aside employee welfare fund to organize various welfare measures, activities, and the operation and management of employee clubs.

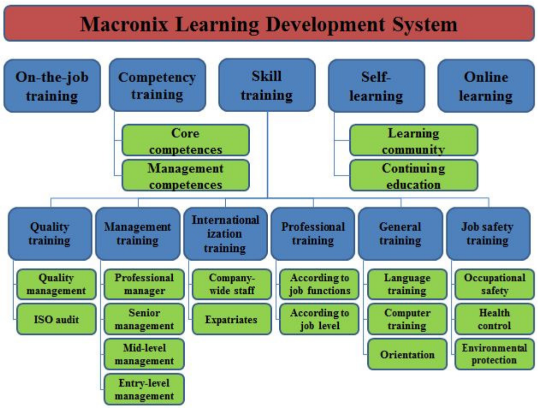
(II) Staff Training and Development

The Company held a total of 3,037 internal and external training courses in 2019. The average number of training hours was 45.02 hours. The total number of trainees was 75,726, and the total number of training hours was 173,461 hours. The total training cost was NT$10,614,238.

Macronix's performance management system is closely integrated with individual development plans. Performance interviews are conducted twice a year to examine the setting of individual performance goals and the achievement of individual performance goals and organizational goals. Employees can communicate and discuss with supervisors face-to-face based on the individual job performance and career development needs. A personal development plan is customized to develop various professional knowledge and skills in a step-by-step manner.

※ Comprehensive Learning Development System

The learning development system of the Company is planned according to its strategies, job requirements, and individual development.



The Company's training is designed based on the principles of advancement, function, planning, and continuity. Through a clear and strategically oriented system structure, the Company provides clear and detailed learning maps for the employees to understand their learning path.

(1) The Company's learning roadmap system consists of four categories:

1. A newcomer roadmap is designed for new recruits to shorten the adjustment period and quickly integrate into corporate culture.
2. A competency roadmap is developed in accordance with the Company's values, in the hope that employees can demonstrate behavior in line with the Company's expectations.
3. The management roadmap is developed for different management levels in order to strengthen their management capacity step-by-step.
4. Professional roadmaps are developed according to professional competences required in different fields of work; internal and external lecturers are employed to carry out professional training courses to strengthen employees' professional capacity.

(2) Other training courses:

1. Providing language learning in line with individual needs to strengthen employees' language skills and competitiveness; organizing computer application software courses to improve work efficiency.
2. Offering opportunities for employees to participate in foreign academic seminars to understand the latest development trends of technology and industry abroad; providing opportunities of working overseas which can increase international vision and personal competitiveness

※ Diverse Learning Channels

The Company offers different learning channels to meet different employee learning needs.

1. Internal training:
   The Company hires internal and external lecturers to hold various training courses in the Company.

2. External training:
   The employees can participate in external training courses and seminars that are closely related to work.

3. On-the-job training:
   Through professional learning in the workplace, the employees can "learn by doing" and acquire the knowledge and skills necessary for work.

4. Online learning:
   The employees can use the Internet to learn without the limits of time and space and learn according to their individual learning speed.

5. Self-learning:
   The employees can engage in cross-disciplinary learning of knowledge, skills, etc. according to their personal career plan. They can also advance individual learning through reading or participating in on-the-job training courses.

※Comprehensive Training Facilities

Macronix Academy's comprehensive facilities and professional equipment enable each employee to study in a good environment.

1.Audio-visual study room: With multimedia computers, books, CDs, video tapes, and audio tapes, the rich learning channel allows employees to learn without boundaries.
2.Training classroom: Several lecture halls and group discussion rooms provide appropriate learning environment according to the curriculum design.
3.Computer classroom: One person is equipped with one computer to maximize learning efficiency.
4.International lecture hall: The hall can accommodate 250 people, and it is the ideal venue for large-scale training, seminars, and lectures.
5.Library: There are a large number of books, periodicals, and audio-visual materials to meet diverse reading needs.

(III) Retirement system

The Company's retirement policy is set according to the relevant provisions of the Labor Standards Act, and the “Retirement Reserve Supervision Committee” has been set up to supervise and manage the retirement reserve. In addition, pension is withheld according to the relevant provisions of the Labor Pension Act.

(IV) Employee Working Environment and Personal Safety Protection Measures

In order to achieve sustainable management, the Company implements Environmental Safety and Health Policy and lays emphasis on corporate social responsibility. It has obtained outstanding achievements in protecting the environment as well as the safety and health of employees. It has won many awards from the government and recognition from customers. The specific management measures include:

1. Management System

   (1) Passed verification from ISO 14001 Environmental Management System, OHSAS 18001 Occupational Safety and Health Management System, and TOSHMS Taiwan Occupational Safety and Health Management System.

   (2) Verified by the IECQ QC080000 Hazardous Substance Process Management System. The products meet the requirements of EU RoHS and have obtained the Green Product (GP) certificates from international customers.

   (3) The first company in Hsinchu Science Park to pass the "ISO 14064 Greenhouse Gas Management System" approved by the TAF (National Certification Foundation).

2. Environmental Protection and Safety Management

   (1) Implementing strict and comprehensive monitoring of the work environment and monitoring air quality on site 24 hours a day to ensure the health and safety of employees.

   (2) Complying with laws and regulations as well as customer requirements to regularly identify and review environmental safety management measures.

   (3) Setting up various environmental pollution prevention equipment (water, air, waste, toxic waste, and noise) and strictly monitoring the quality of the environment.

   (4) Implementing "Green Procurement" to purchase equipment with the "Environmental Protection Label" from the Environmental Protection Administration or the "Energy Conservation Label" from the Ministry of Economic Affairs, such as energy-saving lamps, water dispensers, personal computers and their peripheral equipment, etc. to realize corporate social responsibility; recognized as an Excellent Green Procurement Unit in the private sector by the Hsinchu Municipal Government in 2019.

   (5) Fully providing employees with personal protective equipment (PPE) and comprehensive safety, health, and environmental protection training.

   (6) Establishing an Emergency Response Team (ERT) with dedicated staff on call 24 hours a day and establishing a Business Continuity Plan (BCP) to ensure the safety of all employees and the Company's factory buildings.

   (7) Regularly inspecting the fire safety equipment and complying with the buildings' public safety; regularly holding evacuation drills to improve staff resilience.

   (8) Regularly improving and reviewing human factors in the work environment to provide employees with a comfortable work environment.

   (9) Providing a "fire and earthquake escape package" for employees on a business trip abroad in case of emergency.

   (10) Assisting the Hsinchu Science Park Administration Bureau to organize the work safety and environmental protection promotion month, as well as assisting SMEs in establishing a safety and health management system.

3. Health Management

(1) Regularly holding employee health promotion activities and providing quality health management services. Macronix won the "National Excellent Healthy Workplace – Paradigm in Health Award" and "Creativity Gold Award for Healthy Workplace – Award for Workplace Innovation" from the Ministry of Health and Welfare in 2019.

(2) Regularly bringing doctors on site to provide employee health consultation and health promotion activities, as well as conducting health risk assessment and graded health management.

(3) A dedicated unit collects the latest epidemic prevention information to strengthen the epidemic prevention management; providing vaccination services and gives "anti-epidemic packages" for employees on business trips abroad to protect their health.

(4) Improving the employee assistance program and providing the best psychological counseling services.

(5) Implementing maternal health protection measures to take care of pregnant employees and implementing the principle of three noes (no night shifts, no carrying heavy loads, and no engaging in free radiation operations) to build a friendly workplace.

(6) Regularly monitoring the work environment to ensure a good working environment and protect employee health.

(7) Naming 2000 as the "beginning of sports;" encouraging employees to pursue a work-life balance by developing a good habit of regular exercise; offer employees flexibility to work out during work hours to promote physical fitness.

(8) Conducting spot checks of food ingredients such as meat, oil, and flour products in the Company's kitchen; entrusting government-accredited institution to inspect and ensure the safety of employees' food.

(9) Setting up a "breastfeeding room" for employees, which has gained employee satisfaction with its lovely environment and comprehensive equipment and received the triennial "Excellence Award" from the Hsinchu City Public Health Bureau in 2017.

(V) Measures for Safeguarding Labor Agreements and Employees' Rights and Interests

1. The Company regularly organizes various meetings as channels of communication, including orientation, departmental meetings, cadre meetings, and labor-management meetings, etc. The goal is to facilitate communication and ensure all opinions are heard.

2. The Company has set up the "No Topic is Off Limits" suggestion box for the employees to communicate and express their opinions. Employees can make inquiries, suggestions, and complaints through the suggestion box.

3. The Company has set up a paper and digital bulletin board to facilitate timely delivery of information that is relevant to the employees' rights and interests.

4. "Regulations Governing Sexual Harassment" has been developed to prevent sexual harassment and maintain gender equality at work, detailing the prevention, complaint filing, and punishment of sexual harassment.

5. The Company has set up the "Our Family Employee Relationship Portal Website" as a channel of communication with features including an interface for communicating employee needs directly with the management team, information sharing, lifestyle tips sharing, passing on culture, and employee assistance. Positive behavior is encouraged to enhance motivation and maintain a harmonious labor-management relationship.

(VI) List any losses suffered by the company in the most recent fiscal years and up to the annual report publication date due to labor disputes (including any violations of the Labor Standards Act found in labor inspection, specifying the disposition dates, disposition reference numbers, the articles of law violated, the substance of the legal violations, and the content of the dispositions), and disclosing an estimate of possible expenses that could be incurred currently and in the future and measures being or to be taken. If a reasonable estimate cannot be made, an explanation of the facts of why it cannot be made shall be provided.

Since its establishment in 1989, the Company has maintained harmonious labor-management relations. There have not been and will not be losses due to labor disputes. The Company has received recognition of the highest level from the competent authority. The awards regarding labor-management relations received in the past five years are as follows:

Year	Awards	Issued by
2015	[Health Promotion Seal] from the Healthy Workplace Voluntary Promotion Health Promotion Seal	Health Administration, Ministry of Health and Welfare
2015	[Health Leadership Award] from the Excellent Healthy Workplace Competition	Health Administration, Ministry of Health and Welfare
2015	[Health Leadership Award] from the Healthy Workplace	Public Health Bureau, Hsinchu City
2015	[Award of Excellence] from the Breastfeeding Room Competition, Workplace Category	Public Health Bureau, Hsinchu City
2016	Awarded with Top Honor for an Accredited Healthy Workplace	Health Promotion Administration, Ministry of Health and Welfare
2016	Third Place in the Breastfeeding Room Competition, Workplace Category	Public Health Bureau, Hsinchu City
2017	Sports Enterprise Certification	Sports Administration, Ministry of Education
2017	Awarded Excellence in Workplace Equality Promotion	Hsinchu Science Park Bureau
2017	Award of Excellence for Breastfeeding Room Certification	Public Health Bureau, Hsinchu City
2018	Sports Enterprise Certification	Sports Administration, Ministry of Education
2018	Gold Level	Responsible Business Alliance
2018	Health Promotion Seal	Health Promotion Administration, Ministry of Health and Welfare
2018	Healthy Workplace Creative Gold Award	Health Promotion Administration, Ministry of Health and Welfare
2019	CSR Annual Sustainable Elite	SGS Taiwan Ltd. (SGS)
2019	【Paradigm in Health Award】 from the National Excellent Healthy Workplace	Health Promotion Administration, Ministry of Health and Welfare
2019	【Award for Workplace Innovation】 from the Creativity Gold Award for Healthy Workplace	Health Promotion Administration, Ministry of Health and Welfare
2019	Healthy Workplace Certification	Health Promotion Administration, Ministry of Health and Welfare

VI. Important Contracts

NO.	Agreement	Counterparty	Period	Major Contents	Restrictions
1	Technology Transfer	Industrial Technology Research Institute.	From 1997/02	MEPG-2 Audio Decoder	Intellectual property rights, use, confidentiality, etc.
2	Licensing	Cybernetics (United States)	From 2000/04	Low Rate Coder	Intellectual property rights, use, confidentiality, etc.
3	Licensing	Saifun (Israel)	2000/05~Expiration of Saifun NROM patents	〝NROM〞	Intellectual property rights, use, confidentiality, etc.
4	Licensing	Zoran (United States)	From 2000/06	TV decoder/ 3D color signal enhancement	Intellectual property rights, use, confidentiality, etc.
5	Licensing	ARM (United Kingdom)	From 2002/08	ARM technologies	Intellectual property rights, use, confidentiality, etc.
6	Licensing	Saifun (Israel)	From 2004/04	MLC Flash	Intellectual property rights, use, confidentiality, etc.
7	Licensing	Mentor Graphics (Ireland)	From 2005/07	Operating system technology	Intellectual property rights, use, confidentiality, etc.
8	Strategic Alliance	Tower (Israel)	From 2000/12	Tower Investment	Capacity, confidentiality, etc.
9	Licensing	Qimonda	From 2011/03	Certain Flash design	Use and confidentiality, etc.
10	Joint Development	IBM.(United States)	2019/01/22~ 2022/01/21	Phase Change Memory	Intellectual property rights, use, confidentiality, etc.
11	Licensing	Creative Integrated Systems, Inc. (United States)	From 2014/04	U.S. Patent 5,241,497, 5,812,461and related patens	Licensing Warranty, Disclaimer and confidentiality, etc.
12	Settlement	Spansion (United States)	From 2015/01	Then current worldwide, patent disputes	Settlement fees and confidentiality, etc.
13	Licensing	RPX Corporation (United States)	2016/12/15~ 2019/12/14	RPX and Round Rock Patents	Intellectual property rights, use, confidentiality, etc.
14	Distribution	Avnet, Inc.	From 2017/09	International market promotion	Confidentiality, Infringement, remedies, etc.
15	Procurement	SUMCO CORPORATION (Japan)	2018/01/01~ 2020/12/31	Raw material	confidentiality, etc.
16	Procurement	Global Wafer Co., Ltd.	2018/01/01~ 2019/12/31	Raw material	confidentiality, etc.
17	Syndicated Loans	Seven banks including Taiwan Cooperative Bank	2017/11/24~ 2022/12/18	NT$7.7 billion loan	Debt ratio, current ratio, interest coverage multiples, etc.
18	Settlement and Licensing	Toshiba Corporation/ Toshiba Memory Corporation	From 2018/10/09	Then current patent disputes in Taiwan, USA and Japan	licensing, settlement fees, confidentiality, etc.
19	Syndicated Loan	Nine banks including Taiwan Cooperative Bank	2019/02/25~ 2024/02/24	NT$8 billion loan	Debt ratio, current ratio, interest coverage multiples, etc.
20	Cooperation	National Tsing Hua University	2018/03/01~ 2020/10/31	Cooperation of "Intelligent non-volatile memory circuit design"	Intellectual property rights, use, confidentiality, etc.

Chapter VI. Financial Summary

I. Condensed Balance Sheet and Comprehensive Income Statement in the Last Five Fiscal Years

(I) Condensed Balance Sheets

1. Condensed Consolidated Balance Sheets

Unit: NT$ thousands

Item \ Year		Financial Information for the Last Five Fiscal Years				
		2015	2016	2017	2018	2019
Current Assets		18,525,140	17,468,115	24,532,556	36,677,290	26,886,695
Property, Plant, and Equipment		16,596,123	15,500,459	16,258,622	19,308,675	29,365,507
Intangible Assets		109,017	29,824	45,808	45,223	47,022
Other Assets		2,397,382	2,546,117	3,356,913	3,017,633	4,357,554
Total Assets		37,627,662	35,544,515	44,193,899	59,048,821	60,656,778
Current Liabilities	Before Distribution	9,912,438	10,053,390	13,059,869	20,152,229	15,794,226
	After Distribution	9,912,438	10,053,390	14,864,645	22,360,429	Note
Non-current Liabilities		9,286,384	7,171,725	6,477,683	7,536,235	12,369,884
Total Liabilities	Before Distribution	19,198,822	17,225,115	19,537,552	27,688,464	28,164,110
	After Distribution	19,198,822	17,225,115	21,342,328	29,896,664	Note
Equity Attributable to Shareholders of the Parent		18,420,077	18,317,714	24,655,662	31,360,023	32,491,392
Share Capital		36,171,591	36,145,881	18,047,758	18,401,670	18,399,089
Capital Surplus		54,936	340,713	(207,088)	(56,241)	543,920
Retained Earnings	Before Distribution	(18,304,273)	(18,651,070)	5,413,602	14,077,527	14,685,430
	After Distribution	(18,304,273)	(18,651,070)	3,247,871	11,869,327	Note
Other Equity		656,884	641,251	1,560,451	(903,872)	(977,986)
Treasury Shares		(159,061)	(159,061)	(159,061)	(159,061)	(159,061)
Non-controlling Interests		8,763	1,686	685	334	1,276
Total Equity	Before Distribution	18,428,840	18,319,400	24,656,347	31,360,357	32,492,668
	After Distribution	18,428,840	18,319,400	22,851,571	29,152,157	Note

Note: Pending approval from the shareholders' meeting.

2. Parent Company Only Balance Sheet

Unit: NT$ thousands

Item \ Year		Financial Information for the Last Five Fiscal Years				
		2015	2016	2017	2018	2019
Current Assets		17,395,159	16,562,886	23,575,557	35,483,232	25,503,411
Property, Plant, and Equipment		16,014,250	14,974,723	15,781,321	18,829,669	28,904,312
Intangible Assets		69,285	21,945	44,149	42,755	43,559
Other Assets		4,092,118	3,949,425	4,809,653	4,689,353	6,075,266
Total Assets		37,570,812	35,508,979	44,210,680	59,045,009	60,526,548
Current Liabilities	Before Distribution	9,867,157	10,022,158	13,078,633	20,149,508	15,733,930
	After Distribution	9,867,157	10,022,158	14,883,409	22,357,708	Note
Non-current Liabilities		9,283,578	7,169,107	6,476,385	7,535,478	12,301,226
Total Liabilities	Before Distribution	19,150,735	17,191,265	19,555,018	27,684,986	28,035,156
	After Distribution	19,150,735	17,191,265	21,359,794	29,893,186	Note
Equity Attributable to Owners of the Company		18,420,077	18,317,714	24,655,662	31,360,023	32,491,392
Share Capital		36,171,591	36,145,881	18,047,758	18,401,670	18,399,089
Capital Surplus		54,936	340,713	(207,088)	(56,241)	543,920
Retained Earnings	Before Distribution	(18,304,273)	(18,651,070)	5,413,602	14,077,527	14,685,430
	After Distribution	(18,304,273)	(18,651,070)	3,247,871	11,869,327	Note
Other Equity		656,884	641,251	1,560,451	(903,872)	(977,986)
Treasury Shares		(159,061)	(159,061)	(159,061)	(159,061)	(159,061)
Non-controlling Interests		-	-	-	-	-
Total Equity	Before Distribution	18,420,077	18,317,714	24,655,662	31,360,023	32,491,392
	After Distribution	18,420,077	18,317,714	22,850,886	29,151,823	Note

Note:Pending approval from the shareholders' meeting.

(II) Statement of Comprehensive Income

1. Consolidated Statements of Comprehensive Income

Unit: NT$ thousands

Item \ Year	Financial Information for the Last Five Fiscal Years				
	2015	2016	2017	2018	2019
Net Operating Revenue	20,927,770	24,124,973	34,196,916	36,953,032	34,995,411
Gross Profit	2,511,970	5,836,120	12,634,711	13,926,319	9,615,494
Income from Operations	(5,003,776)	(357,623)	5,753,206	6,509,338	3,098,877
Non-operating Income and Expenses	822,893	(113,431)	(216,729)	2,755,049	(72,551)
Income (loss) before Income Tax	(4,180,883)	(471,054)	5,536,477	9,264,387	3,026,326
Net Income (Loss) from Continuing Operations	(4,195,941)	(246,795)	5,517,309	8,992,849	3,012,901
Income from Discontinued Operations	-	-	-	-	-
Net Income (Loss)	(4,195,941)	(246,795)	5,517,309	8,992,849	3,012,901
Other Comprehensive Income, net of income tax	(323,735)	(76,995)	606,648	(943,048)	240,854
Total Comprehensive Income	(4,519,676)	(323,790)	6,123,957	8,049,801	3,253,755
Net Income (loss) Attributable to Shareholders of the parent	(4,187,669)	(243,013)	5,517,847	8,993,006	3,011,960
Net Income Attributable to Non-controlling interest	(8,272)	(3,782)	(538)	(157)	941
Comprehensive Income Attributable to Shareholders of the parent	(4,511,362)	(318,879)	6,124,501	8,049,958	3,252,814
Comprehensive Income Attributable to Non-controlling interest	(8,314)	(4,911)	(544)	(157)	941
Earnings (Loss) Per Share	(2.37)	(0.14)	3.06	4.94	1.64

2. Parent Company Only Statements of Comprehensive Income

Unit: NT$ thousands

Item \ Year	Financial Information for the Last Five Fiscal Years				
	2015	2016	2017	2018	2019
Net Operating Revenue	20,537,429	23,733,107	33,500,949	36,280,727	34,235,969
Gross Profit	2,100,590	5,376,827	11,937,095	13,297,451	8,872,210
Income from Operations	(4,570,129)	(123,382)	5,530,009	6,391,270	2,966,762
Non-operating Income and Expenses	382,460	(351,554)	(12,162)	2,847,107	45,198
Income (Loss) before income tax	(4,187,669)	(474,936)	5,517,847	9,238,377	3,011,960
Net Income (Loss) from Continuing Operations	(4,187,669)	(474,936)	5,517,847	8,993,006	3,011,960
Income from Discontinued Operations	-	-	-	-	-
Net Income (Loss)	(4,187,669)	(243,013)	5,517,847	8,993,006	3,011,960
Other Comprehensive Income, net of income tax	(323,693)	(75,866)	606,654	(943,048)	240,854
Total Comprehensive Income	(4,511,362)	(318,879)	6,124,501	8,049,958	3,252,814
Net Income (Loss) Attributable to Shareholders of the parent	(4,187,669)	(243,013)	5,517,847	8,993,006	3,011,960
Net Income Attributable to Non-controlling interest	-	-	-	-	-
Comprehensive Income Attributable to Shareholders of the parent	(4,511,362)	(318,879)	6,124,501	8,049,958	3,252,814
Comprehensive Income Attributable to Non-controlling interest	-	-	-	-	-
Earnings (Loss) Per Share	(2.37)	(0.14)	3.06	4.94	1.64

(III) Independent Auditors' Opinions Over Last Five Fiscal Years

Year	Name of CPA	Audit opinions
108	Ming Hui Chen, Ching Pin Shih	An Unmodified Opinion
107	Ming Hui Chen, Ching Pin Shih	An Unmodified Opinion
106	Ming Hui Chen, Ching Pin Shih	An Unmodified Opinion
105	Ming Hui Chen, Ching Pin Shih	An Unmodified Opinion
104	Ming Hui Chen, Hung Wen Huang	An Unqualified Opinion with an explanatory paragraph

Note: The new auditing standard of the Republic of China requires "An unqualified opinion" be replaced by "An unmodified opinion" from 2016.

II. Financial Analysis for the Last Five Fiscal Years

1. Consolidated Financial Analysis - IFRS

Items analyzed (Note 2) \ Year		Financial analysis for the last Five fiscal years				
		2015	2016	2017	2018	2019
Financial Structure Analysis (%)	Debt ratio	51.02	48.46	44.21	46.89	46.43
	Long-term capital to property, plant and equipment ratio	167.00	164.45	191.49	201.45	152.77
Liquidity Analysis (%)	Current ratio	186.89	173.75	187.85	182.00	170.23
	Quick ratio	90.59	100.98	110.85	90.76	87.52
	Interest coverage multiples	(12.88)	(0.55)	26.68	65.63	16.37
Operating performance Analysis	Accounts receivable turnover (times)	6.47	6.95	7.30	7.25	7.44
	Days Sales Outstanding	56.41	52.51	50.00	50.34	49.05
	Inventory turnover (times)	1.93	2.22	2.54	1.65	1.65
	Average payable turnover (times)	9.67	6.67	4.34	2.60	2.76
	Average Inventory turnover days	189.11	164.41	143.70	221.21	221.21
	Property, plant and equipment turnover (times)	1.11	1.50	2.15	2.08	1.44
	Total assets turnover (times)	0.51	0.66	0.86	0.72	0.58
Profitability Analysis	Return on total assets (%)	(9.57)	0.02	14.29	17.64	5.30
	Return on equity (%)	(20.45)	(1.34)	25.68	32.11	9.44
	Pre-tax income to paid-in capital ratio (%)	(11.56)	(1.30)	30.67	50.34	16.45
	Net income ratio (%)	(20.05)	(1.02)	16.13	24.34	8.61
	Basic Earnings per share (NT$)	(2.37)	(0.14)	3.06	4.94	1.64
Cash flow	Cash flow ratio (%)	17.18	53.93	53.86	50.08	28.76
	Cash flow adequacy ratio (%)	22.06	56.89	87.65	100.94	77.63
	Cash reinvestment ratio (%)	1.35	4.30	5.30	5.83	1.58
Leverage	Operating leverage	(0.18)	(4.71)	1.34	1.33	1.88
	Financial leverage	0.94	0.54	1.04	1.02	1.07

Analysis of deviation over 20% for the last two years.:

- A decrease in long-term capital to property, plant and equipment ratio: Mainly due to the increase in property, plant and equipment income in 2019.
- A decrease in interest coverage multiples: Mainly due to the decrease in the pre-tax interest income in 2019.
- A decrease in property, plant and equipment turnover: Mainly due to the increase in property, plant and equipment income in 2019.
- A decrease in return on total assets： Mainly due to the decrease in net income in 2019.
- A decrease in return on equity： Mainly due to the decrease in net Income in 2019.
- A decrease in Pre-tax income to paid-in capital ratio：Mainly due to the decrease in Pre-tax income in 2019.
- A decrease in net income ratio： Mainly due to the decrease in net income in 2019.
- A decrease in basic Earnings per share： Mainly due to the decrease in net income in 2019.
- A decrease in cash flow ratio： Mainly due to the decrease in Net cash flow from operating activities in 2019.
- A decrease in cash flow adequacy ratio： Mainly due to the increase in capital expenditure in the last five years compare with previous period
- A decrease in cash reinvestment ratio： Mainly due to the decrease in Net cash flow from operating activities in 2019.
- An increase in operating leverage： Mainly due to the decrease in operating Income in 2019.

Note: Please refer to page 106 to 108 of this annual report for the calculation formula.

2. Parent Company Only Statements of Financial Analysis - IFRS

Items analyzed (Note 2)		Financial analysis for the last Five fiscal years 2015	2016	2017	2018	2019
Financial Structure Analysis (%)	Debt ratio	50.97	48.41	44.23	46.89	46.32
	Long-term capital to property, plant and equipment ratio	172.99	170.20	197.27	206.56	154.97
Liquidity Analysis (%)	Current ratio	176.29	165.26	180.26	176.10	162.09
	Quick ratio	80.49	93.71	103.95	85.16	79.50
	Interest coverage multiples	(12.90)	(0.56)	26.59	65.44	16.46
Operating Performance Analysis	Accounts receivable turnover (times)	6.21	6.47	6.71	7.02	7.56
	Days Sales Outstanding	58.77	56.41	54.39	51.99	48.28
	Inventory turnover (times)	1.94	2.25	2.56	1.66	1.65
	Average payable turnover (times)	9.69	6.69	4.34	2.59	2.76
	Average inventory turnover days	188.14	162.22	142.57	219.87	221.21
	Property, plant and equipment turnover (times)	1.12	1.53	2.18	2.10	1.43
	Total assets turnover (times)	0.50	0.65	0.84	0.70	0.57
Profitability Analysis	Return on total assets (%)	(9.56)	0.03	14.29	17.64	5.30
	Return on equity (%)	(20.42)	(1.32)	25.68	32.11	9.43
	Pre-tax income to paid-in capital ratio (%)	(11.58)	(1.31)	30.57	50.20	16.37
	Net income ratio (%)	(20.39)	(1.02)	16.47	24.79	8.80
	Basic Earnings per share (NT$)	(2.37)	(0.14)	3.06	4.94	1.64
Cash Flow	Cash flow ratio (%)	19.71	54.99	52.50	51.59	27.54
	Cash flow adequacy ratio (%)	26.36	65.72	88.36	104.79	78.34
	Cash reinvestment ratio (%)	1.55	4.40	5.19	6.07	1.44
Leverage	Operating leverage	(0.27)	(15.21)	1.36	1.33	1.90
	Financial leverage	0.94	0.29	1.04	1.02	1.07

Analysis of deviation over 20% for the last two years.:

- A decrease in long-term capital to property, plant and equipment ratio: Mainly due to the increase in property, plant and equipment income in 2019.
- A decrease in interest coverage multiples: Mainly due to the decrease in the pre-tax interest income in 2019.
- A decrease in property, plant and equipment turnover: Mainly due to the increase in property, plant and equipment income in 2019.
- A decrease in return on total assets： Mainly due to the decrease in net income in 2019.
- A decrease in return on equity： Mainly due to the decrease in net Income in 2019.
- A decrease in Pre-tax income to paid-in capital ratio： Mainly due to the decrease in Pre-tax income in 2019.
- A decrease in net income ratio： Mainly due to the decrease in net income in 2019.
- A decrease in basic Earnings per share： Mainly due to the decrease in net income in 2019.
- A decrease in cash flow ratio： Mainly due to the decrease in Net cash flow from operating activities in 2019.
- A decrease in cash flow adequacy ratio： Mainly due to the increase in capital expenditure in the last five years compare with previous period
- A decrease in cash reinvestment ratio： Mainly due to the decrease in Net cash flow from operating activities in 2019.
- An increase in operating leverage： Mainly due to the decrease in operating Income in 2019.

Note1 : The formula for calculation of the preceding table are as follows:

1. Financial structure
   (1) Debt-asset Ratio = Total Liabilities / Total Assets.

(2) Long-term Capital to Property, Plant, and Equipment ratio = (Total Equity + Non-current Liabilities) / Net Property, Plant, and Equipment.

2. Solvency
   (1) Current Ratio = Current Assets / Current Liabilities.
   (2) Quick Ratio = (Current Assets - Inventories - Prepaid Expenses) / Current Liabilities.
   (3) Interest coverage multiples = Net income before Tax and Interest / Interest Expenses.
3. Operating Performance
   (1) Receivables turnover rate (including bills receivable resulting from accounts receivable and business operations) = Net sales / Average accounts receivable in various periods (including bills receivable resulting from accounts receivable and business operations).
   (2) Days Sales Outstanding = 365 / Receivables Turnover Rate.
   (3) Inventory Turnover Rate = Cost of Sales / Average Inventory.
   (4) Payables turnover rate (including bills payable resulting from accounts payable and business operations) = Cost of sales / Average accounts payable in various periods (including bills payable resulting from accounts payable and business operations).
   (5) Average Inventory Turnover Days = 365 / Inventory Turnover Rate.
   (6) Property, Plant, and Equipment Turnover Rate = Net Sales / Average Net Property, Plant, and Equipment.
   (7) Total Asset Turnover Rate = Net Sales / Average Total Assets.
4. Profitability
   (1) Return on assets (ROA) = [Net income + Interest expenses x (1 - interest rates)] / Average total asset.
   (2) Return on Equity = Net Income / Average Total Equity.
   (3) Net Income ratio = Net Income / Net Sales.
   (4) Basic Earnings per Share = (Income Attributable to Owners of Parent Company – Dividends on Preferred Stock) / Weighted Average Number of Shares Issued. (Note 2)
5. Cash flow
   (1) Cash Flow Ratio = Net Cash Flow from Operating Activities / Current Liabilities.
   (2) Cash Flow Adequacy Ratio = Net cash flow from operating activities for the most recent five years / (capital expenditures + inventory increase + cash dividend) for the most recent five years.
   (3) Cash Reinvestment Ratio = (Net cash flow from operating activities － cash dividend) ／(gross property, plant, and equipment + long-term investment + other non-current assets + working capital). (Note 3)
6. Leverage
   (1) Operating Leverage = (Net Operating Revenue - Variable Operating Costs and Expenses) / Operating Income (Note 4).
   (2) Financial Leverage = Operating Income / (Operating Income - Interest Expenses).

Note 2: Special attention shall be paid to the following matters when using the calculation formula of earning per share above:
1. The calculation should be based on the weighted average shares of common stock, rather than the number of issued shares at the end of the year.
2. For any cash capital increase or transaction of treasury stock, the circulation period should be taken into consideration when calculating the weighted average number of shares.
3. For capital increase by retained earnings or capital surplus, the Company shall retrospectively adjust the earnings per share for the past fiscal year and the semi-annual earnings according to the ratio of the capital increase, without considering the issuance period of the capital increase.
4. If the preferred share is a non-convertible cumulative preferred share, the dividend of the year (whether it is issued or not) shall be deducted from net income after tax (NIAT), or net loss after tax. If the preferred stock is non-cumulative, the dividend of the preferred stock should be deducted from the net profit after tax if the Company has net profit after tax. If the Company has a deficit, no adjustment is necessary.

Note 3: Special attention should be paid to the following matters when measuring cash flow analysis:
1. Net cash flow from operating activities is the net cash inflow from operating activities in the cash flow statement.
2. Capital expenditure is the annual cash outflow of capital investment.
3. The increase in inventory is calculated only when the balance at the end of the period is greater than the balance at the beginning of the period. If the inventory decreases at the end of the year, it is counted as zero.

4. Cash dividends include cash dividends from ordinary shares and preferred stocks.
5. The gross property, plant, and equipment refer to the total value of PP&E prior to accumulated depreciation.

Note 4: The issuer shall classify the operating costs and operating expenses as fixed or variable in accordance with their nature. If it involves estimation or subjective judgment, the classification shall remain reasonable and consistent.

Note 5: If the Company's shares have no par value or a par value other than NT$10, this value shall be replaced in any calculations that involve the paid-in capital ratio with the equity ratio attributable to owners of parent Company as shown in the balance sheet.

III. Audit Committee’s Report for the Most Recent Year

Audit Committee’s Report

To: 2020 Annual Shareholders’ Meeting of Macronix International Co., Ltd.

The 2019 Financial Statements of the Company (including the parent company only financial statements), the 2019 Business Report, and the proposed 2019 Distribution Plan have been duly reviewed and concluded by the undersigned as accurate. According to Article 14-4 of Securities and Exchange Act and Article 219 of the Company Act, it is hereby reported as above.

Independent director: Yan-Kuin Su

Independent director: Tyzz-Jiun Duh

Independent director: Chiang Kao

Independent director: John C.F. Chen

Dated:March 6, 2020

IV. Financial Statements for the Most Recent Year:
Please refer to pages 125 to197 of this annual report.

V. Stand-Alone Financial Statements for the Most Recent Year Certified By the Accountant:
Please refer to pages 198 to 264 of this annual report.

VI. Financial Difficulties Encountered by the Company and Its Affiliated Companies in the Most Recent Fiscal Year and Up to the Printing Date of this Annual Report:
None.

Chapter VII. Review, Analysis, and Risks of Financial Position and Performance

I. Analysis of Financial Status

Unit: NT$ thousands

Item	2019	2018	Difference	%
Current Assets	26,886,695	36,677,290	(9,790,595)	(26.69%)
Non-current Assets	33,770,083	22,371,531	11,398,552	50.95%
Total Assets	60,656,778	59,048,821	1,607,957	2.72%
Current Liabilities	15,794,226	20,152,229	(4,358,003)	(21.63%)
Non-current Liabilities	12,369,884	7,536,235	4,833,649	64.14%
Total Liabilities	28,164,110	27,688,464	475,646	1.72%
Equity Attributed to Shareholders of the Parent	32,491,392	31,360,023	1,131,369	3.61%
Non-controlling Interest	1,276	334	942	282.04%
Total Equity	32,492,668	31,360,357	1,132,311	3.61%

If the difference in comparison with the previous period exceeds 20%, and the amount exceeds NT$10 million, the main reason and the impact are analyzed as follows:

- Current Assets：The decrease in cash, cash equivalents, and inventory caused a decrease in current assets.
- Non-current Assets：The increase in Property, plant and equipment caused an increase in non-current assets
- Current Liabilities：The decrease in accounts payable - related parties caused a decrease in current liabilities.
- Non-current Liabilities：The increase in long-term debt payable caused an increase in non-current liabilities

II. Analysis of Financial Performance

Unit: NT$ thousands

Item	2019	2018	Difference	%
Net Operating Revenue	$34,995,411	$36,953,032	($1,957,621)	(5.30%)
Operating Costs	25,379,917	23,026,713	2,353,204	10.22%
Gross Profit	9,615,494	13,926,319	(4,310,825)	(30.95%)
Realized (Unrealized) Gains from the Affiliated Companies	-	-	0	-
Realized Gross Profit	9,615,494	13,926,319	(4,310,825)	(30.95%)
Operating Expenses	6,516,617	7,416,981	(900,364)	(12.14%)
Income from Operations	3,098,877	6,509,338	(3,410,461)	(52.39%)
Non-operating Income and Expenses	(72,551)	2,755,049	(2,827,600)	(102.63%)
Net Income before Tax	3,026,326	9,264,387	(6,238,061)	(67.33%)
Income Tax Expenses	13,425	271,538	(258,113)	(95.06%)
Net Income for the Year	3,012,901	8,992,849	($5,979,948)	(66.50%)
Other Comprehensive Income (Loss)	240,854	(943,048)	1,183,902	125.54%
Total Comprehensive Income for the Year	$3,253,755	$8,049,801	($4,796,046)	(59.58%)

Analysis of any increase/decrease in ratio exceeding 20%:

- Gross Profit: Due to the slowing market demand in 2019 and the decline in memory prices, resulting in reduced revenue and loss of inventory, so the Gross Profit in 2019 decreased from 2018.
- Realized Gross Profit： The Gross Profit in 2019 caused a decrease from 2018.
- Income from Operations： The Gross Profit in 2019 caused a decrease from 2018.
- Non-operating Income and Expenses： The property rights income in 2019 caused a decrease from 2018.
- Net Income before Tax： The Gross Profit and Non-operating Income in 2019 caused a decrease from 2018.
- Income Tax Expenses： Due to the non-operating income in 2018 generate the large amount of taxable income.
- Net Income for the Year： The Gross Profit and Non-operating Income in 2019 caused a decrease from 2018.
- Other Comprehensive Income (Loss)：The unrealized gain on evaluation in 2019 caused an increase from 2018.
- Income for the Year： The Gross Profit and Non-operating Income in 2019 caused a decrease from 2018.

III. Analysis of Cash Flow

(I) Cash Flow Analysis and Remedy for Liquidity Shortfall

Unit: NT$ thousands

Cash Balance 12/31/2018①	Net Cash Provided by Operating Activities in 2019②	Net Cash used in Investing and Financing Activities in2019③	Cash Balance 12/31/2019 ①+② -③	Remedy for Liquidity shortfall	
				Investing plan	Financing plan
13,611,502	4,542,687	(9,429,100)	8,725,089	None	None

Note 1: Analysis of net cash change in 2019

(1) NT$4,542.6 million net cash generated by operating activities：mainly from net income and depreciation expenses.
(2) NT$12,403.5 million net cash used in investing activities：primarily for capital expenditures.
(3) NT$3,045.9 million net cash generated in financing activities：primarily for long-term and short-term loans and cash dividend payment.
(4) NT$71.5 million net decrease was effect of exchange rate changes

Note 2: Remedial Actions for Liquidity shortfall: Not applicable.

(II) Cash flow Projection for Next Year:

The Company plan to paying capital expenditures and cash dividends by bank financing and cash on hand.

IV. Recent Years Major Capital Expenditures and Impact on Financial and Business

(I) Capital Expenditure and Source of Funds

Unit: NT$ thousands

Project	Actual or Planned Source of Capital	Actual use of Capital			Total Amount
		2017	2018	2019	
Production equipment and advanced process equipment	Self-owned funds, bank borrowings	2,220,308	4,861,806	12,752,517	19,834,631

(II) Expected Benefits

The capital expenditure mentioned above is for expanding capacity of high-end production and accelerating the development of advanced processes (including 3D NAND); its aim is lowering unit costs and enhancing product competitiveness.

V. Reinvestment Policy for the Most Recent Fiscal Year, the Main Reasons for the Profits/Losses Generated Thereby, the Plan for Improving Re-Investment Profitability, and Investment Plans for the Coming Year

The Company's reinvestment policy is in line with its operating policies and long-term strategic purposes. Most of the investee companies are consolidated financial statements entities. The value of non-consolidated entities accounts for 3.3% of the total assets. The dividend income for fiscal year 2019 was NT$109,016 thousand on a consolidated basis.

VI. Analysis of Risk Management in the Most Recent Fiscal Year and Up to the Printing Date of this Annual Report

(I) Effects of Changes in Interest Rates, Foreign Exchange Rates and Inflation on Corporate Finance, and Future Response Measures

1. Interest rate

At the beginning of 2020, the US and China had signed the US-China Phase One trade deal and the UK had entered into the transition phase of Brexit, but then there was a breakout of a serious and unique pandemic, COVID-19. Due to the economic impact from the growing uncertainty resulting from the pandemic, many economies have adopted monetary easing policies and have pushed expansionary fiscal policies, which are intended to stimulate the economy. The global economy faces many downside risks, not only from the threat of COVID-19, but also from trade negotiations, geopolitics, and extreme climate. International institutions have thus downsized their predictions for global economic growth this year.

Due to the spread of the virus, the global economy is facing rapid decline, and severe fluctuations have shaken the international financial market. Thus, the Central Bank of Taiwan, to facilitate normal corporate operations and considering the effect of large flows of funds on financial stability, lowered the interest rate by 0.25 percentage points in its Decision of the Central Bank Supervisors Meeting on March 19, 2020. The domestic financial market continues to be in a low interest rate environment.

The Company regularly assesses the changes in bank loan rates and actively negotiates with banks to reduce interest rates or take relevant measures to reduce the impact of interest rate fluctuations on the Company's overall operations.

2. Foreign exchange rate

As more than 90% of the Company's revenue is denominated in US dollars and Japanese Yen, and about 40% of manufacturing cost as well as 70% of capital expenditure are paid in US dollars and Japanese Yen, exchange rate fluctuations in New Taiwan Dollar against the US Dollar (and Japanese Yen) will have a certain impact on the Company's financial position. The Company takes hedging actions such as disposing US dollars (Japanese Yen) and pre-selling forward foreign exchange based on the account exchange rate, and will continue to implement these measures in the future in the hope of reducing the impact of exchange rate fluctuations on the Company's profit and loss. The Company's net profit on foreign exchange in 2019 was NT$60,722 thousand.

3. Inflation

The pandemic has impacted the global supply chain and final demand. This has dampened the growth of domestic and foreign demand in Taiwan, and the growth of the domestic economy has slowed as a consequence. The Central Bank of Taiwan forecasts the growth of Taiwan’s economy this year at 1.92%. In addition, the continual spread of the pandemic will push down prices for raw materials like oil, and the import price will fall accordingly. There are also downside risks due to inflation. The predicted inflation rate is 0.59%. At present, inflation is mild and there are downside risks, though impact on the profit of the Company is limited.

(II) Policies, Main Causes of Gain or Loss and Future Response Measures with Respect to High-risk, High-leveraged Investments, Loans of funds to Others or Endorsement Guarantees, and Derivatives Transactions

1. As of the beginning of 2019 to the printing date of this Annual Report, the Company has not engaged in high-risk and leveraged financial investments. Neither did the Company loan any funds or provide any endorsements/guarantees to other parties.
2. The Company's derivative trading transactions are mainly hedged. The choice of the option for commodity trading is aimed at avoiding risks arising from the Company's business operations and hedging for the expected foreign exchange net position. In addition, the transaction and settlement difference contributed to the profit and loss of the transaction.
3. The Company has established the Procedures for Loaning of Funds to Others, the Operating Procedures for Endorsements and Guarantees, the Procedures for Handling Derivatives Transactions, and the Procedures for Acquisition and Disposal of Assets. All processes adhere strictly to these procedures in order to keep operation and financial risks under control.

(III) Future R&D Projects and the Expected Expenditure

※ Four Domains of the R&D Plan:

1. Advanced technology
   (1) The core technology and patents of the new-generation memory PCM (Phase Change Memory).
   (2) The core technology and patents of the new-generation memory ReRAM.
2. Manufacturing process
   (1) The manufacturing process of the 3D NAND Flash and subsequent derivative developments.
   (2) The manufacturing process of the 19nm 2D NAND Flash and subsequent micrographic technology development.
   (3) The manufacturing process of the 48nm NOR Flash and subsequent derivative developments.
3. Product
   (1) High capacity 3D NAND Flash.
   (2) High storage capacity 2D NAND Flash.
   (3) High speed and automotive NOR Flash.
4. Quality and Testing
   (1) Development of quality certification and production processes for automobiles.

※ Expected Expenditure for R&D:

The estimated R&D expenditure for 2020 is approximately NT$4.1 billion. (The expenditure includes personnel costs, equipment royalty, patent rights, trademark application fee, etc.)

(IV)Changes in Domestic and Overseas Policies and Laws That Have an Impact on the Company's Financial and Business and the Countermeasures:

The Company has always complied with policies and laws and keeps a close eye on significant changes in policies and laws that may affect the Company's operations and adjusts accordingly. The followings are the important domestic and overseas policies and laws change in 2019 and the Company's countermeasures:

1. The Executive Yuan passed draft amendments to a portion of the provisions of the Statute for Industrial Innovation on March 21, 2019, and the Legislative Yuan passed the third reading on June 21, 2019. The legislation extends the current period of tax incentive measures by 10 years; tax incentives include R&D investment credits, technology shareholding, deferral of tax for shares acquired by creators, deferral of tax for employee reward stocks and lower price, limited partnership

venture capital firms being allowed to use the transparent entity concept for taxation purposes, and tax discounts for angel investors. Aiming to enhance its core competitiveness, the Company invests a considerable proportion in R&D costs each year, thereby offsetting tax costs through the use of applicable R&D investment credits.

2. Article 23-3 of the amended Statute for Industrial Innovation was announced by the Office of the President on July 24, 2019, on which date the amendment was promulgated. The amendment is meant to urge for-profit enterprises to make substantial investments with their earnings, and to improve the quality of production technology, products, and labor services. Beginning with the undistributed earnings with the addition of the income tax declaration from for-profit enterprises of 2018, within three years of the year following the occurrence of the earnings, the earnings are used to build or purchase buildings, software/hardware equipment, or technology for self-production or operations up to a certain amount. The investment amount calculated from the undistributed earnings for the year in accordance with the provisions of Article 66-9 of the Income Tax Act may be listed as a deduction item. In order to enhance process capability and the competitiveness of products, the Company invests undistributed earnings in machinery and equipment. This regulation will be applied for tax reduction.
3. In addition, the Ministry of Economic Affairs (MOEA) promulgated the Deduction Guidelines for Companies or Limited Partnerships Investing in Smart Machinery or 5G Telecommunications Systems formulated in accordance with Article 10-1, Paragraph 6 of the Statute for Industrial Innovation on October 24, 2019. The Guidelines are enacted for the period from January 1, 2019, to December 31, 2021, during which period, investment in smart machinery or 5G telecommunications systems may apply for investment credits. The Company has always devoted itself to the production of smart factories, and will apply for investment credits to increase effects of tax benefits.
4. Taiwan adopted the IFRS 16 "Leases" (IFRS 16) on January 1, 2019, at the same time as the rest of the world. Considering that domestic enterprises must comply with the Regulations Governing the Preparation of Financial Reports by Securities Issuers and IFRSs when preparing financial reports, the FSC amended partial articles of the Regulations Governing the Preparation of Financial Reports by Securities Issuers. The Company has cooperated in the revision of relevant operating specifications and has prepared financial reports in accordance with government announcements.
5. The Office of the President announced amendments to the Renewable Energy Development Act on May 1, 2019; in addition to raising the renewable energy target for 2025 to 27 gigawatts and encouraging green energy to move into the free market, the amended act also formulates obligations for large-scale energy users and rewards for technology and participation of citizens. The Company is a large-scale energy user according to law, and it must establish 10% renewable energy consumption of its contracted capacity. The Company established a green energy team in April 2019, and currently is continuing to participate in all law and regulation conferences of the government and track such laws and regulations each quarter.
6. The Legislative Yuan passed the third reading of new amendments to the Labor Standards Act on May 24. The amendments are primarily for adding relevant systems for the protection of dispatched workers, and to add relevant regulations for the rights and interests of dispatched workers. The Company believes that talent is the foundation and the most valuable asset of a corporation. It has always attached great importance to employee welfare, and has not hired dispatched labor.

(V) Impact of Changes in Technology and Industry to the Company's Finance and Business and the Countermeasures

The electronics industry and the semiconductor market have always been affected by economic cycles and rapid changes in product demand. The global memory market has been impacted by uncertainties, including the US-China trade negotiations, resulting in oversupply price down pressure; revenue and profits have been hit as a result. However, in recent years, Macronix has successfully deployed in high-capacity and high-quality markets, and thus it can continue to provide high-end application clients with superior products of the highest quality. This has reduced the impact from the drop in prices.

Macronix has continued to maintain its global competitiveness owing to crucial breakthroughs and innovations in technology. Ever since its founding, it has constantly engaged in R&D of prospective memory technology and development of new products. Investment expenses for research and development were equivalent to about 10% of revenue last year (2019). As of the end of last year (2019), Macronix accumulated 8,018 patents worldwide. It also has incorporated many foundational patents and key 3D NAND technologies. Macronix not only holds a high quantity of patents, but also patents of high quality, which further strengthens the Company's leading position in the non-volatile memory market and facilitates its long-term development.

As applications of AI such as IoT, automotive electronics, and 5G telecommunications are increasing in importance, Macronix has continued to provide its clients with solutions that go beyond normal requirements for standards and capacities. For example: We introduced the brand-new ArmorFlash™ last year (2019), wherein crucial security elements have been incorporated into memory chips to satisfy pressing needs for information security in such memory applications as IoT and automotive electronics. This technology has been adopted in the autonomous vehicle computing platforms of international manufacturers. Macronix's OctaBus flash memory provides high-efficiency data transmission, which has led to its use in solutions for clients promoting embedded AI in memory. In addition, Macronix provides low power consumption, high-speed IO, and high capacity memory solutions to adapt to the coming 5G-era. These solutions have fulfilled client expectations for stability and durability, and have been adopted by 80% of manufacturers of 5G base stations. These many examples are ample evidence that Macronix possesses first-rate product designs and manufacturing technologies. It is precisely these qualities and the Company's competitive edge that have distinguished Macronix in the memory market. At the same time, Macronix has incorporated big data and AI analysis into its production process to increase product yield, giving it a leading position in terms of features and advantages.

(VI) Impact of Corporate Image Change on Risk Management and Response Measures: NA.

(VII) Expected Benefits and Potential Risks of Merger and Acquisition: NA.

(VIII) Expected Benefits, Potential Risks, and Countermeasures of Factory Expansion

Macronix plans its production capacity based on the market situation, customer demands, and product and technology development requirements. In response to market and operational requirements, Macronix has invested a total capital expenditure of NT$14.2 billion since the fourth quarter of 2018 in expanding the high-end production capacity and process technology R&D of its 12-inch fab to advance NAND Flash to 19 nm and NOR Flash to 55 nm. Besides creating higher revenue and profit through the mass production of high-end process products, in the fourth quarter of 2019, the board of directors passed NT$8.7 billion in capital expenditure, which will be invested in the 3D NAND process technology and product development. Also, the Company will continue to press forward with 192-layer stack technology to give Macronix an even more solid foundation for its competitive ability and enhance product competitiveness. Macronix hopes to become a major supplier in this sector to further enhance profitability and meet customer needs. The Company will continue monitoring market changes, use the forecast and management mechanism we established to monitor our business situation and possible changes, and make timely adjustments to lower our operating risks.

(IX) Risks Relating to the Concentration of Purchasing or Sales and the Countermeasures

The Company's primary raw materials are silicon wafers, raw chemicals, and gases used for processing. If suppliers of such raw materials are affected by environmental or economic policies, there may be unexpected risk of insufficient supply; or risk of market prices rising due to rapid increases in demand; or procurement quality being not on par with standards, which leads to risk of damaging the Company's products. In addition, risk of overstock caused by excessive purchasing and thus increasing the cost risk of the damage rate not only negatively impacts the Company's product gross profit, it may also affect the risk of the Company failing to meet customer supply needs. For purposes of ensuring the

recognition and trust of its customers, the Company's procurement policy, based on smooth supply chain information, builds excellent cooperative relationships with its suppliers, adopts a strategy of stable and decentralized sources for purchasing, and focuses on the selection of qualified suppliers with respect to their quality; it also enhances social responsibility and compliance with the requirements of environmental protection regulations. Furthermore, we continue to search for new suppliers to enhance our cost competitiveness and reduce unforeseeable risks in our supply chain.
Changes in demand of the Company's primary customers will affect the Company's operational flexibility and production and inventory model. The primary customers of the Company are all world-class. The Company's sales strategy has been focused on working closely with its customers and fostering long-term partnerships, which helps to reduce the risks resulting from concentration of sales. In addition, to understand the rapid changes in electronics industry trends and actively explore new markets, the Company has invested in consumer electronics, communications, and computers, and has also invested in smart applications such as artificial intelligence (AI) combined with the Internet of Things (IoT), automotive electronics, and 5G telecommunications. With its first-class product design and manufacturing technology, the Company can reduce the impact from changes in demand of concentrated sales and the risk of market fluctuations.

(X) The Impact of Mass Transfer of Equity or Change by Directors, Supervisors, or Shareholders with over than 10% Interest on the Company, Associated Risks and Response Measures: NA.

(XI) The Impact of Change of Operating Rights on the Company, Associated Risk and Response Measures: NA.

(XII) Litigious or Non-litigious Events

The Company’s major disputes in 2019 are as follows:

1. In the case of the theft of Fab5, the prosecutor of Taiwan Hsinchu District Prosecutors Office prosecuted the accused on June 24, 2019 for aggravated theft. The company has also sought compensation from the accused.
2. The former employee of the Company, David Lin, has filed a claim for compensation for the breach of contract, and has obtained a certificate confirming the payment order issued by the court.

(XIII) Other Important Risks and Countermeasures:

Information Security Risk Assessment

The rapid technological development of mobile devices and the Internet in recent years has brought great convenience and efficiency to individuals and corporations. However, threats to information security have also become commonplace. Should a major information security breach occur, the Company's information assets could face intentional/accidental internal/external threats and damage, causing confidential information to lose its confidentiality, usability, and integrity. This could have a major impact on the Company's competitiveness, business operations, and even financial performance and reputation.
Macronix set up the “Information Security Committee” and “Information Security Core Team” to establish an information security policy as well as promote various information security management measures to reduce the risk of a breach of information security. The committee is also dedicated to lowering the risks of any potential management incident to an acceptable degree to ensure the Company's normal operations.
The Company continues to strengthen information security and business secret management, and reviews and revises its information security policy and management regulations in response to management requirements. The preventative measures include establishing appropriate safety control mechanisms for the use of computers, regulatory information devices, and network resources. Confidential information and business secrets are protected by measures such as classification, labeling, and external delivery control. Information security event reporting and handling procedures were established, so that information security events can be immediately handled when they occur.

The Company has purchased information security insurance to reduce the damages and impact. In the worst-case scenario, threats can be addressed in a timely manner to contain the damage and impact. Since expensive or complicated management measures and tools can't play their roles if the staff lack adequate awareness of information security and business secrets protection, it is strengthened through annual education and training. The e-newsletter is also in place to promote information security so that all employees can do their parts in the Company's information security.

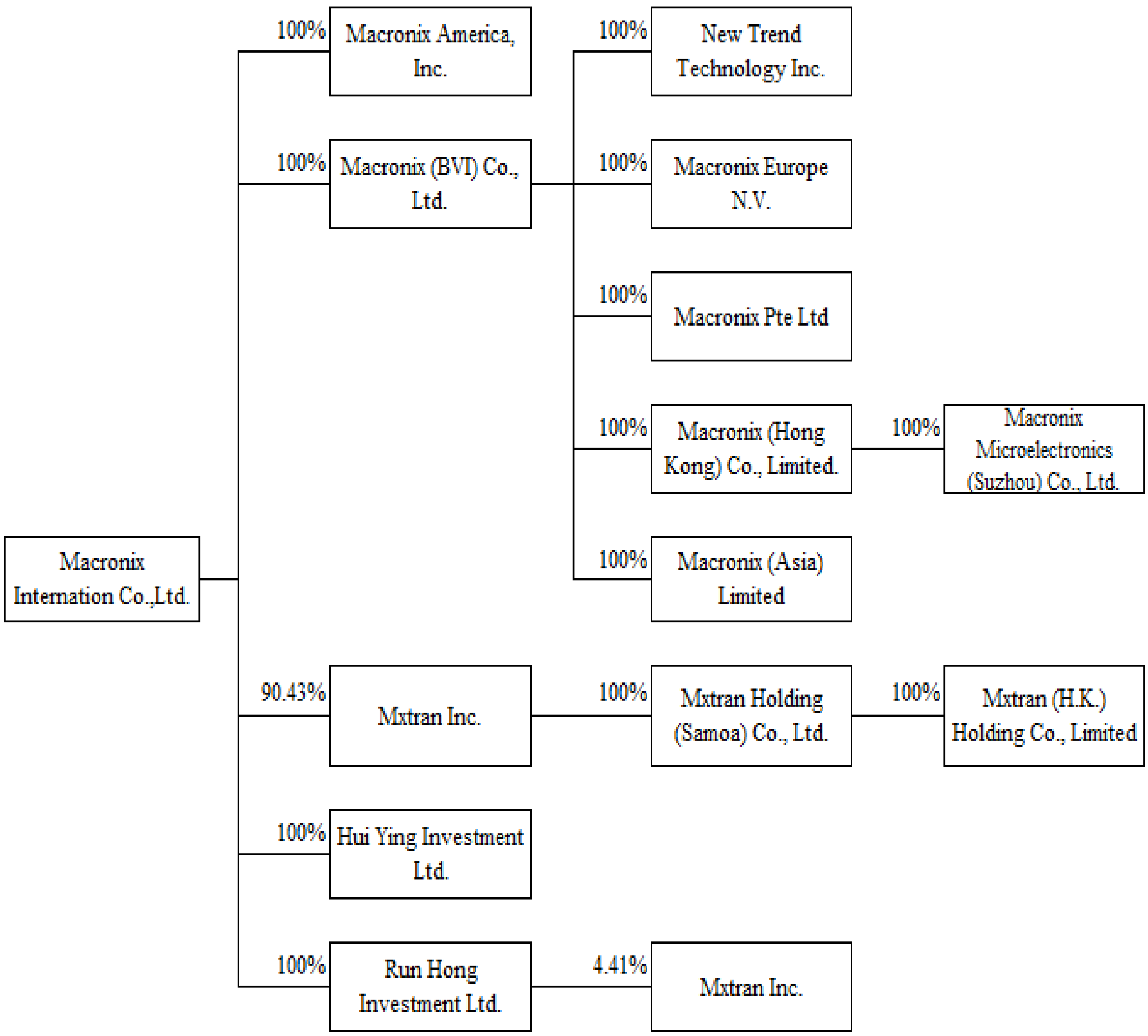
VII. Other Significant Events: None.

Chapter VIII. Special Disclosure

I. Summary of Affiliated Companies (Ended on December 31st, 2019)

(I) Consolidated Business Report

1. Corporate Affiliation Chart



2. Basic Information of Affiliated Companies

Unit: NT$ thousands

Company Name	Establishment Date	Address	Paid-in Capital	Primary Business or Production
Macronix America, Inc.	March,1994	680 N. McCarthy Blvd Suite 200, Milpitas, CA 95035	US$100	Sales and marketing
Macronix (BVI) Co., Ltd.	February,1997	Vistra Corporate Services Centre, Wickhams Cay II, Road Town, Tortola, VG1110,British Virgin Islands	US$ 212,048	Investment holding company
Hui Ying Investment Ltd.	May,1998	20F, 4, Min-Chuan E. Road, Sec.3, Taipei, Taiwan, R.O.C	NT$500,000	Investment
Run Hong Investment Ltd.	October,2001	19F, 4, Min-Chuan E. Road, Sec. 3, Taipei, Taiwan, R.O.C	NT$984,432	Investment
Mxtran Inc.	August.2006	9F, 16, Li-Hsin Road, Science Park, Hsinchu, Taiwan, R.O.C	NT$770,000	IC design
Mxtran Holding (Samoa) Co., Ltd.	May,2009	Portcullis Chambers, P.O. Box 1225, Apia, Samoa	US$1,170	Investment holding company
Mxtran (H.K.) Holding Co., Limited	June,2009	Rm 1702, Sino Centre 582-592 Nathan Road, Mongkok, Hong Kong	US$790	Investment holding company
New Trend Technology Inc.	January,1999	680 N. McCarthy Blvd Suite 200, Milpitas, CA95035	US$ 27,150	IC design
Macronix Europe N.V.	July,1999	Koningin Astridlaan 49 Bus 6 1780 Wemmel, Belgium	EUR 62	After-sales services
Macronix Pte Ltd	August,2000	133 Cecil Street #05-02 Keck Seng Tower Singapore (069535)	SDG 174	After-sales services
Macronix (Hong Kong) Co., Limited.	March,2003	702-703, 7/F, Building 9, Hong Kong Science Park, 5 Science Park West Avenue, Sha Tin, N.T.	US$11,500	Sales and marketing
Macronix Microelectronics (Suzhou) Co., Ltd.	September,2005	No.55, Su Hong Xi Street, Suzhou Industrial Park, SuZhou City, Jiangsu, China	RMB 63,996	development of integrated circuit system and software
Macronix (Asia) Limited	October,2004	P.O. Box 31119 Grand Pavilion, Hibiscus Way, 802 West Bay Road, Grand Cayman, KY1-1205, Cayman Islands	US$700	Investment holding company

3.Presumed to be in Effective Control of the Same Shareholder Information with the Affiliate: None.

4.Overall Business Scope of Affiliated Companies

The business scope of the Company and its affiliated companies include the research and development, design, manufacture, testing, sales, consultancy of integrated circuits, various semiconductor components, and their system applications, and general investment

5. Directors, Supervisors, and President in all Affiliated Companies:

Company Name	Directors, Supervisors, and President		Shares Held	
	Title	Name or Representative	Number of Shares	Percentage of Shares
Macronix America, Inc.	Chairman of the Board	Chih-Yuan Lu	0	0%
	Director	Miin Chyou Wu	0	0%
	Director	Dang-Hsing Yiu	0	0%
	President	Ya-Sheng Yang	0	0%
Macronix (BVI) Co., Ltd.	Director	Miin Chyou Wu	0	0%
Hui Ying Investment Ltd.	Director	Macronix International Co., Ltd. Representative: Miin Chyou Wu	-	100%
Run Hong Investment Ltd.	Director	Macronix International Co., Ltd. Representative: Miin Chyou Wu	-	100%
Mxtran Inc.	Chairman of the Board	Miin Chyou Wu	120,000	0.16%
	Director	Macronix International Co., Ltd. Representative: Dang-Hsing Yiu	69,627,323	90.43%
	Director/President	Macronix International Co., Ltd. Representative: Showen Huang	69,627,323	90.43%
	Director	Achi Capital Limited	90,000	0.12%
	Supervisor	Run Hong Investment Ltd. Representative: Pei-Fu Yeh	3,393,200	4.41%
Mxtran Holding (Samoa) Co., Ltd.	Director	Showen Huang	0	0%
Mxtran (H.K.) Holding Co., Limited	Director	Showen Huang	0	0%
New Trend Technology Inc.	Director	Pei-Fu Yeh	0	0%
Macronix Europe N.V.	Chairman of the Board	Ful-Long Ni	0	0%
	Director	Miin Chyou Wu	1	0%
	Director	Chih-Yuan Lu	0	0%
	Director	Pei-Fu Yeh	0	0%
	Director	Jon-Ten Chung	0	0%
	President	Timothy Pusey	0	0%
Macronix Pte Ltd	Director	Jon-Ten Chung	0	0%
	Director	Ful-Long Ni	0	0%
	Director/President	Tan Siah Cheae	0	0%
Macronix (Hong Kong) Co., Limited.	Director	Miin Chyou Wu	0	0%
	Director	Chih-Yuan Lu	0	0%
	Director	Ful-Long Ni	0	0%
	Director	Pei-Fu Yeh	0	0%
	Director	Jon-Ten Chung	0	0%
	President	Hao-Wei Hsieh	0	0%
Macronix Microelectronics (Suzhou) Co., Ltd.	Executive Director	Miin Chyou Wu	0	0%
	President	Hsieng-Hung Chang	0	0%
	Supervisor	Hsiu-Mei Lin	0	0%
Macronix (Asia) Limited	Director	Miin Chyou Wu	0	0%

6. Operational Highlights of Affiliated Companies

Unit: NT$ thousands

Company Name	Capital	Total Assets	Total Liabilities	Net Value	Operating Revenue	Operating Profit	Net Profit (Loss) (after tax)	Earnings per Share (NT$) (after tax)
Macronix America, Inc.	2,640	418,295	246,271	172,024	1,643,391	4,607	9,402	94.02
Macronix (BVI) Co., Ltd.	6,977,7	2,140,449	125	2,140,324	-	(185)	104,629	0.49
Hui Ying Investment Ltd.	500,000	148,594	100	148,494	-	(101)	12,682	NA
Run Hong Investment Ltd.	984,432	14,698	100	14,598	-	(101)	780	NA
Mxtran Inc.	770,000	29,213	4,524	24,689	32,600	18,411	18,238	0.24
Mxtran Holding (Samoa) Co., Ltd.	35,979	1,038	-	1,038	-	-	2	-
Mxtran (H.K.) Holding Co., Limited	23,880	440	-	440	-	-	1	-
New Trend Technology Inc.	891,291	292,971	-	292,971	-	(8,443)	(8,468)	(0.31)
Macronix Europe N.V.	2,106	135,510	14,851	120,659	149,342	10,006	7,223	7,223
Macronix Pte Ltd	3,291	21,591	1,264	20,327	25,051	1,193	1,123	6.45
Macronix (Hong Kong) Co., Limited.	378,427	1,699,001	893,865	805,136	5,015,845	73,897	88,280	0.98
Macronix Microelectronics (Suzhou) Co., Ltd.	296,160	480,410	97,619	382,791	349,867	13,081	17,530	NA
Macronix (Asia) Limited	23,035	80,939	12,973	67,966	108,645	6,839	5,257	7.51

(II) Consolidated Financial Statements: please refer to page 126 of this annual report.

(III) Affiliation Report: None.

II. Private Placement Securities of the Most Recent Year and Up to the Printing Date of this Annual Report: None.

III. Subsidiaries' Holding or Disposing the Company's Shares in the Most Recent Fiscal Year and Up to the Printing Date of this Annual Report

Unit: NT$ thousands; Shares; %

Name of Subsidiary	Stock Capital Collected	Fund Source	Shareholding Ratio of the Company	Date of Acquisition or Disposition	Shares and Amount Acquired	Shares and Amount Disposed of	Investment Gain (Loss)	Shareholdings and Amount Up to the Printing Date of this Annual Report	Mortgage	Endorsement Amount Made for the Subsidiary	Amount Loaned to the Subsidiary
Hui Ying Investment Ltd.	NT$500,000	Parent company	100%	2019	None	None	None	1,956,619 shares NT$50,676 (Note)	None	None	None
				This fiscal year up to the date of publication of the annual report	None	None	None		None	None	None

Note: The amount is calculated based on the closing price of the common shares at NT$25.90 per share on March 27, 2020.

IV. Other Necessary Supplement: None

V. The Events Resulting in Significant Impact to Shareholders' Equity or Stock Prices Under Article 36(3) (ii) of Securities and Exchange Act in the Most Recent Fiscal Year and Up to the Printing Date of this Annual Report.: None.

Macronix International Co., Ltd. and Subsidiaries

Consolidated Financial Statements for the Years Ended December 31, 2019 and 2018 and Independent Auditors' Report

DECLARATION OF CONSOLIDATION OF FINANCIAL STATEMENTS OF AFFILIATES

The entities that are required to be included in the consolidated financial statements of Macronix International Co., Ltd. as of and for the year ended December 31, 2019 under the "Criteria Governing Preparation of Affiliation Reports, Consolidated Business Reports and Consolidated Financial Statements of Affiliated Enterprises" are all the same as those included in the consolidated financial statements prepared in conformity with the International Financial Reporting Standards 10 "Consolidated Financial Statements". In addition, all the relevant information required to be disclosed in the consolidated financial statements have been disclosed. Hence, we do not prepare a separate set of consolidated financial statements.

Very truly yours,

Macronix International Co., Ltd.

By

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Miin Wu
Chairman

February 17, 2020

Deloitte.

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INDEPENDENT AUDITORS' REPORT

The Board of Directors and the Shareholders
Macronix International Co., Ltd.

Opinion

We have audited the accompanying consolidated financial statements of Macronix International Co., Ltd. (the "Company") and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated balance sheets as of December 31, 2019 and 2018, and the consolidated statements of comprehensive income, changes in equity and cash flows for the years then ended, and the notes to the consolidated financial statements, including a summary of significant accounting policies (collectively referred to as the "consolidated financial statements").

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2019 and 2018, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with the Regulations Governing the Preparation of Financial Reports by Securities Issuers, and International Financial Reporting Standards (IFRS), International Accounting Standards (IAS), IFRIC Interpretations (IFRIC), and SIC Interpretations (SIC) endorsed and issued into effect by the Financial Supervisory Commission of the Republic of China.

Basis for Opinion

We conducted our audits in accordance with the Regulations Governing Auditing and Attestation of Financial Statements by Certified Public Accountants and auditing standards generally accepted in the Republic of China. Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are independent of the Group in accordance with The Norm of Professional Ethics for Certified Public Accountant of the Republic of China, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements for the year ended December 31, 2019. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Key audit matters for the Company's consolidated financial statements for the year ended December 31, 2019 are stated as follows:

<u>Recognition of revenue</u>

The Group operates principally as a supplier of memory chips. In recent years, due to changes in the memory chip market, the amount of sales revenue in 2019 has decreased. For new customers or customers whose sales changes are different from expected, the risk of inflated sales revenue may increase, which has a significant impact on the consolidated financial statements. We therefore considered that the testing of the existence and occurrence of sales is a key audit matter of the current period.

Our audit procedures performed included, but not limited to, the following:

1. We evaluated the appropriateness of the Group's accounting policies relating to revenue recognition;

2. We understood the internal controls over the approval of sales orders and crediting and tested the effectiveness of those internal controls;

3. We sampled the sales documents to inspect sales details;

4. We verified if any deviant occurred in those parties when the sales were recorded and cash was received;

5. We assessed the significant sales return or sales discount taking place in the subsequent period.

Valuation of inventory

The Group provides ROM products, NOR Flash, and NAND Flash, which are widely used in consumer electronics. As of December 31, 2019, inventory was NT$12,810,437 thousand, accounting for 21% of the total assets in the consolidated balance sheet. With the current rapid changes in technology and the improvements in manufacturing technologies, demand for memory chip market could change significantly and thereby, results in inventory obsolescence. Since inventory valuation and estimates of net realizable value of inventory are subject to management's judgment, they are considered as accounting estimates with relatively high uncertainty. Therefore, valuation of inventory has been identified as a key audit matter. Refer to notes 4 (f), 5 (a), and 10 to the consolidated financial statements for the details of accounting policy, accounting judgment, key sources of estimation uncertainty and the related information about the valuation of inventory.

Our key audit procedures performed in respect of the above area included the following:

1. We understood and assessed the adequacy of the policy and procedures for the inventory valuation adopted by the management.

2. We obtained data on the assessment of lower cost or net realizable value and selected sample data, and we tested the reasonableness of net realizable value by comparing inventory carrying amounts to recent selling prices; we tested the accuracy of allowance for inventory loss by comparing net realizable value with carrying amounts. We obtained the inventory aging report, and we tested the accuracy and completeness of the report by agreeing the age interval, quantity, and amount to the supporting documents of inbound inventory. We assessed the reasonableness of allowance for inventory loss by recalculating the amount in accordance with the stated valuation policy for the inventory.

3. We performed a retrospective review of inventory movements to evaluate the reasonableness of inventory obsolescence reserve policy and policy on scrapping of inventories.

Other Matter

We have also audited the parent company only financial statements of the Company as of and for the years ended December 31, 2019 and 2018 on which we have issued an unmodified opinion.

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

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with the Regulations Governing the Preparation of Financial Reports by Securities Issuers, and International Financial Reporting Standards (IFRS), International Accounting Standards (IAS), IFRIC Interpretations (IFRIC), and SIC Interpretations (SIC) endorsed and issued into effect by the Financial Supervisory Commission of the Republic of China and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

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

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

Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the auditing standards generally accepted in the Republic of China will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with the auditing standards generally accepted in the Republic of China, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

1. Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

2. Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.

3. Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

4. Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Group to cease to continue as a going concern.

5. Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

6. Obtain sufficient and appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision, and performance of the group audit. We remain solely responsible for our audit opinion.

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

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

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements for the year ended December 31, 2019 and are therefore the key audit matters. We describe these matters in our auditors' report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partners on the audit resulting in this independent auditors' report are Ming Hui Chen and Ching Pin Shih.

Deloitte & Touche
Taipei, Taiwan
Republic of China

February 17, 2020

<u>Notice to Readers</u>

The accompanying consolidated financial statements are intended only to present the consolidated financial position, financial performance and cash flows in accordance with accounting principles and practices generally accepted in the Republic of China and not those of any other jurisdictions. The standards, procedures and practices to audit such consolidated financial statements are those generally applied in the Republic of China.

For the convenience of readers, the independent auditors' report and the accompanying consolidated financial statements have been translated into English from the original Chinese version prepared and used in the Republic of China. If there is any conflict between the English version and the original Chinese version or any difference in the interpretation of the two versions, the Chinese-language independent auditors' report and consolidated financial statements shall prevail.

MACRONIX INTERNATIONAL CO., LTD. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS
DECEMBER 31, 2019 AND 2018
(In Thousands of New Taiwan Dollars)

	2019		2018	
ASSETS	**Amount**	**%**	**Amount**	**%**
CURRENT ASSETS				
Cash and cash equivalents (Notes 4, 6 and 31)	$ 8,725,089	14	$ 13,611,502	23
Notes receivable and trade receivables, net (Notes 4, 9 and 31)	3,947,729	7	3,786,498	7
Receivables from related parties, net (Notes 4, 31 and 32)	973,076	2	695,028	1
Other receivables (Notes 4, 9, 31 and 32)	156,080	-	169,916	-
Inventories (Notes 4, 5 and 10)	12,810,437	21	17,949,234	30
Financial assets measured at amortized cost - current (Notes 4, 8 and 31)	21,525	-	26,832	-
Other current assets (Notes 15 and 17)	252,759	-	438,280	1
Total current assets	26,886,695	44	36,677,290	62
NON-CURRENT ASSETS				
Financial assets at fair value through other comprehensive income (FVTOCI) - non-current (Notes 4, 7 and 31)	2,001,130	3	1,601,941	3
Financial assets measured at amortized cost - non-current (Notes 4, 8 and 31)	-	-	22,360	-
Property, plant and equipment (Notes 4, 12, 33 and 34)	29,365,507	49	19,308,675	33
Right-of-use assets (Notes 3, 4 and 13)	1,077,468	2	-	-
Intangible assets (Notes 4 and 14)	47,022	-	45,223	-
Deferred tax assets (Notes 4 and 27)	1,107,366	2	1,184,101	2
Other financial assets - non-current (Notes 4, 16, 31 and 33)	171,590	-	190,510	-
Other non-current assets (Notes 15 and 17)	-	-	18,721	-
Total non-current assets	33,770,083	56	22,371,531	38
TOTAL	$ 60,656,778	100	$ 59,048,821	100
LIABILITIES AND EQUITY				
CURRENT LIABILITIES				
Short-term borrowings (Notes 18 and 31)	$ 1,550,000	3	$ -	-
Contract liabilities (Note 25)	98,557	-	14,913	-
Notes payable and trade payables (Notes 19 and 31)	2,141,510	4	2,613,758	4
Payables to related parties (Notes 31 and 32)	4,720,212	8	8,926,201	15
Accrued employees' compensation and remuneration of directors (Notes 26 and 32)	1,285,774	2	2,292,435	4
Payables for purchases of equipment (Note 31)	878,536	1	964,872	2
Other payables (Notes 20 and 31)	1,496,387	3	1,446,095	2
Other payables to related parties (Notes 31 and 32)	-	-	425	-
Current tax liabilities (Notes 4 and 27)	11,231	-	187,612	-
Provisions - current (Notes 4 and 22)	20,460	-	28,517	-
Lease liabilities - current (Notes 3, 4 and 13)	93,919	-	-	-
Current portion of long-term borrowings (Notes 18, 31 and 33)	3,267,200	5	3,334,772	6
Other current liabilities (Note 21)	230,440	-	342,629	1
Total current liabilities	15,794,226	26	20,152,229	34
NON-CURRENT LIABILITIES				
Long-term borrowings (Notes 18, 31 and 33)	9,774,330	16	5,885,318	10
Lease liabilities - non-current (Notes 3, 4 and 13)	973,712	1	-	-
Net defined benefit liabilities (Notes 4 and 23)	1,611,562	3	1,640,817	3
Other non-current liabilities (Note 21)	10,280	-	10,100	-
Total non-current liabilities	12,369,884	20	7,536,235	13
Total liabilities	28,164,110	46	27,688,464	47
EQUITY ATTRIBUTABLE TO SHAREHOLDERS OF THE PARENT (Notes 4, 24 and 29)				
Share capital				
Ordinary shares	18,399,271	30	18,402,919	31
Share capital to be cancelled	(182)	-	(1,249)	-
Total share capital	18,399,089	30	18,401,670	31
Capital surplus	543,920	1	(56,241)	-
Retained earnings				
Legal reserve	1,440,661	2	541,360	1
Special reserve	1,007,052	2	74,275	-
Unappropriated earnings	12,237,717	20	13,461,892	23
Total retained earnings	14,685,430	24	14,077,527	24
Other equity	(977,986)	(2)	(903,872)	(2)
Treasury shares	(159,061)	-	(159,061)	-
Equity attributable to shareholders of the parent	32,491,392	54	31,360,023	53
NON-CONTROLLING INTERESTS (Note 24)	1,276	-	334	-
Total equity	32,492,668	54	31,360,357	53
TOTAL	$ 60,656,778	100	$ 59,048,821	100

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

MACRONIX INTERNATIONAL CO., LTD. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018
(In Thousands of New Taiwan Dollars, Except Earnings Per Share)

	2019		2018	
	Amount	**%**	**Amount**	**%**
NET OPERATING REVENUE (Notes 4, 25, 32 and 37)	$ 34,995,411	100	$ 36,953,032	100
OPERATING COSTS (Notes 4, 10, 23, 26 and 32)	25,379,917	72	23,026,713	62
GROSS PROFIT	9,615,494	28	13,926,319	38
OPERATING EXPENSES (Notes 4, 23, 26 and 32)				
Selling and marketing expenses	1,518,621	5	1,400,549	4
General and administrative expenses	1,442,077	4	1,756,892	5
Research and development expenses	3,555,919	10	4,259,540	11
Total operating expenses	6,516,617	19	7,416,981	20
INCOME FROM OPERATIONS	3,098,877	9	6,509,338	18
NON-OPERATING INCOME AND EXPENSES				
Other income (Notes 4, 7, 13 and 26)	190,594	-	2,661,551	7
Other gains and losses (Note 26)	(66,202)	-	236,851	1
Finance costs (Notes 4 and 26)	(196,943)	(1)	(143,353)	(1)
Total non-operating income and expenses	(72,551)	(1)	2,755,049	7
INCOME BEFORE INCOME TAX FROM CONTINUING OPERATIONS	3,026,326	8	9,264,387	25
INCOME TAX EXPENSE (Notes 4 and 27)	13,425	-	271,538	1
NET INCOME FOR THE YEAR	3,012,901	8	8,992,849	24
OTHER COMPREHENSIVE INCOME (LOSS)				
Items that will not be reclassified subsequently to profit or loss:				
Remeasurement of defined benefit plans	(108,120)	-	(79,122)	-
Unrealized gain (loss) on investments in equity instruments at FVTOCI (Notes 24 and 31)	447,722	1	(958,735)	(3)
Items that may be reclassified subsequently to profit or loss:				
Exchange differences on translating foreign operations (Note 24)	(98,748)	-	94,809	1
Other comprehensive income (loss) for the year, net of income tax	240,854	1	(943,048)	(2)
TOTAL COMPREHENSIVE INCOME FOR THE YEAR	$ 3,253,755	9	$ 8,049,801	22

(Continued)

MACRONIX INTERNATIONAL CO., LTD. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018
(In Thousands of New Taiwan Dollars, Except Earnings Per Share)

	2019		2018	
	Amount	**%**	**Amount**	**%**
NET INCOME (LOSS) ATTRIBUTABLE TO:				
Shareholders of the parent	$ 3,011,960	9	$ 8,993,006	24
Non-controlling interests	941	-	(157)	-
	$ 3,012,901	9	$ 8,992,849	24
TOTAL COMPREHENSIVE INCOME (LOSS) ATTRIBUTABLE TO:				
Shareholders of the parent	$ 3,252,814	9	$ 8,049,958	22
Non-controlling interests	941	-	(157)	-
	$ 3,253,755	9	$ 8,049,801	22
EARNINGS PER SHARE (Note 28)				
Basic	$ 1.64		$ 4.94	
Diluted	$ 1.61		$ 4.65	

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

MACRONIX INTERNATIONAL CO., LTD. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018
(In Thousands of New Taiwan Dollars)

	Equity Attributable to Shareholders of the Parent														
	Share Capital				Retained Earnings			Other Equity							
	Shares (Thousands)	Ordinary Shares	Share Capital to be Cancelled	Capital Surplus	Legal Reserve	Special Reserve	Unappropriated Earnings	Exchange Differences on Translating Foreign Operations	Unrealized Gain (Loss) on Available-for-sale Financial Assets	Unrealized Gain (Loss) on Financial Assets at FVTOCI	Employees' Unearned Compensation	Treasury Shares	Total	Non-controlling Interests	Total Equity
BALANCE AT JANUARY 1, 2018	1,804,939	$ 18,049,385	$ (1,627)	$ (207,088)	$ -	$ -	$ 5,413,602	$ (85,183)	$ 1,731,234	$ -	$ (85,600)	$ (159,061)	$ 24,655,662	$ 685	$ 24,656,347
Effect of retrospective application	-	-	-	-	-	-	2,158,766	(146,758)	(1,731,234)	112,903	-	-	393,677	-	393,677
ADJUSTED BALANCE AT JANUARY 1, 2018	1,804,939	18,049,385	(1,627)	(207,088)	-	-	7,572,368	(231,941)	-	112,903	(85,600)	(159,061)	25,049,339	685	25,050,024
Legal reserve	-	-	-	-	541,360	-	(541,360)	-	-	-	-	-	-	-	-
Special reserve	-	-	-	-	-	74,275	(74,275)	-	-	-	-	-	-	-	-
Cash dividends distributed by the Company - $1.00 per share	-	-	-	-	-	-	(1,804,776)	-	-	-	-	-	(1,804,776)	-	(1,804,776)
Share dividends distributed by the Company - $0.20 per share	36,095	360,955	-	-	-	-	(360,955)	-	-	-	-	-	-	-	-
Net income (loss) for the year ended December 31, 2018	-	-	-	-	-	-	8,993,006	-	-	-	-	-	8,993,006	(157)	8,992,849
Other comprehensive income (loss) for the year ended December 31, 2018, net of income tax	-	-	-	-	-	-	(79,122)	94,809	-	(958,735)	-	-	(943,048)	-	(943,048)
Total comprehensive income (loss) for the year ended December 31, 2018	-	-	-	-	-	-	8,913,884	94,809	-	(958,735)	-	-	8,049,958	(157)	8,049,801
Disposal of investments in equity instruments designated as at fair value through other comprehensive income	-	-	-	-	-	-	(99,070)	-	-	99,070	-	-	-	-	-
Compensation cost of restricted shares for employees	-	-	-	141,885	-	-	(143,924)	-	-	-	65,622	-	63,583	-	63,583
Retirement of restricted shares for employees	(742)	(7,421)	378	7,043	-	-	-	-	-	-	-	-	-	-	-
Dividends paid to subsidiaries to adjust capital surplus	-	-	-	1,919	-	-	-	-	-	-	-	-	1,919	-	1,919
Decrease in non-controlling interests	-	-	-	-	-	-	-	-	-	-	-	-	-	(194)	(194)
BALANCE AT DECEMBER 31, 2018	1,840,292	18,402,919	(1,249)	(56,241)	541,360	74,275	13,461,892	(137,132)	-	(746,762)	(19,978)	(159,061)	31,360,023	334	31,360,357
Legal reserve	-	-	-	-	899,301	-	(899,301)	-	-	-	-	-	-	-	-
Special reserve	-	-	-	-	-	932,777	(932,777)	-	-	-	-	-	-	-	-
Cash dividends distributed by the Company - $1.20 per share	-	-	-	-	-	-	(2,208,200)	-	-	-	-	-	(2,208,200)	-	(2,208,200)
Net income (loss) for the year ended December 31, 2019	-	-	-	-	-	-	3,011,960	-	-	-	-	-	3,011,960	941	3,012,901
Other comprehensive income (loss) for the year ended December 31, 2019, net of income tax	-	-	-	-	-	-	(108,120)	(98,748)	-	447,722	-	-	240,854	-	240,854
Total comprehensive income (loss) for the year ended December 31, 2019	-	-	-	-	-	-	2,903,840	(98,748)	-	447,722	-	-	3,252,814	941	3,253,755
Issuance of restricted shares for employees	-	-	-	508,772	-	-	-	-	-	-	(508,772)	-	-	-	-
Compensation cost of restricted shares for employees	-	-	-	86,460	-	-	(87,737)	-	-	-	85,684	-	84,407	-	84,407
Retirement of restricted shares for employees	(365)	(3,648)	1,067	2,581	-	-	-	-	-	-	-	-	-	-	-
Dividends paid to subsidiaries to adjust capital surplus	-	-	-	2,348	-	-	-	-	-	-	-	-	2,348	-	2,348
Increase in non-controlling interests	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
BALANCE AT DECEMBER 31, 2019	1,839,927	$ 18,399,271	$ (182)	$ 543,920	$ 1,440,661	$ 1,007,052	$ 12,237,717	$ (235,880)	$ -	$ (299,040)	$ (443,066)	$ (159,061)	$ 32,491,392	$ 1,276	$ 32,492,668

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

MACRONIX INTERNATIONAL CO., LTD. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018
(In Thousands of New Taiwan Dollars)

	2019	2018
CASH FLOWS FROM OPERATING ACTIVITIES		
Income before income tax	$ 3,026,326	$ 9,264,387
Adjustments for:		
Depreciation expense	2,697,467	2,093,048
Amortization expense	33,554	27,322
Finance costs	196,943	143,353
Interest income	(38,387)	(45,991)
Dividend income	(109,016)	(105,698)
Compensation cost of employee restricted shares	84,407	63,583
Gain on disposal of property, plant and equipment	(319,027)	(35,884)
Gain on disposal of investments	(7,404)	(180)
Gain on foreign currency exchange	(63,592)	(157,485)
Changes in operating assets and liabilities		
Notes receivable and trade receivables	(206,363)	1,225,401
Receivables from related parties	(310,035)	68,270
Other receivables	20,258	(35,763)
Inventories	5,138,797	(8,077,064)
Other current assets	185,806	(254,106)
Contract liabilities	83,644	(37,770)
Notes payable and trade payables	(463,983)	(182,143)
Payables to related parties	(4,060,942)	5,306,901
Payables for employees' compensation and director's remuneration	(1,006,661)	1,162,273
Other payables	89,114	1,999
Other payables to related parties	1,242	(407)
Provisions	(8,057)	(31,668)
Other current liabilities	(105,526)	32,900
Net defined benefit liabilities	(137,375)	(48,743)
Cash generated from operations	4,721,190	10,376,535
Interest received	39,370	43,843
Dividend received	108,189	105,695
Interest paid	(212,991)	(161,174)
Income tax paid	(113,071)	(272,393)
Net cash generated from operating activities	4,542,687	10,092,506
CASH FLOWS FROM INVESTING ACTIVITIES		
Proceeds from the disposal of financial assets at fair value through other comprehensive income	-	43,582
Payments for financial assets measured at amortized cost	-	(22,965)
Proceeds from disposal of financial assets measured at amortized cost	25,830	-
Payments for property, plant and equipment	(12,752,517)	(4,861,806)
Proceeds from disposal of property, plant and equipment	340,012	36,963
Increase in refundable deposits	(63)	(2,970)
Decrease in refundable deposits	10	858

(Continued)

MACRONIX INTERNATIONAL CO., LTD. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018
(In Thousands of New Taiwan Dollars)

	2019	2018
Payments for intangible assets	$ (35,514)	$ (26,768)
Decrease (increase) in other financial assets	18,678	(19,772)
Decrease in other non-current assets	-	905
Net cash used in investing activities	(12,403,564)	(4,851,973)
CASH FLOWS FROM FINANCING ACTIVITIES		
Proceeds from short-term borrowings	4,000,000	-
Repayments of short-term borrowings	(2,450,000)	-
Proceeds from long-term borrowings	9,776,000	4,800,000
Repayments of long-term borrowings	(5,955,028)	(3,621,981)
Proceeds from guarantee deposits received	550	3,353
Refund of guarantee deposits received	(150)	(310)
Repayment of leased liabilities	(119,548)	-
Decrease in other non-current liabilities	-	(792)
Distribution of cash dividends	(2,205,852)	(1,802,857)
Increase (decrease) in non-controlling interests	1	(194)
Net cash generated from (used in) financing activities	3,045,973	(622,781)
EFFECT OF EXCHANGE RATE CHANGES ON THE BALANCE OF CASH AND CASH EQUIVALENTS HELD IN FOREIGN CURRENCIES	(71,509)	360,567
NET (DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(4,886,413)	4,978,319
CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE YEAR	13,611,502	8,633,183
CASH AND CASH EQUIVALENTS AT THE END OF THE YEAR	$ 8,725,089	$ 13,611,502

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

MACRONIX INTERNATIONAL CO., LTD. AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018
(In Thousands of New Taiwan Dollars, Unless Stated Otherwise)

1. GENERAL INFORMATION

Macronix International Co., Ltd. (the "Company") was incorporated in the Republic of China (ROC) on December 9, 1989 and commenced business in December 1989. The Company operates principally as a designer, manufacturer and supplier of integrated circuits (ICs) and memory chips. The Company also performs design, research and development, consultation and trade of relevant products.

The Company's shares have been listed on the Taiwan Stock Exchange (TWSE) since March 15, 1995.

The consolidated financial statements are presented in the Company's functional currency, the New Taiwan dollar.

2. APPROVAL OF FINANCIAL STATEMENTS

The consolidated financial statements were approved by the Company's board of directors and were authorized for issue on February 17, 2020.

3. APPLICATION OF NEW, AMENDED AND REVISED STANDARDS AND INTERPRETATIONS

a. Initial application of the amendments to the Regulations Governing the Preparation of Financial Reports by Securities Issuers and the International Financial Reporting Standards (IFRS), International Accounting Standards (IAS), Interpretations of IFRS (IFRIC), and Interpretations of IAS (SIC) (collectively, the IFRSs) endorsed and issued into effect by the FSC

   Except for the following, whenever applied, the initial application of the amendments to the Regulations Governing the Preparation of Financial Reports by Securities Issuers and the IFRSs endorsed and issued into effect by the FSC would not have any material impact on the accounting policies of the Company and its subsidiaries (collectively, the "Group"):

   1) IFRS 16 "Leases"

      IFRS 16 sets out the accounting standards for leases that will supersede IAS 17, IFRIC4 and a number of related interpretations. Refer to Note 4 for information relating to the relevant accounting policies.

      Definition of a lease

      The Group elects to apply the guidance of IFRS 16 in determining whether contracts are, or contain, a lease only to contracts entered into (or changed) on or after January 1, 2019. Contracts identified as containing a lease under IAS 17 and IFRIC 4 are not reassessed and are accounted for in accordance with the transitional provisions under IFRS 16.

The Group as lessee

The Group recognizes right-of-use assets, and lease liabilities for all leases on the consolidated balance sheets except for those whose payments under low-value asset and short-term leases are recognized as expenses on a straight-line basis. On the consolidated statements of comprehensive income, the Group presents the depreciation expense charged on right-of-use assets separately from the interest expense accrued on lease liabilities; interest is computed using the effective interest method. On the consolidated statements of cash flows, cash payments for the principal portion of lease liabilities are classified within financing activities; cash payments for the interest portion are classified within financing activities. Prior to the application of IFRS 16, payments under operating lease contracts were recognized as expenses on a straight-line basis. Cash flows for operating leases were classified within operating activities on the consolidated statements of cash flows. Leased assets and finance lease payables were recognized on the consolidated balance sheets for contracts classified as finance leases.

The Group elects to apply IFRS 16 using the modified retrospective approach with the application of this standard recognized in remaining durable life of opening balance on January 1, 2019. Comparative information is not restated.

The weighted average lessee's incremental borrowing rate applied to lease liabilities recognized on January 1, 2019 is 1.65%. The difference between the (i) lease liabilities recognized and (ii) operating lease commitments disclosed under IAS 17 on December 31, 2018 is explained as follows:

The future minimum lease payments of operating lease commitments on December 31, 2018	$ 1,234,323
Less: Recognition exemption for short-term leases	(7,710)
Recognition exemption for leases of low-value assets	(258)
Undiscounted amounts on January 1, 2019	$ 1,226,355
Discounted amounts using the incremental borrowing rate on January 1, 2019	$ 1,091,482
Lease liabilities recognized on January 1, 2019	$ 1,091,482

The Group as lessor

Except for sublease transactions, the Group does not make any adjustments for leases in which it is a lessor, and it accounts for those leases with the application of IFRS 16 starting from January 1, 2019.

The Group subleased its leasehold park dormitories in the Science Park to a third party. Such sublease was classified as an operating lease under IAS 17. The Group determines the sublease is classified as an operating lease on the basis of the remaining contractual terms and conditions of the head lease and sublease on January 1, 2019.

The impact on assets, liabilities and equity as of January 1, 2019 from the initial application of IFRS 16 is set out as follows:

	As Originally Stated on January 1, 2019	Adjustments Arising from Initial Application	Restated on January 1, 2019
Prepayments for leases - current	$ 506	$ (506)	$ -
Prepayments for leases - non-current	18,721	(18,721)	-
Right-of-use assets	-	1,110,709	1,110,709
Total effect on assets	$ 19,227	$ 1,091,482	$ 1,110,709
Lease liabilities - current	$ -	$ 96,611	$ 96,611
Lease liabilities - non-current	-	994,871	994,871
Total effect on liabilities	$ -	$ 1,091,482	$ 1,091,482

b. The IFRSs endorsed by the Financial Supervisory Commission (FSC) for application starting from 2020

New IFRSs	Effective Date Announced by IASB
Amendments to IFRS 3 "Definition of a Business"	January 1, 2020 (Note 1)
Amendments to IFRS 9, IAS 39 and IFRS 7 "Interest Rate Benchmark Reform"	January 1, 2020 (Note 2)
Amendments to IAS 1 and IAS 8 "Definition of Material"	January 1, 2020 (Note 3)

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

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

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

Except for the above impact, as of the date the consolidated financial statements were authorized for issue, the Group is continuously assessing the possible impact that the application of other standards and interpretations will have on the Group's financial position and financial performance and will disclose the relevant impact when the assessment is completed.

c. New IFRSs in issue but not yet endorsed and issued into effect by the FSC

New IFRSs	Effective Date Announced by IASB (Note 1)
Amendments to IFRS 10 and IAS 28 "Sale or Contribution of Assets between an Investor and its Associate or Joint Venture"	To be determined by IASB
IFRS 17 "Insurance Contracts"	January 1, 2021
Amendments to IAS 1 "Classification of Liabilities as Current or Non-current"	January 1, 2022

Note 1: Unless stated otherwise, the above New IFRSs are effective for annual reporting periods beginning on or after their respective effective dates.

Except for the above impact, as of the date the consolidated financial statements were authorized for issue, the Group is continuously assessing the possible impact that the application of other standards and interpretations will have on the Group's financial position and financial performance and will disclose the relevant impact when the assessment is completed.

4. SUMMARY OF SIGNIFICANT ACCOUNTING POLICY

a. Statement of compliance

The consolidated financial statements have been prepared in accordance with the Regulations Governing the Preparation of Financial Reports by Securities Issuers and IFRSs as endorsed and issued into effect by the FSC.

b. Basis of preparation

The consolidated financial statements have been prepared on the historical cost basis except for financial instruments which are measured at fair value and defined benefit liabilities.

The fair value measurements, which are grouped into Levels 1 to 3 based on the degree to which the fair value measurement inputs are observable and based on the significance of the inputs to the fair value measurement in its entirety, are described as follows:

1) Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities;

2) Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for an asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices); and

3) Level 3 inputs are unobservable inputs for an asset or liability.

c. Classification of current and non-current assets and liabilities

Current assets include:

1) Assets held primarily for the purpose of trading;

2) Assets expected to be realized within 12 months after the reporting period; and

3) Cash and cash equivalents unless the asset is restricted from being exchanged or used to settle a liability for at least 12 months after the reporting period.

Current liabilities include:

1) Liabilities held primarily for the purpose of trading;

2) Liabilities due to be settled within 12 months after the reporting period, even if an agreement to refinance, or to reschedule payments, on a long-term basis is completed after the reporting period and before the consolidated financial statements are authorized for issue; and

3) Liabilities for which the Group does not have an unconditional right to defer settlement for at least 12 months after the reporting period. Terms of a liability that could, at the option of the counterparty, result in its settlement by the issue of equity instruments do not affect its classification.

Assets and liabilities that are not classified as current are classified as non-current.

d. Basis of consolidation

The consolidated financial statements incorporate the financial statements of the Company and the entities controlled by the Company (i.e. its subsidiaries).

Income and expenses of subsidiaries acquired or disposed of during the period are included in the consolidated statement of profit or loss and other comprehensive income from the effective dates of acquisitions up to the effective dates of disposals, as appropriate.

When necessary, adjustments are made to the financial statements of subsidiaries to bring their accounting policies into line with those used by the Company.

All intra-group transactions, balances, income and expenses are eliminated in full upon consolidation. Total comprehensive income of subsidiaries is attributed to the owners of the Company and to the non-controlling interests even if this results in the non-controlling interests having a deficit balance.

Changes in the Group's ownership interests in subsidiaries that do not result in the Group losing control over the subsidiaries are accounted for as equity transactions. The carrying amounts of the interests of the Group and the non-controlling interests are adjusted to reflect the changes in their relative interests in the subsidiaries. Any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received is recognized directly in equity and attributed to the owners of the Company.

When the Group loses control of a subsidiary, a gain or loss is recognized in profit or loss and is calculated as the difference between (i) the aggregate of the fair value of the consideration received and any investment retained in the former subsidiary at its fair value at the date when control is lost and (ii) the assets (including any goodwill) and liabilities and any non-controlling interests of the former subsidiary at their carrying amounts at the date when control is lost. The Group accounts for all amounts recognized in other comprehensive income in relation to that subsidiary on the same basis as would be required if the Group had directly disposed of the related assets or liabilities.

The fair value of any investment retained in a former subsidiary at the date when control is lost is regarded as the fair value on initial recognition of financial assets at fair value through profit or loss or, when applicable, the cost on initial recognition of an investment in an associate or a joint venture.

See Note 11 and Table 5 for the detailed information of subsidiaries (including the percentage of ownership and main business).

e. Foreign currencies

In preparing the financial statements of each individual group, transactions in currencies other than the entity's functional currency (foreign currencies) are recognized at the rates of exchange prevailing at the dates of the transactions.

At the end of each reporting period, monetary items denominated in foreign currencies are retranslated at the rates prevailing at that date. Exchange differences on monetary items arising from settlement or translation are recognized in profit or loss in the period in which they arise.

Non-monetary items measured at fair value that are denominated in foreign currencies are retranslated at the rates prevailing at the date when the fair value was determined. Exchange differences arising from the retranslation of non-monetary items are included in profit or loss for the period except for exchange differences arising from the retranslation of non-monetary items in respect of which gains and losses are recognized directly in other comprehensive income, in which cases, the exchange differences are also recognized directly in other comprehensive income.

Non-monetary items that are measured at historical cost in a foreign currency are not retranslated.

For the purpose of presenting consolidated financial statements, the functional currencies of the Company and the Group (including subsidiaries and associates that use currency different from the currency of the Company) are translated into the presentation currency - the New Taiwan dollar as follows: Assets and liabilities are translated at the exchange rates prevailing at the end of the reporting period; income and expense items are translated at the average exchange rates for the period. The resulting currency translation differences are recognized in other comprehensive income (attributed to the owners of the Company and non-controlling interests as appropriate).

f. Inventories

Inventories consist of raw materials, supplies, finished goods, merchandise and work-in-process and are stated at the lower of cost or net realizable value. Inventory write-downs are made by item, except where it may be appropriate to group similar or related items. Net realizable value is the estimated selling price of inventories less all estimated costs of completion and costs necessary to make the sale. Inventories are recorded at standard cost and adjusted to approximate weighted - average cost on the balance sheet date.

g. Property, plant, and equipment

Property, plant and equipment are stated at cost, less accumulated depreciation and accumulated impairment loss.

Depreciation on property, plant and equipment is recognized using the straight-line method. Each significant part is depreciated separately. The estimated useful lives, residual values and depreciation methods are reviewed at the end of each reporting period, with the effects of any changes in estimates accounted for on a prospective basis.

On derecognition of an item of property, plant and equipment, the difference between the sales proceeds and the carrying amount of the asset is recognized in profit or loss.

h. Intangible assets

1) Intangible assets acquired separately

Intangible assets with finite useful lives that are acquired separately are initially measured at cost and subsequently measured at cost less accumulated amortization and accumulated impairment loss. Amortization is recognized on a straight-line basis. The estimated useful life, residual value, and amortization method are reviewed at the end of each reporting period, with the effect of any changes in estimates accounted for on a prospective basis. Intangible assets with indefinite useful lives that are acquired separately are measured at cost less accumulated impairment loss.

2) Internally-generated intangible assets - research and development expenditure

Expenditure on research activities is recognized as an expense in the period in which it is incurred.

An internally-generated intangible asset arising from the development phase of an internal project is recognized if, and only if, all of the following have been demonstrated:

a) The technical feasibility of completing the intangible asset so that it will be available for use or sale;

b) The intention to complete the intangible asset and use or sell it;

c) The ability to use or sell the intangible asset;

d) How the intangible asset will generate probable future economic benefits;

e) The availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset; and

f) The ability to measure reliably the expenditure attributable to the intangible asset during its development.

The amount initially recognized for internally-generated intangible assets is the sum of the expenditure incurred from the date when the intangible asset first meets the recognition criteria listed above. Subsequent to initial recognition, they are measured on the same basis as intangible assets that are acquired separately.

3) Derecognition of intangible assets

On derecognition of an intangible asset, the difference between the net disposal proceeds and the carrying amount of the asset is recognized in profit or loss.

i. Impairment of tangible and intangible assets other than goodwill

At the end of each reporting period, the Group reviews the carrying amounts of its tangible and intangible assets, excluding goodwill, to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss. When it is not possible to estimate the recoverable amount of an individual asset, the Group estimates the recoverable amount of the cash-generating unit to which the asset belongs. Corporate assets are allocated to the smallest group of cash-generating units on a reasonable and consistent basis of allocation.

Intangible assets with indefinite useful lives and intangible assets not yet available for use are tested for impairment at least annually, and whenever there is an indication that the asset may be impaired.

The recoverable amount is the higher of fair value less costs to sell and value in use. If the recoverable amount of an asset or cash-generating unit is estimated to be less than its carrying amount, the carrying amount of the asset or cash-generating unit is reduced to its recoverable amount, with the resulting impairment loss recognized in profit or loss.

When an impairment loss is subsequently reversed, the carrying amount of the corresponding asset or cash-generating unit is increased to the revised estimate of its recoverable amount, but only to the extent of the carrying amount that would have been determined had no impairment loss been recognized on the asset or cash-generating unit in prior years. A reversal of an impairment loss is recognized in profit or loss.

j. Financial instruments

Financial assets and financial liabilities are recognized when the Group becomes a party to the contractual provisions of the instruments.

Transaction costs that are directly attributable to the acquisition or issue of financial assets and financial liabilities (other than financial assets and financial liabilities at fair value through profit or loss) are added to or deducted from the fair value of the financial assets or financial liabilities, as appropriate, on initial recognition. Transaction costs directly attributable to the acquisition of financial assets or financial liabilities at fair value through profit or loss are recognized immediately in profit or loss.

1) Financial assets

All regular way purchases or sales of financial assets are recognized and derecognized on a settlement date basis.

a) Measurement category

Financial assets are classified into the following categories: Financial assets measured at amortized cost and investments in equity instruments at FVTOCI.

i. Financial assets measured at amortized cost

Financial assets that meet the following conditions are subsequently measured at amortized cost:

i) The financial assets are held within a business model whose objective is to hold financial assets in order to collect contractual cash flows; and

ii) The contractual terms of the financial assets give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

Subsequent to initial recognition, financial assets measured at amortized cost, including cash and cash equivalents and trade receivables measured at amortized cost, are measured at amortized cost, which equals the gross carrying amount determined using the effective interest method less any impairment loss. Exchange differences are recognized in profit or loss.

Interest income is calculated by applying the effective interest rate to the gross carrying amount of a financial asset, except for:

i) Purchased or originated credit-impaired financial assets, for which interest income is calculated by applying the credit-adjusted effective interest rate to the amortized cost of such a financial asset; and

ii) Financial assets that have subsequently become credit-impaired, for which interest income is calculated by applying the effective interest rate to the amortized cost of such a financial asset.

A financial asset is credit impaired when one or more of the following events have occurred:

i) Significant financial difficulty of the issuer or the borrower;

ii) Breach of contract, such as a default;

iii) It is becoming probable that the borrower will enter bankruptcy or undergo a financial reorganization; or

iv) The disappearance of an active market for that financial asset because of financial difficulties.

Cash equivalents include time deposits with original maturities, which are highly liquid, readily convertible to a known amount of cash and are subject to an insignificant risk of changes in value. These cash equivalents are held for the purpose of meeting short-term cash commitments.

ii Investments in equity instruments at FVTOCI

On initial recognition, the Group may make an irrevocable election to designate investments in equity instruments as at FVTOCI. Designation at FVTOCI is not permitted if the equity investment is held for trading or if it is contingent consideration recognized by an acquirer in a business combination.

Investments in equity instruments at FVTOCI are subsequently measured at fair value with gains and losses arising from changes in fair value recognized in other comprehensive income and accumulated in other equity. The cumulative gain or loss will not be reclassified to profit or loss on the disposal of the equity investments; instead, they will be transferred to retained earnings.

Dividends on these investments in equity instruments are recognized in profit or loss when the Group's right to receive the dividends is established, unless the dividends clearly represent a recovery of part of the cost of the investment.

b) Impairment of financial assets

The Group recognizes a loss allowance for expected credit losses on financial assets measured at amortized cost (including trade receivables).

The Group always recognizes lifetime expected credit losses (i.e. ECLs) for trade receivables and lease receivables. For all other financial instruments, the Group recognizes lifetime ECLs when there has been a significant increase in credit risk since initial recognition. If, on the other hand, the credit risk on such a financial instrument has not increased significantly since initial recognition, the Group measures the loss allowance for that financial instrument at an amount equal to 12-month ECLs.

Expected credit losses reflect the weighted average of credit losses with the respective risks of a default occurring as the weights. Lifetime ECLs represent the expected credit losses that will result from all possible default events over the expected life of a financial instrument. In contrast, 12-month ECLs represent the portion of lifetime ECLs that is expected to result from default events on a financial instrument that are possible within 12 months after the reporting date.

For internal credit risk management purposes, the Group determines that the following situations indicate that a financial asset is in default (without taking into account any collateral held by the Group):

i Internal or external information show that the debtor is unlikely to pay its creditors.

ii When a financial asset is more than 90 days past due unless the Group has reasonable and corroborative information to support a more lagged default criterion.

The Group recognizes an impairment gain or loss in profit or loss for all financial instruments with a corresponding adjustment to their carrying amount through a loss allowance account, except for investments in debt instruments that are measured at FVTOCI, for which the loss allowance is recognized in other comprehensive income and does not reduce the carrying amount of the financial asset.

c) Derecognition of financial assets

The Group derecognizes a financial asset only when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another party.

If the Group neither transfers nor retains substantially all the risks and rewards of ownership and continues to control the transferred asset, the Group recognizes its retained interest in the asset and any associated liability for amounts it may have to pay. If the Group retains substantially all the risks and rewards of ownership of a transferred financial asset, the Group continues to recognize the financial asset and also recognizes a collateralized borrowing for the proceeds received.

On derecognition of a financial asset at amortized cost in its entirety, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognized in profit or loss. On derecognition of an investment in a debt instrument at FVTOCI, the difference between the asset's carrying amount and the sum of the consideration received and receivable and the cumulative gain or loss which had been recognized in other comprehensive income is recognized in profit or loss. However, on derecognition of an investment in an equity instrument at FVTOCI, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognized in profit or loss, and the cumulative gain or loss which had been recognized in other comprehensive income is transferred directly to retained earnings, without recycling through profit or loss.

2) Equity instruments

Equity instruments issued by the Group are recognized at the proceeds received, net of direct issue costs.

Repurchase of the Company's own equity instruments is recognized in and deducted directly from equity. No gain or loss is recognized in profit or loss on the purchase, sale, issue or cancellation of the Company's own equity instruments.

3) Financial liabilities

a) Subsequent measurement

Except the following situation, all financial liabilities are measured at amortized cost using the effective interest method.

i. Financial liabilities at fair value through profit or loss

Financial liabilities are classified as at fair value through profit or loss when the financial liability is either held for trading or it is designated as at fair value through profit or loss.

Financial liabilities held for trading are stated at fair value, with any gain or loss arising on remeasurement recognized in profit or loss. The net gain or loss recognized in profit or loss does not incorporate any interest or dividend paid on the financial liability. Fair value is determined in the manner described in Note 31.

b) Derecognition of financial liabilities

The difference between the carrying amount of the financial liability derecognized and the consideration paid, including any non-cash assets transferred or liabilities assumed, is recognized in profit or loss.

4) Derivative financial instruments

The Group enters into foreign exchange forward contracts to manage its exposure to foreign exchange rate risks, including foreign exchange forward contracts.

Derivatives are initially recognized at fair value at the date the derivative contracts are entered into and are subsequently remeasured to their fair value at the end of each reporting period. The resulting gain or loss is recognized in profit or loss immediately unless the derivative is designated and effective as a hedging instrument, in which event the timing of the recognition in profit or loss depends on the nature of the hedge relationship. When the fair value of derivative financial instruments is positive, the derivative is recognized as a financial asset; when the fair value of derivative financial instruments is negative, the derivative is recognized as a financial liability.

Derivatives embedded in hybrid contracts that contain financial asset hosts that are within the scope of IFRS 9 are not separated; instead, the classification is determined in accordance with the entire hybrid contract. Derivatives embedded in non-derivative host contracts that are not financial assets that is within the scope of IFRS 9 (e.g. financial liabilities) are treated as separate derivatives when they meet the definition of a derivative; their risks and characteristics are not closely related to those of the host contracts; and the host contracts are not measured at FVTPL.

k. Provisions

Provisions are measured at the best estimate of the discounted cash flows of the consideration required to settle the present obligation at the end of the reporting period, taking into account the risks and uncertainties surrounding the obligation.

l. Revenue recognition

The Group identifies contracts with customers, allocates the transaction price to the performance obligations and recognizes revenue when performance obligations are satisfied.

For contracts entered into with the same customer (or related parties of the customer) at or near the same time, those contracts are accounted for as a single contract if the goods or services promised in the contracts are a single performance obligation.

1) Revenue from the sale of goods

Revenue from the sale of goods comes from sales of Memory products and wafer fabrication. Sales of Memory products and wafer fabrication are recognized as revenue when the goods are delivered to the customer's specific location because it is the time when the customer has full discretion over the manner of distribution and price to sell the goods, and has the primary responsibility for sales to future customers and bears the risks of obsolescence. Trade receivables are recognized concurrently. For Memory products and wafer fabrication, revenue is recognized when the goods are delivered to the customer's specific location, and the transaction price received is recognized as a contract liability until the goods have been delivered to the customer.

The Group does not recognize revenue on materials delivered to subcontractors because this delivery does not involve a transfer of control.

2) Revenue from the rendering of services

As the Group provides rendering services, the related revenue is recognized when services are rendered. Payment for installation services is not due from the customer until the installation services are complete, and therefore, contract assets are recognized over the period in which the installation services are performed. The contract assets are reclassified to trade receivables when the installation is complete.

m. Lease

2019

At the inception of a contract, the Group assesses whether the contract is, or contains, a lease.

For a contract that contains a lease component and non-lease components, the Group allocates the consideration in the contract to each component on the basis of the relative stand-alone price and accounts for each component separately.

1) The Group as lessor

Leases are classified as finance leases whenever the terms of a lease transfer substantially all the risks and rewards of ownership to the lessee. All other leases are classified as operating leases.

When the Group subleases right-of-use assets, the sublease is classified by reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset. However, if the head lease is a short-term lease that the Group, as a lessee, has accounted for applying recognition exemption, the sublease is classified as an operating lease.

Lease payments (less any lease incentives payable) from operating leases are recognized as income on a straight-line basis over the terms of the relevant leases. Initial direct costs incurred in obtaining operating leases are added to the carrying amounts of the underlying assets and recognized as expenses on a straight-line basis over the lease terms.

2) The Group as lessee

The Group recognizes right-of-use assets and lease liabilities for all leases at the commencement date of a lease, except for short-term leases and low-value asset leases accounted for applying a recognition exemption where lease payments are recognized as expenses on a straight-line basis over the lease terms.

Right-of-use assets are initially measured at cost, which comprises the initial measurement of lease liabilities adjusted for lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs needed to restore the underlying assets, and less any lease incentives received. Right-of-use assets are subsequently measured at cost less accumulated depreciation and impairment losses and adjusted for any remeasurement of the lease liabilities. Right-of-use assets are presented on a separate line in the consolidated balance sheets.

Right-of-use assets are depreciated using the straight-line method from the commencement dates to the earlier of the end of the useful lives of the right-of-use assets or the end of the lease terms. However, if leases transfer ownership of the underlying assets to the Group by the end of the lease terms or if the costs of right-of-use assets reflect that the Group will exercise a purchase option, the Group depreciates the right-of-use assets from the commencement dates to the end of the useful lives of the underlying assets.

Lease liabilities are initially measured at the present value of the lease payments, which comprise fixed payments, in-substance fixed payments, variable lease payments which depend on an index or a rate, residual value guarantees, the exercise price of a purchase option if the Group is reasonably certain to exercise that option, and payments of penalties for terminating a lease if the lease term reflects such termination, less any lease incentives receivable. The lease payments are discounted using the interest rate implicit in a lease, if that rate can be readily determined. If that rate cannot be readily determined, the Group uses the lessee's incremental borrowing rate.

Subsequently, lease liabilities are measured at amortized cost using the effective interest method, with interest expense recognized over the lease terms. When there is a change in a lease term, a change in the amounts expected to be payable under a residual value guarantee, a change in the assessment of an option to purchase an underlying asset, or a change in future lease payments resulting from a change in an index or a rate used to determine those payments, the Group remeasures the lease liabilities with a corresponding adjustment to the right-of-use-assets. However, if the carrying amount of the right-of-use assets is reduced to zero, any remaining amount of the remeasurement is recognized in profit or loss. Lease liabilities are presented on a separate line in the consolidated balance sheets.

2018

Leases are classified as finance leases whenever the terms of a lease transfer substantially all the risks and rewards of ownership to the lessee. All other leases are classified as operating leases.

1) The Group as lessor

Amounts due from lessees under finance leases are recognized as receivables at the amount of the Group's net investment in the leases. Finance lease income is allocated to accounting periods so as to reflect a constant periodic rate of return on the Group's net investment outstanding in respect of the leases.

Rental income from operating leases is recognized on a straight-line basis over the term of the relevant lease. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and amortized on a straight-line basis over the lease term.

2) The Group as lessee

Assets held under finance leases are initially recognized as assets of the Group at their fair value at the inception of the lease or, if lower, at the present value of the minimum lease payments. The corresponding liability to the lessor is included in the consolidated balance sheets as a finance lease obligation.

Finance expenses implicit in lease payments for each period are recognized immediately in profit or loss, unless they are directly attributable to qualifying assets; in which case, they are capitalized.

Operating lease payments are recognized as expenses on a straight-line basis over the lease term.

n. Borrowing costs

Borrowing costs directly attributable to an acquisition, construction or production of qualifying assets are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale.

Other than stated above, all other borrowing costs are recognized in profit or loss in the period in which they are incurred.

o. Employee benefits

1) Short-term employee benefits

Liabilities recognized in respect of short-term employee benefits are measured at the undiscounted amount of the benefits expected to be paid in exchange for the related service.

2) Retirement benefits

Payments to defined contribution retirement benefit plans are recognized as an expense when employees have rendered services entitling them to the contributions.

Defined benefit costs (including service cost, net interest and remeasurement) under defined benefit retirement benefit plans are determined using the projected unit credit method. Service cost (including current service cost) and net interest on the net defined benefit liability are recognized as employee benefit expenses in the period they occur. Remeasurement, comprising actuarial gains and losses, the effect of the changes to the asset ceiling and the return on plan assets (excluding interest), is recognized in other comprehensive income in the period in which they occur. Remeasurement recognized in other comprehensive income is reflected immediately in retain earnings and will not be reclassified to profit or loss.

Net defined benefit liability represents the actual deficit in the Group's defined benefit plan. Any surplus resulting from this calculation is limited to the present value of any refunds from the plans or reductions in future contributions to the plans.

3) Other long-term employee benefits

Other long-term employee benefits are accounted for in the same way as the accounting required for defined benefit plan except that remeasurement is recognized in profit or loss.

4) Termination benefits

A liability for a termination benefit is recognized at the earlier of when the Group can no longer withdraw the offer of the termination benefit and when the Group recognizes any related restructuring costs.

p. Share-based payment arrangements

The fair value at the grant date of the equity-settled share-based payments is expensed on a straight-line basis over the vesting period, based on the Group's best estimates of the number of shares or options that are expected to ultimately vest, with a corresponding increase in capital surplus - employee share options or other equity - employees' unearned compensation. It is recognized as an expense in full at the grant date if vesting immediately.

When restricted shares for employees are issued, other equity - employees' unearned compensation are recognized on the grant date, with a corresponding increase in capital surplus - restricted shares for employees.

At the end of each reporting period, the Group revises its estimate of the number of equity instruments expected to vest. The impact of the revision of the original estimates is recognized in profit or loss such that the cumulative expense reflects the revised estimate, with a corresponding adjustment to the capital surplus - employee share options or capital surplus-restricted share option.

q. Treasury shares

The parent company's shares held by subsidiaries is reclassified to treasury shares from investment accounted for using equity method and recognized with the original investment cost. Cash dividends earned by subsidiaries are write-off with investment income and adjust capital surplus-treasury share transaction.

r. Taxation

Income tax expense represents the sum of the tax currently payable and deferred tax.

1) Current tax

According to the Income Tax Law, an additional tax of unappropriated earnings is provided for as income tax in the year the shareholders approve to retain the earnings.

Adjustments of prior years' tax liabilities are added to or deducted from the current year's tax provision.

2) Deferred tax

Deferred tax is recognized on temporary differences between the carrying amounts of assets and liabilities and the corresponding tax bases used in the computation of taxable profit.

Deferred tax liabilities are generally recognized for all taxable temporary differences. Deferred tax assets are generally recognized for all deductible temporary differences, unused loss carry forward and unused tax credits for purchases of machinery, equipment and technology, research and development expenditures and personnel training expenditures to the extent that it is probable that taxable profits will be available against which those deductible temporary differences can be utilized.

Deferred tax liabilities are recognized for taxable temporary differences associated with investments in subsidiaries and associates, except where the Group is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. Deferred tax assets arising from deductible temporary differences associated with such investments and interests are only recognized to the extent that it is probable that there will be sufficient taxable profits against which to utilize the benefits of the temporary differences and they are expected to reverse in the foreseeable future.

The carrying amount of deferred tax assets is reviewed at the end of each reporting period and reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered. A previously unrecognized deferred tax asset is also reviewed at the end of each reporting period and recognized to the extent that it has become probable that future taxable profit will allow the deferred tax asset to be recovered.

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

3) Current and deferred taxes

Current and deferred taxes are recognized in profit or loss, except when they relate to items that are recognized in other comprehensive income or directly in equity, in which case, the current and deferred taxes are also recognized in other comprehensive income or directly in equity, respectively.

5. CRITICAL ACCOUNTING JUDGMENTS AND KEY SOURCES OF ESTIMATION UNCERTAINTY

In the application of the Group's accounting policies, management is required to make judgments, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the year in which the estimate is revised if the revision affects only that period or in the period of the revision and future years if the revision affects both current and future years.

a. Write-down of inventory

The net realizable value of inventory is the estimated selling price in the ordinary course of business less the estimated costs of completion and disposal. The estimation of net realizable value was based on current market conditions and historical experience with product sales of a similar nature. Changes in market conditions may have a material impact on the estimation of the net realizable value.

b. Recognition and measurement of defined benefit plans

The net defined liabilities (assets) and the resulting defined benefit costs under the defined benefit pension plans are calculated using the projected unit credit method. Actuarial assumptions comprise the discount rates, rates of employee turnover, future salary increases, etc. Changes in economic circumstances and market conditions will affect these assumptions and may have a material impact on the amount of related expenses and the liabilities.

c. Income taxes

The realizability of deferred tax assets mainly depends on whether sufficient future profit or taxable temporary differences will be available. In cases where the actual future profit generated is less than expected, a material reversal of deferred tax assets may arise, which would be recognized in profit or loss for the period in which such a reversal takes place.

6. CASH AND CASH EQUIVALENTS

	December 31	
	2019	2018
Cash on hand	$ 58	$ 74
Checking accounts and demand deposits	7,001,899	8,890,666
Cash equivalents		
Time deposits	1,723,132	4,720,762
	$ 8,725,089	$ 13,611,502

7. FINANCIAL ASSETS AT FAIR VALUE THROUGH OTHER COMPREHENSIVE INCOME

	December 31	
	2019	2018
Non-current		
Investments in equity instruments		
Domestic investments		
Listed shares	$ 1,182,250	$ 1,002,225
Unlisted shares	361,594	295,529
	1,543,844	1,297,754
Foreign investments		
Listed shares	421,894	264,804
Unlisted shares	35,392	39,383
	$ 2,001,130	$ 1,601,941

These investments in equity instruments are not held for trading. Instead, they are held for medium- to long-term strategic purposes. Accordingly, the management elected to designate these investments in equity instruments as at FVTOCI as they believe that recognizing short-term fluctuations in these investments' fair value in profit or loss would not be consistent with the Group's strategy of holding these investments for long-term purposes.

The Group sold their holdings of ordinary shares in Key ASIC Bhd at a fair value $43,582 thousand in July and August 2018. The related unrealized loss on financial assets at FVTOCI of NT$99,070 thousand under other equity was transferred to retained earnings.

The Group recognized dividend income of NT$109,016 thousand and NT$105,698 thousand for the years ended December 31, 2019 and 2018, respectively. As of December 31, 2019 and 2018, the Group's related investments still held amounted to NT$1,543,844 thousand and NT$1,297,754 thousand, respectively.

8. FINANCIAL ASSETS MEASURED AT AMORTIZED COST

	December 31	
	2019	2018
Current		
Time deposits with original maturities exceeding 1 year	$ 21,525	$ 26,832
Non-current		
Time deposits with original maturities exceeding 1 year	$ -	$ 22,360

The interest rate for time deposits with original maturities exceeding 1 year was 2.73% per annum as of December 31, 2019 and 2018.

9. NOTES RECEIVABLE, TRADE RECEIVABLES AND OTHER RECEIVABLES

	December 31	
	2019	2018
Trade receivables		
Total amount of trade receivables measured at amortized cost	$ 3,964,524	$ 3,803,310
Less: Allowance for impairment loss	(16,795)	(16,812)
	$ 3,947,729	$ 3,786,498
Other receivables		
Tax receivable	$ 123,184	$ 107,305
Others	32,896	62,611
	$ 156,080	$ 169,916

a. Trade receivables

The average credit period for sales of goods was 60 days.

In determining the recoverability of a trade receivable, the Group evaluates each customer's credibility and financial position and considers any change in the credit quality of the trade receivable since the date credit was initially granted to the end of the reporting period.

The Group measures the loss allowance for trade receivables at an amount equal to lifetime ECLs.

The expected credit losses on trade receivables are estimated using a provision matrix by reference to past default experience with the respective debtors and an analysis of the debtors' current financial positions, adjusted for factors that are specific to the debtors, general economic conditions of the industry in which the debtors operate and an assessment of both the current as well as the forecasted direction of conditions at the reporting date. The Group estimates expected credit losses based on the number of days for which receivables are past due. As the Group's historical credit loss experience shows significantly different loss patterns for different customer segments, the provision for losses based on past due status of receivables is not further distinguished according to different segments of the Group's customer base.

The aging of trade receivables is as follows:

	December 31	
	2019	2018
Neither past due nor impaired	$ 3,776,736	$ 3,495,246
Past due but not impaired		
Within 60 days	170,993	278,639
61-120 days	-	137
Over 120 days	-	12,476
	$ 3,947,729	$ 3,786,498

The above aging schedule was based on the past due days from the end of the credit term.

As of December 31, 2019 and 2018, the Group did not hold collateral for most of its receivables.

The movements of the allowance for doubtful trade receivables are as follows:

	December 31	
	2019	2018
Balance at January 1	$ 16,812	$ 16,812
Less: Amounts written off	(17)	-
Balance at December 31	$ 16,795	$ 16,812

b. Other receivables

No allowance for impairment loss of other receivables was recognized since the other receivables of the Group were not past due and the Group assessed that there was no uncertainty of recoverability.

10. INVENTORIES

	December 31	
	2019	2018
Finished goods and merchandise	$ 1,001,297	$ 1,368,130
Work in progress	10,781,345	15,664,313
Raw materials	1,027,795	916,791
	$ 12,810,437	$ 17,949,234

The costs of inventories recognized as cost of goods sold included inventory loss resulting from the write-downs of inventory to net realizable value listed as below.

	Year Ended December 31	
	2019	2018
Inventory loss	$ 2,699,918	$ 1,589,462

11. SUBSIDIARIES

Subsidiaries included in the consolidated financial statements

As of December 31, 2019, the Company has direct and indirect majority ownership in the following subsidiaries: Run Hong Investment Ltd. (Run Hong), Hui Ying Investment Ltd. (Hui Ying), Mxtran Inc. (Mxtran), Macronix America, Inc. (MXA), Macronix (BVI) Co., Ltd. (MXBVI), Mxtran Holding (Samoa) Co., Ltd. (Mxtran Samoa), Mxtran (H.K.) Holding Co., Limited (MxtranHK), New Trend Technology Inc. (NTTI), Macronix (Asia) Limited (MX Asia), Macronix Pte Ltd (MPL), Macronix Europe N.V. (MXE), Macronix (Hong Kong) Co., Limited (MXHK) and Macronix Microelectronics (Suzhou) Co., Ltd. (MXm).

			% of Ownership	
			December 31	
Investor	Investee	Nature of Activities	2019	2018
The Company	Run Hong	Investment company	100.00	100.00
The Company	Hui Ying	Investment company	100.00	100.00
The Company and Run Hong	Mxtran	IC design	94.84	94.84
The Company	MXA	Sales and marketing	100.00	100.00
The Company	MXBVI	Investment holding company	100.00	100.00
Mxtran	Mxtran Samoa	Investment holding company	100.00	100.00
Mxtran Samoa	Mxtran HK	Investment holding company	100.00	100.00

(Continued)

Investor	Investee	Nature of Activities	% of Ownership December 31 2019	% of Ownership December 31 2018
MXBVI	NTTI	IC design	100.00	100.00
MXBVI	MX Asia	Investment holding company	100.00	100.00
MXBVI	MPL	After-sales service	100.00	100.00
MXBVI	MXE	After-sales service	100.00	100.00
MXBVI	MXHK	Sales and marketing	100.00	100.00
MXHK	MXm	Development of integrated circuit system and software	100.00	100.00

(Concluded)

12. PROPERTY, PLANT AND EQUIPMENT

	December 31, 2019
Assets used by the Group	$ 29,365,507

a. Assets used by the Group - 2019

	Years Ended December 31, 2019					
	Balance, Beginning of Year	Additions	Disposals	Net Exchange Differences	Reclassification	Balance, End of Year
Cost						
Freehold land	$ 1,273,924	$ -	$ -	$ (16,173)	$ -	$ 1,257,751
Buildings	24,888,772	-	31,832	(8,267)	313,079	25,161,752
Machinery equipment	87,236,824	-	2,338,063	-	6,736,,729	91,635,490
Research and development equipment	3,844,510	3,050	51,944	(1,302)	(159,433)	3,634,881
Transportation equipment	23,983	-	1,140	(72)	5,871	28,642
Leasehold improvements	40,157	639	148	(1,133)	(21,458)	18,057
Miscellaneous equipment	1,198,924	7,769	62,816	(3,383)	84,589	1,225,083
Advance payments and construction in progress	4,135,257	12,667,672	-	9	(6,980,835)	9,822,103
	122,642,351	$ 12,679,130	$ 2,485,943	$ (30,321)	$ (21,458)	132,783,759
Accumulated depreciation and impairment						
Freehold land	381,632	$ -	$ -	$ (9,133)	$ -	372,499
Buildings	20,209,450	396,660	26,066	(2,464)	-	20,577,580
Machinery equipment	79,576,058	1,921,393	2,322,942	-	239,194	79,413,703
Research and development equipment	1,989,499	223,971	51,917	(980)	(239,194)	1,921,379
Transportation equipment	15,838	2,961	1,140	(22)	-	17,637
Leasehold improvements	38,402	672	148	(1,109)	(21,458)	16,359
Miscellaneous equipment	1,122,797	41,967	62,745	(2,924)	-	1,099,095
	103,333,676	$ 2,587,624	$ 2,464,958	$ (16,632)	$ (21,458)	103,418,252
Carrying amount at December 31, 2019	$ 19,308,675					$ 29,365,507

The above items of property, plant and equipment are depreciated on a straight-line basis over their estimated useful lives as follows:

Buildings	
Main buildings	31-40 years
Electronic equipment	11-20 years
Facility equipment	15 years
Landscape engineering	20 years
Machinery equipment	11 years
Research and development equipment	5-11 years
Transportation equipment	5 years
Leasehold improvements	6-16 years
Miscellaneous equipment	2-16 years

For the year ended December 31, 2019, there was no indication of an impairment loss; therefore, the Group did not perform impairment assessment.

The carrying amount of the freehold land in the U.S.A. which was unutilized by the Group as of December 31, 2019 was US$9,579 thousand.

Property, plant and equipment pledged as collateral for bank borrowings are set out in Note 33.

b. 2018

	Years Ended December 31, 2018					
	Balance, Beginning of Year	Additions	Disposals	Net Exchange Differences	Reclassification	Balance, End of Year
Cost						
Freehold land	$ 1,252,911	$ -	$ -	$ 21,013	$ -	$ 1,273,924
Buildings	24,472,226	-	3,162	(4,603)	424,311	24,888,772
Machinery equipment	85,198,564	-	454,143	-	2,492,403	87,236,824
Research and development equipment	3,229,384	4,137	40	(624)	611,653	3,844,510
Transportation equipment	23,224	2,020	8,294	(47)	7,080	23,983
Leasehold improvements	40,132	-	-	25	-	40,157
Miscellaneous equipment	1,157,900	7,101	8,259	(223)	42,405	1,198,924
Advance payments and construction in progress	2,587,750	5,125,344	-	15	(3,577,852)	4,135,257
	117,962,091	$ 5,138,602	$ 473,898	$ 15,556	$ -	122,642,351
Accumulated depreciation and impairment						
Freehold land	369,767	$ -	$ -	$ 11,865	$ -	381,632
Buildings	19,837,641	376,192	3,162	(1,221)	-	20,209,450
Machinery equipment	78,465,322	1,489,345	454,142	-	75,533	79,576,058
Research and development equipment	1,872,724	192,851	40	(503)	(75,533)	1,989,499
Transportation equipment	21,575	1,589	7,362	36	-	15,838
Leasehold improvements	37,191	1,218	-	(7)	-	38,402
Miscellaneous equipment	1,099,249	31,853	8,113	(192)	-	1,122,797
	101,703,469	$ 2,093,048	$ 472,819	$ 9,978	$ -	103,333,676
Carrying amount at December 31, 2018	$ 16,258,622					$ 19,308,675

For the year ended December 31, 2018, no indication of an impairment loss was present and no impairment assessment was performed.

The carrying amount of the freehold land in the United States which was unutilized by the Group as of December 31, 2018 was US$9,579 thousand, respectively.

The above items of property, plant and equipment are depreciated on a straight-line basis over their estimated useful lives as follows:

Buildings	
Main buildings	31-40 years
Electronic equipment	11-20 years
Facility equipment	15 years
Landscape engineering	20 years
Machinery equipment	11 years
Research and development equipment	5-11 years
Transportation equipment	5 years
Leasehold improvements	6-16 years
Miscellaneous equipment	2-16 years

Property, plant and equipment pledged as collateral for bank borrowings are set out in Note 33.

13. LEASE ARRANGEMENTS

a. Right-of-use assets - 2019

	December 31, 2019
Carrying amounts	
Freehold land	$ 952,687
Buildings	118,282
Transportation equipment	6,000
Miscellaneous equipment	499
	$ 1,077,468

	For the Year Ended December 31, 2019
Additions to right-of-use assets	$ 82,035
Depreciation charge for right-of-use assets	
Freehold land	$ 70,491
Buildings	33,378
Transportation equipment	3,978
Miscellaneous equipment	1,996
	$ 109,843
Income from the subleasing of right-of-use assets (included in other income)	$ (3,744)

b. Lease liabilities - 2019

	December 31, 2019
Carrying amounts	
Current	$ 93,919
Non-current	$ 973,712

Range of discount rate for lease liabilities was as follows:

	December 31, 2019
Freehold land	1.67%
Buildings	1.07%-4.31%
Transportation equipment	1.22%
Miscellaneous equipment	1.22%

c. Material lease-in activities and terms

The Group also leased certain land and buildings for the use as plant and office in a period of one to twenty years. The Group does not have bargain purchase options to acquire the leasehold land and buildings at the end of the lease terms. In addition, the Group is prohibited from subleasing or transferring all or any portion of the underlying assets without the lessor's consent.

d. Other lease information

2019

	For the Year Ended December 31, 2019
Expenses relating to short-term leases	$ 9,783
Expenses relating to low-value asset leases	$ 190
Expenses relating to variable lease payments not included in the measurement of lease liabilities	$ 10,126
Total cash outflow for leases	$ (139,647)

The Group leases certain office buildings which qualify as short-term leases and certain office equipment which qualifies as low-value asset leases. The Group has elected to apply the recognition exemption and thus, did not recognize right-of-use assets and lease liabilities for these leases.

2018

The future minimum lease payments of non-cancellable operating lease commitments are as follows:

	December 31, 2018
Not later than 1 year	$ 101,377
Later than 1 year and not later than 5 years	319,190
Later than 5 years	752,158
	$ 1,172,725

The lease payments and sublease payments recognized in profit or loss were as follows:

	For the Year Ended December 31, 2018
Minimum lease payments	$ 134,096

14. INTANGIBLE ASSETS

	Years Ended December 31, 2019				
	Balance, Beginning of Year	Additions	Disposals	Net Exchange Differences	Balance, End of Year
Cost					
Software	$ 86,874	$ 35,514	$ 13,261	$ (741)	$ 108,386
Others	13,000	-	-	-	13,000
	99,874	$ 35,514	$ 13,261	$ (741)	121,386
Accumulated amortization					
Software	47,068	$ 29,220	$ 13,261	$ (580)	62,447
Others	7,583	4,334	-	-	11,917
	54,651	$ 33,554	$ 13,261	$ (580)	74,364
Carrying amounts at December 31, 2019	$ 45,223				$ 47,022

	Years Ended December 31, 2018				
	Balance, Beginning of Year	Additions	Disposals	Net Exchange Differences	Balance, End of Year
Cost					
Software	$ 89,003	$ 26,768	$ 28,698	$ (199)	$ 86,874
Licenses	4,743	-	4,743	-	-
Others	24,722	-	11,722	-	13,000
	118,468	$ 26,768	$ 45,163	$ (199)	99,874
Accumulated amortization					
Software	52,945	$ 22,989	$ 28,698	$ (168)	47,068
Licenses	4,743	-	4,743	-	-
Others	14,972	4,333	11,722	-	7,583
	72,660	$ 27,322	$ 45,163	$ (168)	54,651
Carrying amounts at December 31, 2018	$ 45,808				$ 45,223

Intangible assets are amortized on a straight-line basis over their estimated useful lives as follows:

Software	1-6 years
Licenses	1-3 years
Others	1-3 years

15. PREPAYMENTS FOR LEASES

	December 31	
	2019	2018
Current assets (included in other current assets)	$ -	$ 506
Non-current assets (included in other non-current assets)	-	18,721
	$ -	$ 19,227

Prepaid lease payments include payments for land use rights for land located in mainland China. The Group has obtained the land use right certificates.

16. OTHER FINANCIAL ASSETS

	December 31	
	2019	2018
Non-current		
Restricted time deposits (Note 33)	$ 157,665	$ 157,665
Refundable deposits	13,925	14,167
Long-term receivables	-	18,678
	$ 171,590	$ 190,510

17. OTHER ASSETS

	December 31	
	2019	2018
Current		
Prepayments	$ 252,759	$ 435,237
Offset against business tax payable	-	2,537
Prepayments for leases	-	506
	$ 252,759	$ 438,280
Non-current		
Prepayments for leases	$ -	$ 18,721

18. BORROWINGS

a. Short-term borrowings

	December 31	
	2019	2018
Line of credit borrowings	$ 1,550,000	$ -
Interest rate	0.98%-1.10%	-

b. Long-term borrowings

	December 31	
	2019	2018
Secured borrowings from financial institutions	$ 10,237,531	$ 7,354,650
Unsecured borrowings from financial institutions	2,840,000	1,887,500
	13,077,531	9,242,150
Less: Current portion	3,267,200	3,334,772
Less: Arrangement fee	36,001	22,060
Long-term borrowings	$ 9,774,330	$ 5,885,318
Interest rate	1.23%-1.97%	1.23%-1.97%

Borrowing Type	Repayment Terms	December 31 2019	December 31 2018
Secured syndicated loan denominated in NT$	From December 2017 to December 2022	$ 4,818,662	$ 6,100,000
Secured bank borrowing denominated in NT$	From June 2019 to February 2024	4,600,000	-
Unsecured bank borrowing denominated in NT$	From June 2019 to June 2021	1,200,000	-
Unsecured bank borrowing denominated in NT$	From April 2019 to April 2022	600,000	-
Secured bank borrowing denominated in JPY	From September 2018 to September 2021	459,375	700,000
Secured bank borrowing denominated in NT$	From September 2017 to September 2022	343,750	468,750
Unsecured bank borrowing denominated in NT$	From August 2019 to August 2022	300,000	-
Unsecured bank borrowings denominated in NT$	From July 2019 to July 2022	300,000	-
Unsecured bank borrowings denominated in NT$	From September 2018 to September 2021	240,000	300,000
Unsecured bank borrowings denominated in NT$	From September 2018 to September 2020	200,000	300,000
Secured bank borrowing denominated in NT$	From January 2015 to January 2020	15,744	78,719
Unsecured bank borrowing denominated in NT$	Paid off in February 2019	-	87,500
Secured bank borrowing denominated in NT$	Paid off in March 2019	-	7,181
Unsecured bank borrowing denominated in NT$	Paid off in June 2019	-	400,000
Unsecured bank borrowing denominated in NT$	Paid off in December 2019	-	800,000
Less: Current portion		3,267,200	3,334,772
Less: Arrangement fee		36,001	22,060
Total long-term borrowings		$ 9,774,330	$ 5,885,318

To repay the vested liabilities, purchase equipment or machinery and increase operating funds, the Group signed a 5-year syndicated loan agreement with 7 financial institutions in November 2017 with a total amount of NT$7.7 billion.

To purchase equipment or machinery, the Group has entered into a 5-year syndicated loan agreement with 9 financial institutions including the Taiwan Cooperative Bank in January 2019 with the total amount of NT$8 billion. The Group provided notes used as refundable guarantees for syndicated loan mentioned above that will be cancelled upon termination of the guarantee

The Group had provided notes as refundable guarantees for syndicated loan mentioned above that will be cancelled upon termination of the guarantee.

In addition, the Group’s floating borrowing rate on the above borrowing is reset every one to three months.

The loan agreement requires the maintenance of a current ratio, debt ratio, and interest coverage ratio based on the Group’s semi-annual and annual consolidated financial statements. For the year ended December 31, 2019, the Group had met the financial ratio covenants.

The details of assets pledged as collateral for long-term loans are set in Note 33.

19. NOTES PAYABLE AND TRADE PAYABLES

	December 31	
	2019	2018
Trade payables	$ 2,141,510	$ 2,613,758

The Group has financial risk management policies in place to ensure that all payables are paid within the pre-agreed upon credit terms.

20. OTHER PAYABLES

	December 31	
	2019	2018
Payables for bonus	$ 253,924	$ 256,201
Payables for maintenance and repairs	219,965	207,623
Payables for patents	165,357	214,709
Payables for donations	98,144	-
Others	758,997	767,562
	$ 1,496,387	$ 1,446,095

21. OTHER LIABILITIES

	December 31	
	2019	2018
Current		
Refund liabilities	$ 190,061	$ 306,291
Receipts under custody	31,999	34,582
Others	8,380	1,756
	$ 230,440	$ 342,629
Non-current		
Guarantee deposits	$ 10,271	$ 10,091
Others	9	9
	$ 10,280	$ 10,100

22. PROVISIONS

	December 31	
	2019	2018
Current		
Employee benefits (a)	$ 20,460	$ 28,517

a. The provision for employee benefits represents vested long service leave entitlements accrued.

23. RETIREMENT BENEFIT PLANS

a. Defined contribution plans

The Company and the subsidiary Mxtran adopted a pension plan under the Labor Pension Act (LPA), which is a state-managed defined contribution plan. Under on the LPA, the Group makes monthly contributions to employees' individual pension accounts at 6% of monthly salaries and wages.

The Group's subsidiaries in Hong Kong, the USA, Europe, Japan, Korea, Singapore and China are required to contribute a specified percentage of payroll costs to the retirement benefit scheme to fund the benefits. The only obligation of the Group with respect to the retirement benefit plan is to make the specified contributions.

b. Defined benefit plans

The defined benefit plan adopted by the Company in accordance with the Labor Standards Law is operated by the government. Pension benefits are calculated on the basis of the length of service and average monthly salaries of the 6 months before retirement. The Company contributes amounts equal to 2% of total monthly salaries and wages to a pension fund administered by the pension fund monitoring committee. Pension contributions are deposited in the Bank of Taiwan in the committee's name. Before the end of each year, the Group assesses the balance in the pension fund. If the amount of the balance in the pension fund is inadequate to pay retirement benefits for employees who conform to retirement requirements in the next year, the Group is required to fund the difference in one appropriation that should be made before the end of March of the next year. The pension fund is managed by the Bureau of Labor Funds, Ministry of Labor (the "Bureau"); the Group has no right to influence the investment policy and strategy.

The amounts in the consolidated balance sheets in respect of the Group's defined benefit plans were as follows:

	December 31	
	2019	2018
Present value of defined benefit obligation	$ 1,903,616	$ 1,890,484
Fair value of plan assets	(791,902)	(710,318)
Net defined benefit liability	$ 1,111,714	$ 1,180,166

Movements in net defined benefit liability were as follows:

	Present Value of Defined Benefit Obligation	Fair Value of the Plan Assets	Net Defined Benefit Liabilities (Assets)
Balance at January 1, 2018	$ 1,842,116	$ 665,599	$ 1,176,517
Service cost			
Current service cost	5,875	-	5,875
Net interest expense	27,316	-	27,316
Return on plan assets	-	9,910	(9,910)
Recognized in profit or loss	33,191	9,910	23,281
Remeasurement			
Return on plan assets	-	17,836	(17,836)
Actuarial loss - experience adjustments	17,672	-	17,672
Actuarial loss - change in financial assumptions	52,580	-	52,580
Recognized in other comprehensive income	70,252	17,836	52,416
Contributions from the employer	-	72,048	(72,048)
Benefits paid	(55,075)	(55,075)	-
Balance at December 31, 2018	1,890,484	710,318	1,180,166
Service cost			
Current service cost	5,296	-	5,296
Net interest expense	23,330	-	23,330
Return on plan assets	-	8,772	(8,772)
Recognized in profit or loss	28,626	8,772	19,854
Remeasurement			
Return on plan assets	-	13,955	(13,955)
Actuarial loss - experience adjustments	-	-	-
Actuarial loss - change in financial assumptions	91,727	-	91,727
Recognized in other comprehensive income	91,727	13,955	77,772
Contributions from the employer	-	166,078	(166,078)
Benefits paid	(107,221)	(107,221)	-
Balance at December 31, 2019	$ 1,903,616	$ 791,902	$ 1,111,714

An analysis by function of the amounts recognized in profit or loss in respect of the defined benefit plans is as follows:

	For the Year Ended December 31	
	2019	2018
Operating costs	$ 10,688	$ 12,600
Selling and marketing expenses	1,051	1,260
General and administration expenses	3,630	4,283
Research and development expenses	4,485	5,138
	$ 19,854	$ 23,281

Through the defined benefit plans under the Labor Standards Law, the Group is exposed to the following risks:

1) Investment risk: The plan assets are invested in domestic and foreign equity and debt securities, bank deposits, etc. The investment is conducted at the discretion of the Bureau or under the mandated management. However, in accordance with relevant regulations, the return generated by plan assets should not be below the interest rate for a 2-year time deposit with local banks.

2) Interest risk: A decrease in the government/corporate bond interest rate will increase the present value of the defined benefit obligation; however, this will be partially offset by an increase in the return on the plan’s debt investments.

3) Salary risk: The present value of the defined benefit obligation is calculated by reference to the future salaries of plan participants. As such, an increase in the salary of the plan participants will increase the present value of the defined benefit obligation.

The actuarial valuations of the present value of the defined benefit obligation were carried out by qualified actuaries. The significant assumptions used for the purposes of the actuarial valuations were as follows:

	December 31	
	2019	**2018**
Discount rate	0.80%	1.25%
Expected rate of salary increase	3.00%	3.00%
Expected return on plan assets increase	0.80%	1.25%

If possible reasonable change in each of the significant actuarial assumptions will occur and all other assumptions will remain constant, the present value of the defined benefit obligation would increase (decrease) as follows:

	For the Year Ended December 31	
	2019	**2018**
Discount rate		
0.50% increase	$ (101,540)	$ (105,932)
0.50% decrease	$ 109,956	$ 114,591
Expected rate of salary increase		
0.50% increase	$ 126,190	$ 121,893
0.50% decrease	$ (117,415)	$ (113,520)

The sensitivity analysis presented above may not be representative of the actual change in the present value of the defined benefit obligation as it is unlikely that the change in assumptions would occur in isolation of one another as some of the assumptions may be correlated.

	December 31	
	2019	**2018**
The expected contributions to the plan for the next year	$ 30,384	$ 31,032
The average duration of the defined benefit obligation	11.1 years	11.7 years

The Group maintains a separate executive pension plan and the net periodic pension costs were NT$8,651 thousand and NT$9,173 thousand for the years ended December 31, 2019 and 2018, respectively.

Movements in net defined benefit liability were as follows:

	Present Value of Defined Benefit Obligation
Balance at January 1, 2018	$ 433,281
Service cost	
Current service cost	2,745
Net interest expense	6,428
Recognized in profit or loss	9,173
Remeasurement	
Actuarial loss - experience adjustments	21,240
Actuarial loss - changes in financial assumptions	5,748
Recognized in other comprehensive income	26,988
Benefits paid	(9,455)
Balance at December 31, 2018	459,987
Service cost	
Current service cost	2,928
Net interest expense	5,723
Recognized in profit or loss	8,651
Remeasurement	
Actuarial loss - experience adjustments	21,594
Actuarial loss - changes in financial assumptions	8,629
Recognized in other comprehensive income	30,223
Benefits paid	-
Balance at December 31, 2019	$ 498,861

An analysis by function of the amounts recognized in profit or loss in respect of the defined benefit plans is as follows:

	For the Year Ended December 31	
	2019	2018
General and administration expenses	$ 8,651	$ 9,173

The actuarial valuations of the present value of the defined benefit obligation of executive pension plan were carried out by qualified actuaries. The significant assumptions used for the purposes of the actuarial valuations were as follows:

	December 31	
	2019	2018
Discount rate	0.80%	1.25%
Expected rate of salary increase	-	-
Expected return on plan assets increase	0.80%	1.25%

24. EQUITY

a. Share capital

Ordinary shares

	December 31	
	2019	2018
Number of shares authorized (in thousands)	6,550,000	6,550,000
Shares authorized	$ 65,500,000	$ 65,500,000
Number of shares issued and fully paid (in thousands)	1,839,927	1,840,292
Shares issued	$ 18,399,271	$ 18,402,919

Fully paid ordinary shares, which have a par value of $10, carry one vote per share and carry a right to dividends.

A total of 864,704 thousand shares and 650,000 thousand shares of the Company's authorized shares were reserved for the issuance of convertible bonds and employee share options.

b. Capital surplus

	December 31	
	2019	2018
May be used to offset a deficit, distributed as cash dividends, or transferred to share capital (1)		
Donations	$ 37	$ 37
Treasury share transactions	6,422	6,422
	$ 6,459	$ 6,459
May be used to offset a deficit only		
Changes in percentage of ownership interests in subsidiaries (2)	$ 4,609	$ 4,609
Treasury share transactions	24,347	21,999
	$ 28,956	$ 26,608
May not be used for any purpose		
Employee restricted shares	$ 508,505	$ (89,308)

1) Such capital surplus may be used to offset a deficit; in addition, when the Company has no deficit, such capital surplus may be distributed as cash dividends or transferred to share capital (limited to a certain percentage of the Company's paid-in capital and once a year).

2) Such capital surplus arises from changes in capital surplus of subsidiaries accounted for by using the equity method.

c. Retained earnings and dividend policy

The Company's Articles of Incorporation, state that, where the Company made profit in a fiscal year, the profit shall be first utilized for paying taxes, offsetting losses of previous years, setting aside a legal reserve 10% of the remaining profit (until the amount of the legal reserve equals the amount of the Company's paid-in capital), setting aside or reversing a special reserve in accordance with the laws and regulations, and then any remaining profit together with any undistributed retained earnings shall be used by the Company's board of directors as the basis for proposing a distribution plan, which should be resolved in the shareholders' meeting for the distribution of dividends and bonuses to shareholders. The Company state the policies on the distribution of employees' compensation and remuneration of directors state by the Company's Articles of Incorporation refer to "Employees' compensation and remuneration of directors" in Note 26 (f).

The Company is classified under the capital intensive industry. In accordance with the long-term financial program of the Company, the above shareholders' dividends can be retained as undistributed earnings, and then be distributed in the future, as determined by the shareholders at the Annual General Meeting.

Distributions shall be prioritized to take the form of cash dividends. Nevertheless, it still depends on the Company's financial, sales or operating condition. The Company's Articles of Incorporation provide that no more than 50% of the current year's total amount of distributable earnings can be distributed in the form of share dividends.

The appropriation of earnings to a legal reserve shall be made until the legal reserve equals the Company's paid-in capital. The legal reserve may be used to offset any deficit. If the Company has no deficit and the legal reserve has exceeded 25% of the Company's paid-in capital, the excess may be transferred to capital or distributed in cash.

Items referred under Rule No. 1010047490 issued by the FSC and in the directive titled "Questions and Answers for Special Reserves Appropriated Following Adoption of IFRSs" should be appropriated to or reversed from a special reserve by the Company.

The appropriation of earnings for 2018 and 2017, which had been proposed by the Company's general meeting of shareholders on June 18, 2019 and June 14, 2018, respectively. The appropriation and dividends per share were as follows:

	For the Year Ended December 31	
	2018	**2017**
Legal reserve	$ 899,301	$ 541,360
Special reserve	$ 932,777	$ 74,275
Cash dividends	$2,208,200	$1,804,776
Share dividends	$ -	$ 360,955
Cash dividends per share	$ 1.2	$ 1.0
Share dividends per share	$ -	$ 0.2

d. Special reserve

	For the Year Ended December 31	
	2019	**2018**
Beginning at January 1	$ 74,275	$ -
Appropriations in respect of		
Treasury shares	48,882	74,275
Reversal of the debits to other equity items	883,895	-
Balance at December 31	$ 1,007,052	$ 74,275

According to the shareholding ratio, the special reserve is calculated based on the difference between the market value of the parent company's stock holdings and the book value, and the special reserve will be partially reversed on market price.

e. Other equity items

1) Exchange differences on translating foreign operations

	For the Year Ended December 31 2019	2018
Balance at January 1	$ (137,132)	$ (85,183)
Effect of retrospective application of IFRS 9	-	(146,758)
Exchange differences on translating foreign operations	(98,748)	94,809
Balance at December 31	$ (235,880)	$ (137,132)

2) Unrealized gain on financial assets at FVTOCI

	For the Year Ended December 31 2019	2018
Balance at January 1	$ (746,762)	$ -
Effect of retrospective application of IFRS 9	-	112,903
Recognized for the year		
Unrealized gain/(loss) - equity instrument	447,722	(958,735)
Other comprehensive income recognized for the year	(299,040)	(845,832)
Cumulative unrealized gain/(loss) of equity instruments transferred to retained earnings due to disposal	-	99,070
Balance at December 31	$ (299,040)	$ (746,762)

3) Employee unearned benefit

In the meeting of shareholders on June 18, 2014 and June 16, 2016, the shareholders approved a restricted share plan for employees. Refer to Note 29 for the information of restricted shares issued.

	For the Year Ended December 31 2019	2018
Balance at January 1	$ (19,978)	$ (85,600)
Grant by this year	(508,772)	-
Share-based payment expenses recognized	84,407	63,583
Adjustments for change of turnover rate	1,277	2,039
Balance at December 31	$ (443,066)	$ (19,978)

f. Non-controlling interests

	For the Year Ended December 31 2019	2018
Balance at January 1	$ 334	$ 685
Share of loss for the year	941	(157)
Other comprehensive income (loss) for the year		
Non-controlling interest relating to outstanding vested share options held by the employees of subsidiaries	1	(194)
Balance at December 31	$ 1,276	$ 334

g. Treasury shares

The Company's shares held by its subsidiaries at December 31, 2019 and 2018 were as follows:

Name of Subsidiary	Number of Shares Held (In Thousands)	Carrying Amount	Market Price
December 31, 2019			
Hui Ying	1,957	$ 159,061	$ 72,786
December 31, 2018			
Hui Ying	1,957	$ 159,061	$ 35,904

The Company's shares held by subsidiaries are regarded as treasury shares; shareholder's rights are retained, except for the rights to participate in any share issuances for cash and to vote.

25. REVENUE

a. Segmentation of revenue from contracts with customers

	For the Year Ended December 31	
	2019	2018
Product type		
Flash	$ 19,481,027	$ 23,326,091
ROM	13,290,888	11,166,453
Foundry	2,196,564	2,445,263
Others	26,932	15,225
	$ 34,995,411	$ 36,953,032

b. Contract balances

	For the Year Ended December 31	
	2019	2018
Contract liabilities (classified as current liabilities)	$ 98,557	$ 14,913

The changes in the contract liability balances primarily result from the timing difference between the satisfaction of the performance obligations and the customer's payment.

The Group recognized revenue from the beginning balance of contract liabilities as follows:

	For the Year Ended December 31	
	2019	2018
From the beginning balance of contract liabilities		
Sale of goods	$ 14,544	$ 52,337

26. NET PROFIT (LOSS) FROM CONTINUING OPERATIONS

a. Other income

	For the Year Ended December 31	
	2019	2018
Dividend income	$ 109,016	$ 105,698
Interest income	38,387	45,991
Intellectual property income	-	2,473,600
Others	43,191	36,262
	$ 190,594	$ 2,661,551

b. Other gains and losses

	For the Year Ended December 31	
	2019	2018
Net foreign exchange gains (losses)	$ (60,722)	$ 245,559
Gains on disposal of investments	7,404	180
Others	(12,884)	(8,888)
	$ (66,202)	$ 236,851

c. Finance costs

	For the Year Ended December 31	
	2019	2018
Interest on loans	$ 215,886	$ 159,779
Interest on lease liabilities	18,972	-
Other interest expenses	-	1,223
Less: Amounts included in the cost of qualifying assets	(37,915)	(17,649)
	$ 196,943	$ 143,353

Information about capitalized interest was as follows:

	For the Year Ended December 31	
	2019	2018
Capitalized interest	$ 37,915	$ 17,649
Capitalization rate	1.67%	1.45%

d. Depreciation and amortization

	For the Year Ended December 31	
	2019	**2018**
An analysis of depreciation by function		
Operating costs	$ 2,295,217	$ 1,769,580
Operating expenses	402,250	323,468
	$ 2,697,467	$ 2,093,048
An analysis of amortization by function		
Operating costs	$ 10,448	$ 9,226
Operating expenses	23,106	18,096
	$ 33,554	$ 27,322

e. Employee benefits expense

	For the Year Ended December 31	
	2019	**2018**
Post-employment benefits (Note 23)		
Defined contribution plans	$ 212,386	$ 252,800
Defined benefit plans	28,505	32,454
	240,891	285,254
Share-based payments		
Equity-settled	84,407	63,583
Other employee benefits	6,313,313	7,359,029
Total employee benefits expense	$ 6,638,611	$ 7,707,866
An analysis of employee benefits expense by function		
Operating costs	$ 3,005,669	$ 3,572,337
Operating expenses	3,632,942	4,135,529
	$ 6,638,611	$ 7,707,866

f. Employees’ compensation and remuneration of directors

In compliance with the Articles of Incorporation, the Company accrued employees’ compensation and remuneration of directors at the rates of 15% and no higher than 2%, respectively, of net profit before income tax, employees’ compensation, and remuneration of directors. For the years ended December 31, 2019 and 2018, the estimated employees’ compensation and the remuneration of directors resolved by the board of directors on February 17, 2020 and March 12, 2019, respectively, were as follows:

Amount

	For the Year Ended December 31	
	2019	**2018**
Employees’ compensation	$ 544,330	$ 1,669,586
Remuneration of directors	$ 72,577	$ 222,611

If there is a change in the amounts after the annual consolidated financial statements are authorized for issue, the differences are recorded as a change in the accounting estimate.

There is no difference between the actual amount of employees' compensation and remuneration of directors paid and the amount recognized in the consolidated financial statements for the years ended December 31, 2018 and 2017.

Information on the employees' compensation and remuneration of directors resolved by the Company's board of directors in 2019 and 2018 is available at the Market Observation Post System website of the Taiwan Stock Exchange.

27. INCOME TAXES RELATING TO CONTINUING OPERATIONS

a. Major components of income tax expense recognized in profit or loss

	For the Year Ended December 31	
	2019	**2018**
Current tax		
In respect of the current year	$ 16,903	$ 26,359
Income tax on unappropriated earnings	-	184,257
Overseas income tax	1,852	247,360
Adjustments for prior period	(82,065)	-
Deferred tax		
In respect of the current year	76,735	(186,438)
Income tax expense recognized in profit or loss	$ 13,425	$ 271,538

A reconciliation of accounting loss and income tax expenses were as follows:

	For the Year Ended December 31	
	2019	**2018**
Income before tax from continuing operations	$ 3,026,326	$ 9,624,387
Income tax expense calculated at the statutory rate	$ 625,635	$ 1,875,074
Non-deductible expenses in determining taxable income	6,798	7,321
Non-taxable income	(22,390)	(23,193)
Realized loss on investment	-	(296,074)
Income tax unappropriated earnings	-	184,257
Unrecognized deductible temporary differences	(590,616)	(1,476,755)
Unrecognized loss carryforwards	74,211	908
Overseas income tax	1,852	-
Adjustments for prior year	(82,065)	-
Income tax expense recognized in profit or loss	$ 13,425	$ 271,538

The Income Tax Act in the ROC was amended in 2018, and the corporate income tax rate was adjusted from 17% to 20%. The effect of the change in tax rate on deferred tax income to be recognized in profit or loss is recognized in full in the period in which the change in tax rate occurs. In addition, the rate of the corporate surtax applicable to the 2018 unappropriated earnings will be reduced from 10% to 5%.

In July 2019, the President of the ROC announced the amendments to the Statute of Industrial Innovation, which stipulate that the construction or purchase of specific assets or technologies from the undistributed surplus from 2018 may be used as the deduction item for the calculation of the undistributed surplus. The Group has already deducted the amount of capital expenditure from the unappropriated earnings in 2018 that was reinvested when calculating the tax on unappropriated earnings for the year ended December 31, 2019.

b. Current tax assets and liabilities

	December 31	
	2019	**2018**
Current tax assets		
Tax refund receivable	$ 2,978	$ 3,433
Current tax liabilities		
Income tax payable	$ 11,231	$ 187,612

c. Deferred tax assets and liabilities

The Group offset certain deferred tax assets and deferred tax liabilities which met the offset criteria.

The movements of deferred tax assets and deferred tax liabilities were as follows:

For the year ended December 31, 2019

	Opening Balance	**Recognized in Profit or Loss**	**Closing Balance**
Deferred tax assets			
Temporary differences			
Unrealized expense and losses	$ 5,017	$ (2,527)	$ 2,490
Loss carryforwards	1,179,084	(74,208)	1,104,876
	$ 1,184,101	$ (76,735)	$ 1,107,366

For the year ended December 31, 2018

	Opening Balance	**Recognized in Profit or Loss**	**Closing Balance**
Deferred tax assets			
Temporary differences			
Unrealized expense and losses	$ 4,826	$ 191	$ 5,017
Loss carryforwards	992,838	186,246	1,179,084
	$ 997,664	$ 186,437	$ 1,184,101

d. Deductible temporary differences, unused loss carryforwards and unused investment credits for which no deferred assets have been recognized in the consolidated balance sheets

	December 31	
	2019	**2018**
Loss carryforwards		
Expire in 2019	$ -	$ 653,619
Expire in 2020	82,441	82,441
Expire in 2021	131,050	131,050
Expire in 2022	184,390	184,390
Expire in 2023	97,389	97,389
Expire in 2024	150,479	1,303,149
Expire in 2025	67,634	2,587,948
Expire in 2026	1,817,823	2,902,299
Expire in 2027	66,966	66,966
Expire in 2028	31,408	4,541
Expire in 2029	17	-
	$ 2,629,597	$ 8,013,792
Investment credits		
Research and development expenditures	$ 3,803,446	$ 257,783
Deductible temporary differences	$ 26,394,004	$ 18,639,093

The unrecognized investment credits will expire in 2020.

e. Information about unused investment credits and unused loss carry-forwards

As of December 31, 2019, investment credits comprised of:

Law and Statutes	**Tax Credit Source**	**Remaining Creditable Amount**	**Expiry Year**
Statute for Industrial Innovation	Research and development expenditures	$ 180,316	2019
Statute for Industrial Innovation	Research and development expenditures	200,028	2020
		$ 380,344	

Loss carryforwards as of December 31, 2019 comprised of:

Unused Tax Amount	**Expiry Year**
$ 16,488	2020
26,210	2021
36,878	2022
19,478	2023
414,013	2024
517,590	2025
580,460	2026
13,393	2027
6,282	2028
3	2029
$ 1,630,795	

f. Income tax assessments

The Company's tax returns through 2016 have been assessed by the tax authorities.

28. EARNINGS PER SHARE

Unit: NT$ Per Share

	For the Year Ended December 31	
	2019	**2018**
Basic earnings per share	$ 1.64	$ 4.94
Diluted earnings per share	$ 1.61	$ 4.65

The income and weighted average number of ordinary shares outstanding in the computation of earnings per share from continuing operations were as follows:

Net Income for the Year

	For the Year Ended December 31	
	2019	**2018**
Income for the year attributable to owners of the Company	$ 3,011,960	$ 8,993,006

Weighted average number of ordinary shares outstanding (in thousand shares):

	For the Year Ended December 31	
	2019	**2018**
Weighted average number of ordinary shares in computation of basic earnings per share	1,831,825	1,822,137
Effect of potentially dilutive ordinary shares:		
Restricted shares to employees	6,243	15,406
Employees' compensation or bonus issue to employees	29,428	95,189
Weighted average number of ordinary shares in computation of diluted earnings per share	1,867,496	1,932,732

Since the Group offered to settle compensation or bonuses paid to employees in cash or shares, the Group assumed the entire amount of the compensation or bonus will be settled in shares and the resulting potential shares were included in the weighted average number of shares outstanding used in the computation of diluted earnings per share, as the effect is dilutive. Such dilutive effect of the potential shares is included in the computation of diluted earnings per share until the number of shares to be distributed to employees is resolved in the following year.

29. SHARE-BASED PAYMENT ARRANGEMENTS

a. Restricted share plan for employees

Information on share plan for employees were as follows:

Approved Date	Grant Shares (Thousand)	Board of Directors Approved Grant Shares (Thousand)	Grant Date	Issued Date	Issued Shares (Thousand)	Fair Value
2014/06/18	123,251	38,365	2014/08/28	2014/12/25	37,301	$ 7.76
		62,213	2015/03/16	2015/07/22	61,279	6.82
2016/06/16	123,535	58,971	2016/10/25	2017/01/03	57,476	4.73
2019/06/18	35,294	16,815	2019/10/21	Note	Note	32.55

Note: After the Company's application to the competent authority has been declared effective on October 8, 2019, the shares will be issued once or in installments, depending on actual needs.

To meet the vesting conditions, an employee has to meet performance and other conditions over the vesting period listed as follows:

1) If an employee remains employed by the Company for one year after the grant date; and has a current year's performance rating of "successful" (or higher) /A0 or A1, 40% of the restricted shares will be vested;

2) If an employee remains employed by the Company for two years after the grant date; and has a current year's performance rating of "successful" (or higher) /A0 or A1, 30% of the restricted shares will be vested;

3) If an employee remains employed by the Company for three years after grant date; and has a current year's performance rating of "successful" (or higher) /A0 or A1, 30% of the restricted shares will be vested.

In addition to the vesting conditions, the limitations are as follows:

1) Employees, except for inheritance, should not sell, transfer, pledge, donate or in any other way dispose of the shares.

2) The shares should be held in stock trust.

3) Except for the above two paragraphs, the other rights of the restricted share plan for employees, which include, but are not limited to, dividends, bonuses, the distribution rights of the legal reserve and capital surplus, share options of cash capital voting rights of shareholders, etc., are the same as the Group's issued ordinary shares.

4) The dividends of restricted share plan for employees are not restricted by existing conditions.

5) When a new share is returned in cash due to the Company's capital reduction, the refund of the vested capital loss shall be under custodian trust. In accordance with the issuance method, such capital and shares shall be granted if the vesting conditions for new restricted employee shares are met. The vested shares are granted to employees without interests; if the vested conditions are not met, such cash will be recovered by the Company (applicable to the shareholders' resolution of restricted share plan in the 2019 shareholders' meeting).

When employees do not reach the vesting conditions of restricted share plan for employees during the year, the Company will recover and cancel the shares.

Information on restricted share plan for employees was as follows:

	Number of Shares (In Thousands) For the Year Ended December 31	
	2019	2018
Balance at January 1	7,787	24,461
Vested	(7,506)	(15,970)
Forfeited (Notes 1 and 2)	(258)	(704)
Balance at December 31	23	7,787

Note 1: The forfeited shares for the nine months ended December 31, 2019 include 18 thousand shares which will be cancelled and 240 thousand shares which were already cancelled.

Note 2: The forfeited shares for the nine months ended December 31, 2018 include 125 thousand shares which will be cancelled and 579 thousand shares which were already cancelled.

For the years ended December 31, 2019 and 2018, the compensation costs recognized were NT$84,407 thousand and NT$63,583 thousand, respectively.

30. CAPITAL MANAGEMENT

The Group manages its capital to ensure that the Group will be able to operate under the premises of going concerns and growth while maximizing the return to shareholders through the optimization of the debt and equity balance.

The Group’s strategy for managing the capital structure is to lay out the plan of product development and expand the market share considering the growth and the magnitude of industry and further developing an integral plan founded on the required capacity, capital outlay, and magnitude of assets in long-term development. Ultimately, considering the risk factors such as the fluctuation of the industry cycle and the life cycle of products, the Group determines the optimal capital structure by estimating the profitability of products, operating profit ratio, and cash flow based on the competitiveness of products.

The management of the Group periodically examines the capital structure and contemplates on the potential costs and risks involved while exerting different financial tools. In general, the Group implements prudent strategy of risk management.

31. FINANCIAL INSTRUMENTS

a. Fair value of financial instruments not measured at fair value

The management considers that the carrying amounts of financial assets and financial liabilities recognized in the consolidated financial statements approximate their fair values or their fair values cannot be reliably measured.

b. Fair value of financial instruments measured at fair value on a recurring basis

1) Fair value hierarchy

December 31, 2019

	Level 1	Level 2	Level 3	Total
Financial assets at FVTOCI				
Equity securities				
Securities listed in the ROC	$ 1,182,250	$ -	$ -	$ 1,182,250
Securities listed in other countries	421,894	-	-	421,894
Securities unlisted	-	-	396,986	396,986
	$ 1,604,144	$ -	$ 396,986	$ 2,001,130

December 31, 2018

	Level 1	Level 2	Level 3	Total
Financial assets at FVTOCI				
Equity securities				
Securities listed in the ROC	$ 1,002,225	$ -	$ -	$ 1,002,225
Securities listed in other countries	264,804	-	-	264,804
Securities unlisted	-	-	334,912	334,912
	$ 1,267,029	$ -	$ 334,912	$ 1,601,941

There were no transfers between Level 1 and Level 2 in the current and prior periods.

2) Reconciliation of Level 3 fair value measurements of financial assets

	Financial Assets at FVTOCI	
	For the Year Ended December 31	
Financial Assets	**2019**	**2018**
Balance at January 1	$ 334,912	$ 484,318
Total gain recognized in other comprehensive income (unrealized gain on financial assets at FVTOCI)	62,074	(149,406)
Balance at December 31	$ 396,986	$ 334,912

3) Valuation used in Level 3 fair value measurement

The fair values of equity securities listed in the ROC and other countries was arrived at using either the asset-based approach or based on the multiplier evaluated in the active market by the market approach and adjustments of liquidity.

c. Categories of financial instruments

	December 31	
	2019	**2018**
Financial assets		
Measured at amortized costs (1)	$ 13,872,145	$ 18,502,646
Measured at FVTOCI	2,001,130	1,601,941
Financial liabilities		
Measured at amortized cost (2)	23,524,831	25,463,876

1) The balances included financial assets measured at amortized cost, which comprise cash and cash equivalents, trade receivables (including receivables from related parties), other receivables and other financial assets.

2) The balances included financial liabilities measured at amortized cost, which comprise, notes payable and trade payables (including payables to related parties), other payables (including other payables to related parties), payable for purchases of equipment and long-term loans (including current portion).

d. Financial risk management objectives and policies

The Group manages its exposure to risks relating to the operations through market risk, credit risk, and liquidity risk with the objective to reduce the potentially adverse effects the market uncertainties may have on its financial performance.

The plans for material treasury activities are reviewed by management in accordance with procedures required by relevant regulations or internal controls. During the implementation of such plans, the Group must comply with certain treasury procedures that provide guiding principles for overall financial risk management.

1) Market risk

The Group's activities exposed it primarily to the financial risks of changes in foreign currency exchange rates (see (a) below), interest rates (see (b) below), and other price risk (see (c) below).

a) Foreign currency risk

The Group had foreign currency sales and purchases, which exposed the Group to foreign currency risk. Exchange rate exposures were managed within approved policy parameters utilizing foreign exchange forward contracts.

Sensitivity analysis

The Group was mainly exposed to the USD and JPY.

The sensitivity analysis of rate is for the transactions in currencies other than the entity's functional currency (i.e. foreign currencies) which are recognized at the rates of exchange prevailing at the end of each reporting period.

The following table details the Group's sensitivity to a 3% and 10% increase in the New Taiwan dollars (i.e. the functional currency) against the USD and JPY, respectively. The sensitivity rates used are 3% and 10% when reporting foreign currency risk internally to key management personnel.

	USD Impact		**JPY Impact**	
	For the Year Ended December 31		**For the Year Ended December 31**	
	2019	**2018**	**2019**	**2018**
Pre-tax profit decrease (increase)	$ 90,081	$ 55,846	$ 117,894	$ (63,561)

b) Interest rate risk

The Group is exposed to interest rate risk from outstanding bank loans. Interest rates of the Group's long-term bank loans are floating, and changes in interest rates would affect the future cash flows but not the fair value.

The sensitivity analysis of interest is performed based on the financial liabilities exposed to cash flow interest rate risk at the end of each reporting period.

If interest rates had been 50 basis points higher/lower, the Group's pre-tax loss for the years ended December 31, 2019 and 2018 would decrease/increase by NT$65,388 thousand and NT$46,211 thousand, respectively.

c) Other price risk

The Group was exposed to equity price risk through its investments in equity securities. Equity investments are held for strategic rather than trading purposes. The Group does not actively trade these investments.

Sensitivity analysis

A sensitivity analysis of equity prices is performed based on the fair values of equity investments at the end of each reporting period.

If equity prices had been 10% higher/lower, equity for the years ended December 31, 2019 and 2018 would have increase/decrease by NT$200,113 thousand and NT$160,194 thousand, respectively, as a result of the changes in fair value of available-for-sale investments.

2) Credit risk

Credit risk refers to the risk that counterparty will default on its contractual obligations resulting in financial loss to the Group. The Group's exposure to credit risk mainly arises from trade receivables - operating, bank deposits, and other financial instruments. Credit risk is managed separately for business related and financial related exposures.

Business related credit risk

In order to maintain the credit quality of trade receivables, the Group has established procedures to monitor and limit exposure to credit risk on trade receivables.

Credit evaluation is performed in the consideration of the relevant factors, such as financial condition, external and internal credit scoring, historical experience, and economic conditions, which may affect the customer's paying ability. The Group holds some of the credit enhancements such as prepayments and collateral to mitigate its credit risks.

Trade receivables consisted of a large number of customers, spread across diverse industries and geographical areas.

As of December 31, 2019 and 2018, the Group's ten largest customers accounted for 54% and 50% of its total trade receivables (including receivables from related parties), respectively. The Group believed that the concentration of credit risk is relatively insignificant for the remaining trade receivables.

Financial credit risk

The Group's exposure to financial credit risk which pertained to bank deposits and other financial instruments were evaluated and monitored by Corporate Treasury function. The Group only deals with creditworthy counterparties and banks so that no significant credit risk was identified.

3) Liquidity risk

The objective of liquidity risk management is to ensure the Group has sufficient liquidity to fund its business requirements of cash and cash equivalents and the unused of financing facilities associated with existing operations.

The table below summarizes the maturity profile of the Group's financial liabilities based on contractual and undiscounted payments, including principal and estimated interest.

December 31, 2019

	On Demand or Less than 1 Year	1-3 Years	3-5 Years	5+ Years	Total
Non-derivative financial liabilities					
Non-interest bearing	$ 10,522,419	$ -	$ -	$ -	$ 10,522,419
Lease liabilities	116,088	204,217	190,821	685,258	1,196,384
Interest bearing	3,491,961	7,162,099	2,920,035	-	13,574,095
	$ 14,130,468	$ 7,366,316	$ 3,110,856	$ 685,258	$ 25,292,898

Additional information about the maturity analysis for lease liabilities:

	Less than 1 Year	1-5 Years	5-10 Years	10-15 Years	15-20 Years	20+ Years
Lease liabilities	$ 116,088	$ 395,038	$ 391,353	$ 293,905	$ -	$ -

December 31, 2018

	On Demand or Less than 1 Year	1-3 Years	3-5 Years	5+ Years	Total
Non-derivative financial liabilities					
Non-interest bearing	$ 16,550,077	$ -	$ -	$ -	$ 16,550,077
Interest bearing	3,479,800	4,530,019	1,529,733	-	9,539,552
	$ 20,029,877	$ 4,530,019	$ 1,529,733	$ -	$ 26,089,629

The amounts included above for variable interest rate instruments for both non-derivative financial assets and liabilities was subject to change if changes in variable interest rates were to differ from those estimates of interest rates determined at the end of the reporting period.

32. TRANSACTIONS WITH RELATED PARTIES

Balances and transactions between the Company and its subsidiaries, which are related parties of the Company, have been eliminated on consolidation and are not disclosed in this note. Besides information disclosed elsewhere in the other notes, details of transactions between the Group and other related parties are disclosed below.

a. Related parties and their relationships associated with the Company:

Related Parties	Relationship with the Company
MegaChips Corporation (MegaChips)	Key management personnel
Ardentec Corporation (Ardentec)	The Group is its major management authority
TM Technology, Inc. (TMTECH)	Others (Note)
Etron Technology, Inc. (Etron)	Others
Macronix Education Foundation (MXIC Education)	Others

Note: As TM Technology, Inc. disposed of its shares in Etron Technology, Inc. on October 22, 2019, the Group lost its significant influence over Etron Technology, Inc.

b. Operating revenues

Line Items	Related Parties Categories/Name	For the Year Ended December 31 2019	2018
Sales	Key management personnel		
	MegaChips	$ 13,236,202	$ 11,104,912
	Others	365	604
		$ 13,236,567	$ 11,105,516

Sales prices for the related parties were not comparable to those for external customers as the Group was the sole provider of these customers. The sales terms for the related parties were between 30 to 60 days after monthly closing, similar to those with external customers.

c. Purchases

Related Parties Categories/Name	For the Year Ended December 31 2019	2018
Key management personnel		
MegaChips	$ 2,800,371	$ 11,056,200

Materials purchased from related parties were for manufacturing process. The payment term was 30 days after monthly closing and after acceptance of materials.

d. Receivables from related parties

Line Items	Related Parties Categories/Name	December 31 2019	2018
Receivables from related parties, net	Key management personnel MegaChips	$ 973,076	$ 695,028
Other receivables	Key management personnel MegaChips	$ -	$ 5

The outstanding trade receivables from related parties are unsecured. For the years ended December 31, 2019 and 2018, no impairment loss was recognized for trade receivables from related parties.

e. Payables to related parties

Line Items	Related Parties Categories/Name	December 31 2019	2018
Payables to related parties	Key management personnel		
	MegaChips	$ 4,653,909	$ 8,849,935
	The Group is its major management authority	66,303	76,266
		$ 4,720,212	$ 8,926,201
Other payables to related parties	Other Etron	$ -	$ 425

The outstanding trade payables from related parties are unsecured and will be settled in cash.

f. Other transactions with related parties

Line Items	Related Parties Categories/Name	For the Year Ended December 31 2019	2018
Manufacturing expenses	The Group is its major management authority		
	Ardentec	$ 255,716	$ 269,306
	Major management authority	9,254	-
		$ 264,970	$ 269,306

(Continued)

Line Items	Related Parties Categories/Name	For the Year Ended December 31 2019	2018
Operating expenses	Others		
	MXIC Education	$ 22,028	$ 21,368
	Others	809	867
		$ 22,837	$ 22,235

(Concluded)

The manufacturing expense of related parties were comparable to those with other vendors. The payment term was 75 days after monthly closing.

g. Compensation of key management personnel

	For the Year Ended December 31 2019	2018
Short-term benefits	$ 301,995	$ 675,119
Post-employment benefits	8,651	9,173
Share-based payments	13,899	8,965
Other long-term employee benefits	(27)	(2)
	$ 324,518	$ 693,255

The remuneration of key executives was determined by the remuneration committee based on the performance of individuals and market trends.

33. ASSETS PLEDGED AS COLLATERAL OR FOR SECURITY

The following assets were provided as collateral for bank borrowings, the tariff of imported raw materials guarantees, natural gas agreements, and land lease agreements:

	December 31 2019	2018
Property, plant and equipment, net	$ 13,228,948	$ 9,927,203
Pledge deposits (classified as other financial assets - non-current)	157,665	157,665
	$ 13,386,613	$ 10,084,868

34. SIGNIFICANT CONTINGENT LIABILITIES AND UNRECOGNIZED COMMITMENTS

In addition to those disclosed in other notes, significant commitments and contingencies of the Group as of December 31, 2019 and 2018 were as follows:

a. As of December 31, 2019 and 2018, unused letters of credit amounted to approximately NT$36,917 thousand and NT$0 thousand, respectively.

b. Unrecognized commitments are as follows:

	December 31	
	2019	2018
Acquisition of property, plant and equipment	$ 1,420,915	$ 6,819,449

c. In January 2019, the Group again signed an agreement with IBM to continue the joint development of phase-change memory technology, and the agreement is effective from January 2019 to January 2022. Under the agreement, both parties share the related expenditures of the technology development, and the unrecognized contract amounts were US$8,000 thousand.

d. The Group's board of directors passed a resolution to donate "The Macronix Innovation Building" to "National Cheng Kung University" with a donation amount of NT$420,000 thousand. As of September 30, 2019, the Group has not paid any donation payment yet.

35. SIGNIFICANT ASSETS AND LIABILITIES DENOMINATED IN FOREIGN CURRENCIES

The Group's significant financial assets and liabilities denominated in foreign currencies aggregated by the foreign currencies other than functional currencies and the related exchange rates between foreign currencies and respective functional currencies were as follows:

December 31, 2019

	Foreign Currencies (In thousands)	Exchange Rate	Carrying Amount
Financial assets			
Monetary items			
JPY	$ 21,738,886	0.2760	$ 5,999,933
USD	139,945	29.98	4,195,551
			$ 10,195,484
Financial liabilities			
Monetary items			
JPY	17,467,359	0.2760	$ 4,820,991
USD	39,788	29.98	1,192,844
			$ 6,013,835

December 31, 2018

	Foreign Currencies (In thousands)	Exchange Rate	Carrying Amount
Financial assets			
Monetary items			
JPY	$ 29,851,090	0.2782	$ 8,304,573
USD	121,931	30.715	3,745,111
			$ 12,049,684
Financial liabilities			
Monetary items			
JPY	32,135,822	0.2782	$ 8,940,186
USD	61,324	30.715	1,883,567
			$ 10,823,753

For the years ended December 31, 2019 and 2018, realized and unrealized net foreign exchange (losses) gains were NT$(60,722) thousand and NT$245,559 thousand, respectively. It is impractical to disclose net foreign exchange losses by each significant foreign currency due to the variety of the foreign currency transactions and functional currencies of the Group.

36. SEPARATELY DISCLOSED ITEMS

Information on significant transactions and information on investees:

1. Financing provided to others: None

2. Endorsements/guarantees provided: None

3. Marketable securities held (excluding investment in subsidiaries, associates and joint ventures): Table 1 (attached)

4. Marketable securities acquired and disposed of at costs or prices of at least NT$300 million or 20% of the paid-in capital: None

5. Acquisition of individual real estate at costs of at least NT $300 million or 20% of the paid-in capital: None

6. Disposal of individual real estate at prices of at least NT$300 million or 20% of the paid-in capital: None

7. Total purchases from or sales to related parties amounting to at least NT$100 million or 20% of the paid-in capital: Table 2 (attached)

8. Receivables from related parties amounting to at least NT$100 million or 20% of the paid-in capital: Table 3 (attached)

9. Trading in derivative instruments: None

10. Intercompany relationships and significant intercompany transactions: Table 4 (attached)

11. Information on investees: Table 5 (attached)

12. Information on investments in mainland China

    1) Information on any investee company in mainland China, showing the name, principal business activities, paid-in capital, method of investment, inward and outward remittance of funds, shareholding ratio, investment gains or losses, carrying amount of the investment at the end of the period, repatriation of investment gains or losses, and limit on the amount of investment in the mainland China area: Table 6 (attached)

    2) Any of the significant transactions with investee companies in mainland China, either directly or indirectly through a third area, and their prices, payment terms, and unrealized gains or losses: Table 4 (attached)

37. SEGMENT INFORMATION

Information reported to the chief operating decision maker for the purposes of resource allocation and assessment of segment performance emphasizes on the types of goods or services delivered or provided. Considering the nature of the product and the process of manufacture, the management integrated those divisions of similar operation functions into one operation segment. The reporting segments of the Group were as follows:

Memory products and wafer fabrication

IC design

There was no material difference between the accounting policies of the reportable segment and those described in Note 4.

a. Segment revenues and results

The following was an analysis of the Group's revenue and results from continuing operations by reportable segment.

	Segment Net Operating Revenue		Segment Income (Loss) from Operations and Net Income (Loss)	
	For the Year Ended December 31		For the Year Ended December 31	
	2019	2018	2019	2018
Memory products and wafer fabrication	$ 34,987,810	$ 36,944,132	$ 3,080,466	$ 6,508,358
IC design	7,601	8,900	18,411	980
Total	$ 34,995,411	$ 36,953,032	3,098,877	6,509,338
Other income			190,594	2,661,551
Other gains and losses			(66,202)	236,851
Finance costs			(196,943)	(143,353)
Income before tax			$ 3,026,326	$ 9,264,387

b. Segment total assets and liabilities

	December 31	
	2019	**2018**
Segment assets		
Memory products and wafer fabrication	$ 59,348,609	$ 57,664,018
IC design	29,213	10,192
Total segment assets	59,377,822	57,674,210
Uncollected assets	1,278,956	1,374,611
Consolidated total assets	$ 60,656,778	$ 59,048,821
Segment liabilities		
Memory products and wafer fabrication	$ 13,556,818	$ 18,277,034
IC design	4,522	3,719
Total segment liabilities	13,561,340	18,280,753
Uncollected liabilities	14,602,770	9,407,711
Consolidated total liabilities	$ 28,164,110	$ 27,688,464

For the purpose of monitoring segment performance and allocating resources between segments:

1) All assets were allocated to reportable segments other than interests in associates accounted for using the equity method, other financial assets, and current and deferred tax assets. Assets used jointly by reportable segments were allocated on the basis of the revenue earned by individual reportable segments; and

2) All liabilities were allocated to reportable segments other than borrowings and other financial liabilities. Liabilities for which reportable segments are jointly liable were allocated in proportion to segment assets.

c. Geographical information

The Group operates in two principal geographical areas - Taiwan and China.

The Group's net operating revenue from external customers by location of operations and information about its non-current assets by location of assets are detailed below.

	Revenue from External Customers		Non-current Assets	
	Year Ended December 31		December 31	
	2019	**2018**	**2019**	**2018**
Taiwan	$ 28,537,524	$ 29,889,845	$ 28,948,070	$ 18,872,753
China	5,019,996	5,460,127	174,189	202,258
Others	1,437,891	1,603,060	290,270	297,608
	$ 34,995,411	$ 36,953,032	$ 29,412,529	$ 19,372,619

Non-current assets exclude financial instruments and deferred tax assets.

d. Information about major customers

Single customers who contributed 10% or more to the Group's revenue were as follows:

	For the Year Ended December 31	
	2019	**2018**
Customer A	$ 13,236,202	$ 11,104,912

TABLE 1

MACRONIX INTERNATIONAL CO., LTD. AND SUBSIDIARY

MARKETABLE SECURITIES HELD
DECEMBER 31, 2019
(In Thousands of New Taiwan Dollars, Unless Stated Otherwise)

Holding Company Name	Type and Name of Marketable Securities	Relationship with the Holding Company	Financial Statement Account	December 31, 2019				Shares as Collateral
				Shares/Units (In Thousands)	Carrying Amount	Percentage of Ownership (%)	Fair Value	
The Company	Shares							
	Ardentec Corporation	The Company serves as member of its board of directors	Financial assets at FVTOCI - non current	35,951,871	$ 1,109,115	7.33	$ 1,109,115	None
	United Industrial Gases Co., Ltd.	None	”	6,671,877	331,459	3.06	331,459	None
	Aetas Technology Inc.	None	”	145,850	-	0.29	-	None
	Zowie Technology Co., Ltd.	None	”	20,426	-	0.12	-	None
	Quality Test System Inc.	None	”	4,538,333	-	14.64	-	None
MXBVI	Shares							
	Chipbond Technology Corporation	None	Financial assets at FVTOCI - non current	1,088,319	73,135	0.17	73,135	None
	Tower Semiconductor Ltd.	None	”	584,893	421,894	0.55	421,894	None
	Global Strategic Investment Fund (Cayman)	None	”	490,000	15,572	2.52	15,572	None
	Global Strategic Investment Fund (Samoa)	None	”	1,739,783	19,820	4.90	19,820	None
Hui Ying	Shares							
	Macronix International Co., Ltd.	The Company	Financial assets at FVTOCI - non current	1,956,619	72,786	0.11	72,786	None
	Raio Technology Co., Ltd.	None	”	1,247,288	30,135	10.03	30,135	None

TABLE 2

MACRONIX INTERNATIONAL CO., LTD. AND SUBSIDIARY

TOTAL PURCHASES FROM OR SALES TO RELATED PARTIES AMOUNTING TO AT LEAST NT$100 MILLION OR 20% OF THE PAID-IN CAPITAL
FOR THE YEAR ENDED DECEMBER 31, 2019
(In Thousands of New Taiwan Dollars, Unless Stated Otherwise)

Buyer	Related Party	Relationship	Transaction Details				Abnormal Transaction		Notes/Accounts Receivable (Payable)		Note
			Purchase/ Sale	Amount	% to Total	Payment Terms	Unit Price	Payment Term	Ending Balance	% to Total	
The Company	MegaChips	Its subsidiary, Shun Ying Investment, is represented in MXIC's board of directors	Sales	$ 13,236,202	39	30 days after monthly closing	Note 32	Note 32	$ 973,076	20	-
	MXHK	Indirect subsidiary	Sales	4,440,347	13	45 days after monthly closing	Note 32	Note 32	731,345	15	-
	MXA	Subsidiary	Sales	1,265,518	4	Net 60 days	Note 32	Note 32	137,184	3	-
	MegaChips	Its subsidiary, Shun Ying Investment, is represented in MXIC's board of directors	Purchase	2,800,371	34	30 days after monthly closing and after acceptance of materials	Note 32	Note 32	4,653,909	68	-
MXHK	The Company	Indirect subsidiary	Purchase	US$ 140,018 RMB 26,573	100	45 days after monthly closing	No material difference	No material difference	US$ 24,399	100	-
MXA	The Company	Subsidiary	Purchase	US$ 41,000	100	Net 60 days	No material difference	No material difference	US$ 4,574	100	-

TABLE 3

MACRONIX INTERNATIONAL CO., LTD. AND SUBSIDIARY

RECEIVABLES FROM RELATED PARTIES AMOUNTING TO AT LEAST NT$100 MILLION OR 20% OF THE PAID-IN CAPITAL
DECEMBER 31, 2019
(In Thousands of New Taiwan Dollars, Unless Stated Otherwise)

Company Name	Related Party	Relationship	Ending Balance	Turnover Rate	Overdue		Amounts Received in Subsequent Period	Allowance for Impairment Loss
					Amount	Action Taken		
The Company	MegaChips	Its subsidiary, Shun Ying Investment, is represented in MXIC's board of directors	$ 973,076	15.87 times	$ -	-	898,306 thousand	$ -
	MXHK	Indirect subsidiary	731,345	7.99 times	-	-	381,090 thousand	-
	MXA	Subsidiary	137,184	9.37 times	-	-	97,647 thousand	-

TABLE 4

MACRONIX INTERNATIONAL CO., LTD. AND SUBSIDIARY

INTERCOMPANY RELATIONSHIPS AND SIGNIFICANT TRANSACTIONS
FOR THE YEAR ENDED DECEMBER 31, 2019
(In Thousands of New Taiwan Dollars, Unless Stated Otherwise)

Investee Company	Counterparty	Relationship (Note 1)	Transaction Details			
			Financial Statement Accounts	Amount	Payment Terms	% to Total Revenues or Assets
The Company	MXHK	1	Sales	$ 4,440,347	Note 2	13
			Net receivable from related parties	731,345	-	1
	MXE	1	Operating expenses	151,759	-	-
			Other payables to related parties	51,446	-	-
	MXA	1	Sales	1,265,518	Note 2	4
			Operating expenses	205,571	-	1
			Net receivable from related parties	137,184	-	-
			Other payables to related parties	66,988	-	-
	Mxtran	1	Rental revenue	435	Note 3	-
			Operating expenses	25,000	-	-
	MX Asia	1	Operating expenses	108,412	-	-
			Other payables to related parties	26,128	-	-
MXHK	MXm	3	Operating expenses	343,307	-	1

Note 1: The transactions from the parent company to the subsidiary are denoted as 1.
The transactions from the subsidiary to the parent company are denoted as 2.
The transactions between two subsidiaries are denoted as 3.

Note 2: The sales price refers to the agreed upon product price for the end customer.

Note 3: The Company leased office space to related parties and collected rental revenue according to the floor space per month.

Note 4: The transaction terms with related parties were 30 to 60 days after monthly closing and were similar to those with third parties.

MACRONIX INTERNATIONAL CO., LTD. AND SUBSIDIARY

INFORMATION ON INVESTEES
FOR THE YEAR ENDED DECEMBER 31, 2019
(In Thousands of New Taiwan Dollars, Unless Stated Otherwise)

Investor Company	Investee Company	Location	Main Businesses and Products	Original Investment Amount		Balance as of December 31, 2019			Net Income (Loss) of the Investee	Share of Profit (Loss)	Note
				December 31, 2019	December 31, 2018	Shares	%	Carrying Amount			
The Company	MXBVI	Tortola, British Virgin Islands	Investment holding company	$ 7,348,057	$ 7,348,057	212,048,000	100.00	$ 2,121,373	$ 104,637	$ 104,815	Subsidiary
	MXA	San Jose, California, USA.	Sales and marketing	2,640	2,640	100,000	100.00	163,382	10,015	10,015	Subsidiary
	Hui Ying	Taipei, Taiwan	Investment	500,000	500,000	-	100.00	75,708	12,682	10,334	Subsidiary
	Mxtran	Hsinchu, Taiwan	IC design	755,287	755,287	69,627,323	90.43	22,331	17,884	16,498	Subsidiary
	Run Hong	Taipei, Taiwan	Investment	984,432	984,432	-	100.00	14,598	780	780	Subsidiary
MXBVI	NTTI	San Jose, California, USA.	IC design	891,291	882,141	27,150,000	100.00	292,971	(8,468)	Note	Subsidiary
	MXE	Belgium	After-sales service	2,106	2,106	999	100.00	120,689	7,255	Note	Subsidiary
	MPL	Singapore	After-sales service	3,291	3,291	174,000	100.00	20,327	1,123	Note	Subsidiary
	MXHK	Hong Kong	Sales and marketing	378,427	378,427	89,700,000	100.00	805,136	88,280	Note	Subsidiary
	MX Asia	Cayman Island	Investment holding company	26,325	26,325	700,000	100.00	68,001	5,297	Note	Subsidiary
Run Hong	Mxtran	Hsinchu, Taiwan	IC design	40,318	40,318	3,393,200	4.41	1,089	17,884	Note	Subsidiary
Mxtran	Mxtran Samoa	Samoa	Investment holding company	35,979	35,979	1,170,000	100.00	1,038	2	Note	Subsidiary
Mxtran Samoa	Mxtran HK	Hong Kong	Investment holding company	23,880	23,880	6,152,000	100.00	440	1	Note	Subsidiary

Note: Under relevant regulations, no disclosure of investment gain (loss) is needed.

TABLE 6

MACRONIX INTERNATIONAL CO., LTD. AND SUBSIDIARY

INFORMATION ON INVESTMENT IN MAINLAND CHINA
FOR THE YEAR ENDED DECEMBER 31, 2019
(In Thousands of New Taiwan Dollars, Unless Stated Otherwise)

Investee Company	Main Businesses and Products	Paid-in Capital	Method of Investment	Accumulated Outward Remittance for Investment from Taiwan as of January 1, 2019	Remittance of Funds		Accumulated Outward Remittance for Investment from Taiwan as of December 31, 2019	Net Income (Loss) of the Investee	% Ownership for Direct or Indirect Investment	Investment Gain (Loss) (Note 1)	Carrying Amount as of December 31, 2019	Accumulated Repatriation of Investment Income as of December 31, 2019
					Outward	Inward						
MXm	Development of integrated circuit system and software	$ 296,160	MXHK (Note 2)	$ 296,160	$ -	$ -	$ 296,160	$ 17,530	100	$ 17,530	$ 382,803	$ -

Accumulated Outward Remittance for Investment in Mainland China as of December 31, 2019	Investment Amount Authorized by the Investment Commission, MOEA	Upper Limit on the Amounts of Investment Stipulated by Investment Commission, MOEA
$ 296,160	$ 296,160	(Note 3)

Note 1: The amount was recognized based on the audited financial statements of the investee company.

Note 2: The Company invested in a company located in mainland China indirectly through the existing company in a third country.

Note 3: As the Company has obtained the certificate of being qualified for operating headquarters issued by the Industrial Development Bureau, MOEA in March 2017, the upper limit on investments in mainland China pursuant to “Principle of investment or Technical Cooperation in Mainland China” is not applicable.

Macronix International Co., Ltd.

Parent Company Only Financial Statements for the Years Ended December 31, 2019 and 2018 and Independent Auditors' Report

Deloitte.

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INDEPENDENT AUDITORS' REPORT

The Board of Directors and the Shareholders
Macronix International Co., Ltd.

Opinion

We have audited the accompanying financial statements of Macronix International Co., Ltd. (the "Company"), which comprise the balance sheets as of December 31, 2019 and 2018, and the statements of comprehensive income, changes in equity and cash flows for the years then ended, and the notes to the financial statements, including a summary of significant accounting policies (collectively referred to as the "financial statements").

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and its financial performance and its cash flows for the years then ended in accordance with the Regulations Governing the Preparation of Financial Reports by Securities Issuers.

Basis for Opinion

We conducted our audits in accordance with the Regulations Governing Auditing and Attestation of Financial Statements by Certified Public Accountants and auditing standards generally accepted in the Republic of China. Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Company in accordance with the Norm of Professional Ethics for Certified Public Accountant of the Republic of China, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements for the year ended December 31, 2019. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Key audit matters for the Company's parent company only financial statements for the year ended December 31, 2019 are stated as follows:

<u>Recognition of revenue</u>

The Company operates principally as a supplier of memory chips. In recent years, due to changes in the memory chip market, the amount of sales revenue in 2019 has decreased. For new customers or customers whose sales changes are different from expected, the risk of inflated sales revenue may increase, which has a significant impact on the parent company only financial statements. We therefore considered that the testing of the existence and occurrence of sales is a key audit matter of the current period.

Our audit procedures performed included, but not limited to, the following:

1. We evaluated the appropriateness of the Company's accounting policies relating to revenue recognition;

2. We understood the internal controls over the approval of sales orders and crediting and tested the effectiveness of those internal controls;

3. We sampled the sales documents to inspect sales details;

4. We verified if any deviant occurred in those parties when the sales were recorded and cash was received;

5. We assessed the significant sales return or sales discount taking place in the subsequent period.

Valuation of inventory

The Company provides ROM products, NOR Flash, and NAND Flash, which are widely used in consumer electronics. As of December 31, 2019, inventory was NT$12,768,317 thousand, accounting for 21% of the total assets. With the current rapid changes in technology and the improvements in manufacturing technologies, demand for memory chip market could change significantly and thereby, results in inventory obsolescence. Since inventory valuation and estimates of net realizable value of inventory are subject to management's judgment, they are considered as accounting estimates with relatively high uncertainty. Therefore, valuation of inventory has been identified as a key audit matter. Refer to Notes 4(e), 5(a) and 9 to the financial statements for the details of accounting policy, accounting judgment, key sources of estimation uncertainty and the related information about the valuation of inventory.

Our key audit procedures performed in respect of the above area included the following:

1. We understood and assessed the adequacy of the policy and procedures for the inventory valuation adopted by the management.

2. We obtained data on the assessment of lower cost or net realizable value and selected sample data, and we tested the reasonableness of net realizable value by comparing inventory carrying amounts to recent selling prices; we tested the reasonableness of allowance for inventory loss by comparing net realizable value with carrying amounts. We obtained the inventory aging report, and we tested the accuracy and completeness of the report by agreeing the age interval, quantity and amount to the supporting documents of inbound inventory. We assessed the reasonableness of allowance for inventory loss by recalculating the amount in accordance with the stated valuation policy for the inventory.

3. We performed a retrospective review of inventory movements to evaluate the reasonableness of inventory obsolescence reserve policy and policy on scrapping of inventories.

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

Management is responsible for the preparation and fair presentation of the financial statements in accordance with the Regulations Governing the Preparation of Financial Reports by Securities Issuers, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

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

Those charged with governance, including the audit committee, are responsible for overseeing the Company's financial reporting process.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the auditing standards generally accepted in the Republic of China will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with the auditing standards generally accepted in the Republic of China, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

1. Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

2. Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.

3. Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

4. Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Company to cease to continue as a going concern.

5. Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

6. Obtain sufficient and appropriate audit evidence regarding the financial information of the entities or business activities within the Company to express an opinion on the financial statements. We are responsible for the direction, supervision and performance of the audit. We remain solely responsible for our audit opinion.

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

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

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the financial statements for the year ended December 31, 2019 and are therefore the key audit matters. We describe these matters in our auditors' report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partners on the audit resulting in this independent auditors' report are Ming Hui Chen and Ching Pin Shih.

Deloitte & Touche
Taipei, Taiwan
Republic of China

February 17, 2020

<u>*Notice to Readers*</u>

The accompanying financial statements are intended only to present the financial position, financial performance and cash flows in accordance with accounting principles and practices generally accepted in the Republic of China and not those of any other jurisdictions. The standards, procedures and practices to audit such financial statements are those generally applied in the Republic of China.

For the convenience of readers, the independent auditors' report and the accompanying financial statements have been translated into English from the original Chinese version prepared and used in the Republic of China. If there is any conflict between the English version and the original Chinese version or any difference in the interpretation of the two versions, the Chinese-language independent auditors' report and financial statements shall prevail.

MACRONIX INTERNATIONAL CO., LTD.

PARENT COMPANY ONLY BALANCE SHEETS
DECEMBER 31, 2019 AND 2018
(In Thousands of New Taiwan Dollars)

	2019		2018	
ASSETS	**Amount**	**%**	**Amount**	**%**
CURRENT ASSETS				
Cash and cash equivalents (Notes 4, 6 and 29)	$ 7,631,948	13	$ 12,712,172	22
Notes receivable and trade receivables, net (Notes 4, 8 and 29)	2,910,111	5	3,094,833	5
Receivables from related parties, net (Notes 4, 29 and 30)	1,841,672	3	1,208,039	2
Other receivables (Notes 4, 8, 29 and 30)	125,248	-	143,687	-
Inventories (Notes 4, 5 and 9)	12,768,317	21	17,906,555	30
Other current assets (Note 15)	226,115	-	417,946	1
Total current assets	25,503,411	42	35,483,232	60
NON-CURRENT ASSETS				
Financial assets at fair value through other comprehensive income (FVTOCI) - non-current (Notes 4, 7 and 29)	1,440,574	2	1,201,824	2
Investments accounted for using equity method (Notes 4 and 10)	2,397,392	4	2,128,488	4
Property, plant and equipment (Notes 4, 11, 31 and 32)	28,904,312	48	18,829,669	32
Right-of use assets(Notes 3, 4 and 12)	970,622	2	-	-
Intangible assets (Notes 4 and 13)	43,559	-	42,755	-
Deferred tax assets (Notes 4 and 25)	1,104,876	2	1,179,084	2
Other financial assets - non-current (Notes 4, 14, 29 and 31)	161,802	-	179,957	-
Total non-current assets	35,023,137	58	23,561,777	40
TOTAL	$ 60,526,548	100	$ 59,045,009	100
LIABILITIES AND EQUITY				
CURRENT LIABILITIES				
Short-term borrowings (Notes 16 and 29)	$ 1,550,000	3	$ -	-
Contract liabilities (Note 23)	97,101	-	13,598	-
Notes payable and trade payables (Notes 17 and 29)	2,140,288	4	2,611,878	4
Payables to related parties (Notes 29 and 30)	4,720,212	8	8,926,201	15
Accrued employees' compensation and remuneration of directors (Notes 24 and 30)	1,285,774	2	2,292,435	4
Payables for purchases of equipment (Note 29)	877,848	2	964,872	2
Other payables (Notes 18 and 29)	1,345,691	2	1,310,443	2
Other payables to related parties (Notes 29 and 30)	149,947	-	160,112	-
Current tax liabilities (Notes 4 and 25)	-	-	184,257	-
Provisions - current (Notes 4 and 20)	4,856	-	14,106	-
Lease liabilities - current (Notes 3, 4 and 12)	72,307	-	-	-
Current portion of long-term borrowings (Notes 16, 29 and 31)	3,267,200	5	3,334,772	6
Other current liabilities (Note 19)	222,706	-	336,834	1
Total current liabilities	15,733,930	26	20,149,508	34
NON-CURRENT LIABILITIES				
Long-term borrowings (Notes 16, 29 and 31)	9,774,330	16	5,885,318	10
Lease liabilities - non-current (Notes 3, 4 and 12)	906,049	1	-	-
Net defined benefit liabilities (Notes 4 and 21)	1,610,575	3	1,640,069	3
Other non-current liabilities (Note 19)	10,272	-	10,091	-
Total non-current liabilities	12,301,226	20	7,535,478	13
Total liabilities	28,035,156	46	27,684,986	47
EQUITY ATTRIBUTABLE TO OWNERS OF THE COMPANY (Notes 4, 22 and 27)				
Share capital				
Ordinary shares	18,399,271	31	18,402,919	31
Share capital to be cancelled	(182)	-	(1,249)	-
Total share capital	18,399,089	31	18,401,670	31
Capital surplus	543,920	1	(56,241)	-
Retained earnings				
Legal reserve	1,440,661	2	541,360	1
Special reserve	1,007,052	2	74,275	-
Unappropriated earnings	12,237,717	20	13,461,892	23
Total retained earnings	14,685,430	24	14,077,527	24
Other equity	(977,986)	(2)	(903,872)	(2)
Treasury shares	(159,061)	-	(159,061)	-
Total equity	32,491,392	54	31,360,023	53
TOTAL	$ 60,526,548	100	$ 59,045,009	100

The accompanying notes are an integral part of the parent company only financial statements.

MACRONIX INTERNATIONAL CO., LTD.

PARENT COMPANY ONLY STATEMENTS OF COMPREHENSIVE INCOME
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018
(In Thousands of New Taiwan Dollars, Except Earnings Per Share)

	2019		2018	
	Amount	**%**	**Amount**	**%**
NET OPERATING REVENUE (Notes 4, 23 and 30)	$ 34,235,969	100	$ 36,280,727	100
OPERATING COSTS (Notes 4, 9, 21, 24 and 30)	25,377,649	74	23,002,158	63
GROSS PROFIT	8,858,320	26	13,278,569	37
REALIZED (UNREALIZED) GAIN ON TRANSACTIONS WITH SUBSIDIARIES AND ASSOCIATES (Note 4)	13,890	-	18,882	-
REALIZED GROSS PROFIT	8,872,210	26	13,297,451	37
OPERATING EXPENSES (Notes 4, 21, 24 and 30)				
Selling and marketing expenses	894,834	3	991,162	3
General and administrative expenses	1,433,247	4	1,655,468	4
Research and development expenses	3,577,367	10	4,259,551	12
Total operating expenses	5,905,448	17	6,906,181	19
INCOME FROM OPERATIONS	2,966,762	9	6,391,270	18
NON-OPERATING INCOME AND EXPENSES				
Other income (Notes 4, 7, 12, 24 and 30)	154,343	1	2,624,372	7
Other gains and losses (Note 24)	(56,784)	-	244,760	1
Finance costs (Notes 4 and 24)	(194,803)	(1)	(143,353)	-
Share of profit of subsidiaries, associates and joint ventures (Notes 4 and 10)	142,442	-	121,328	-
Total non-operating income and expenses	45,198	-	2,847,107	8
INCOME BEFORE INCOME TAX FROM CONTINUING OPERATIONS	3,011,960	9	9,238,377	26
INCOME TAX EXPENSE (Notes 4 and 25)	-	-	245,371	1
NET INCOME FOR THE YEAR	3,011,960	9	8,993,006	25

(Continued)

MACRONIX INTERNATIONAL CO., LTD.

PARENT COMPANY ONLY STATEMENTS OF COMPREHENSIVE INCOME
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018
(In Thousands of New Taiwan Dollars, Except Earnings Per Share)

	2019		2018	
	Amount	**%**	**Amount**	**%**
OTHER COMPREHENSIVE INCOME (LOSS)				
Items that will not be reclassified subsequently to profit or loss:				
Remeasurement of defined benefit plans	$ (108,120)	-	$ (79,122)	-
Unrealized loss on investments in equity instruments at FVTOCI (Notes 22 and 29)	238,750	1	(567,696)	(2)
Share of other comprehensive loss of subsidiaries accounted for using the equity method	208,972	-	(391,039)	(1)
Items that may be reclassified subsequently to profit or loss:				
Exchange differences on translating foreign operations (Note 22)	(98,748)	-	94,809	-
Other comprehensive income (loss) for the year, net of income tax	240,854	1	(943,048)	(3)
TOTAL COMPREHENSIVE INCOME FOR THE YEAR	$ 3,252,814	10	$ 8,049,958	22
EARNINGS PER SHARE (Note 26)				
Basic	$ 1.64		$ 4.94	
Diluted	$ 1.61		$ 4.65	

The accompanying notes are an integral part of the parent company only financial statements. (Concluded)

MACRONIX INTERNATIONAL CO., LTD.

PARENT COMPANY ONLY STATEMENTS OF CHANGES IN EQUITY
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018
(In Thousands of New Taiwan Dollars)

	Share Capital				Retained Earnings			Other Equity					
	Shares (In Thousands)	Ordinary Shares	Share Capital to be Cancelled	Capital Surplus	Legal Reserve	Special Reserve	Unappropriated Earnings (Accumulated Deficit)	Exchange Differences on Translating Foreign Operations	Unrealized Gain on Available-for-sale Financial Assets	Unrealized Gain (Loss) on Financial Assets at FVTOCI	Employee Unearned Compensation	Treasury Shares	Total Equity
BALANCE AT JANUARY 1, 2018	1,804,939	$ 18,049,385	$ (1,627)	$ (207,088)	$ -	$ -	$ 5,413,602	$ (85,183)	$ 1,731,234	$ -	$ (85,600)	$ (159,061)	$ 24,655,662
Effect of retrospective application	-	-	-	-	-	-	2,158,766	(146,758)	(1,731,234)	112,903	-	-	393,677
ADJUSTED BALANCE AT JANUARY 1, 2018	1,804,939	18,049,385	(1,627)	(207,088)	-	-	7,572,368	(231,941)	-	112,903	(85,600)	(159,061)	25,049,339
Legal reserve	-	-	-	-	541,360	-	(541,360)	-	-	-	-	-	-
Special reserve	-	-	-	-	-	74,275	(74,275)	-	-	-	-	-	-
Cash dividends distributed by the Company - $1.00 per share	-	-	-	-	-	-	(1,804,776)	-	-	-	-	-	(1,804,776)
Share dividends distributed by the Company - $0.20 per share	36,095	360,955	-	-	-	-	(360,955)	-	-	-	-	-	-
Net income for the year ended December 31, 2018	-	-	-	-	-	-	8,993,006	-	-	-	-	-	8,993,006
Other comprehensive income (loss) for the year ended December 31, 2018, net of income tax	-	-	-	-	-	-	(79,122)	94,809	-	(958,735)	-	-	(943,048)
Total comprehensive income (loss) for the year ended December 31, 2018	-	-	-	-	-	-	8,913,884	94,809	-	(958,735)	-	-	8,049,958
Disposal of investments in equity instruments designated as at fair value through other comprehensive income	-	-	-	-	-	-	(99,070)	-	-	99,070	-	-	-
Compensation cost of restricted shares for employees	-	-	-	141,885	-	-	(143,924)	-	-	-	65,622	-	63,583
Retirement of restricted shares for employees	(742)	(7,421)	378	7,043	-	-	-	-	-	-	-	-	-
Dividends paid to subsidiaries to adjust capital surplus	-	-	-	1,919	-	-	-	-	-	-	-	-	1,919
BALANCE AT DECEMBER 31, 2018	1,840,292	18,402,919	(1,249)	(56,241)	541,360	74,275	13,461,892	(137,132)	-	(746,762)	(19,978)	(159,061)	31,360,023
Legal reserve	-	-	-	-	899,301	-	(899,301)	-	-	-	-	-	-
Special reserve	-	-	-	-	-	932,777	(932,777)	-	-	-	-	-	-
Cash dividends distributed by the Company - $1.20 per share	-	-	-	-	-	-	(2,208,200)	-	-	-	-	-	(2,208,200)
Net income for the year ended December 31, 2019	-	-	-	-	-	-	3,011,960	-	-	-	-	-	3,011,960
Other comprehensive income (loss) for the year ended December 31, 2019, net of income tax	-	-	-	-	-	-	(108,120)	(98,748)	-	447,722	-	-	240,854
Total comprehensive income (loss) for the year ended December 31, 2019	-	-	-	-	-	-	2,903,840	(98,748)	-	447,722	-	-	3,252,814
Issuance of restricted shares for employees	-	-	-	508,772	-	-	-	-	-	-	(508,772)	-	-
Compensation cost of restricted shares for employees	-	-	-	86,460	-	-	(87,737)	-	-	-	85,684	-	84,407
Retirement of restricted shares for employees	(365)	(3,648)	1,067	2,581	-	-	-	-	-	-	-	-	-
Dividends paid to subsidiaries to adjust capital surplus	-	-	-	2,348	-	-	-	-	-	-	-	-	2,348
BALANCE AT DECEMBER 31, 2019	1,839,927	$ 18,399,271	$ (182)	$ 543,920	$ 1,440,661	$ 1,007,052	$ 12,237,717	$ (235,880)	$ -	$ (299,040)	$ (443,066)	$ (159,061)	$ 32,491,392

The accompanying notes are an integral part of the parent company only financial statements.

MACRONIX INTERNATIONAL CO., LTD.

PARENT COMPANY ONLY STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018
(In Thousands of New Taiwan Dollars)

	2019	2018
CASH FLOWS FROM OPERATING ACTIVITIES		
Income before income tax	$ 3,011,960	$ 9,238,377
Adjustments for:		
Depreciation expense	2,653,483	2,076,231
Amortization expense	31,850	26,405
Finance costs	194,803	143,353
Interest income	(22,539)	(29,830)
Dividend income	(105,188)	(102,920)
Compensation cost of employee restricted shares	84,407	63,583
Share of gain (loss) of subsidiaries and associates	(142,442)	(121,328)
Gain on disposal of property, plant and equipment	(319,124)	(36,148)
Gain on disposal of investments	(7,410)	(180)
Realized gain on transactions with associates and joint ventures	(13,890)	(18,882)
Net gain on foreign currency exchange	(30,337)	(181,535)
Changes in operating assets and liabilities		
Notes receivable and trade receivables	139,590	929,451
Receivables from related parties	(665,757)	862,164
Other receivables	25,889	(16,624)
Inventories	5,138,238	(8,110,162)
Other current assets	191,831	(233,834)
Contract liabilities	83,503	(39,085)
Notes payable and trade payables	(463,325)	(183,144)
Payables to related parties	(4,060,942)	5,306,901
Payables for employees' compensation and director's remuneration	(1,006,661)	1,162,273
Other payables	73,797	(14,723)
Other payables to related parties	(8,498)	(10,826)
Provisions	(9,250)	(59,861)
Other current liabilities	(107,465)	70,391
Net defined benefit liabilities	(137,614)	(48,994)
Cash generated from operations	4,528,909	10,671,053
Interest received	22,500	29,312
Dividend received	105,188	102,920
Interest paid	(212,990)	(161,174)
Income tax paid	(110,049)	(247,360)
Net cash generated from operating activities	4,333,558	10,394,751
CASH FLOWS FROM INVESTING ACTIVITIES		
Payments for property, plant and equipment	(12,741,208)	(4,848,563)
Proceeds from disposal of property, plant and equipment	340,012	36,928
Increase in refundable deposits	(63)	(2,070)
Decrease in refundable deposits	10	215
Payments for intangible assets	(32,654)	(25,011)
Decrease (increase) in other financial assets	18,204	(19,719)
Net cash used in investing activities	(12,415,699)	(4,858,220)

(Continued)

MACRONIX INTERNATIONAL CO., LTD.

PARENT COMPANY ONLY STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018
(In Thousands of New Taiwan Dollars)

	2019	2018
CASH FLOWS FROM FINANCING ACTIVITIES		
Proceeds from short-term borrowings	$ 4,000,000	$ -
Repayments of short-term borrowings	(2,450,000)	-
Proceeds from long-term borrowings	9,776,000	4,800,000
Repayments of long-term borrowings	(5,955,028)	(3,621,981)
Proceeds from guarantee deposits received	550	3,353
Refund of guarantee deposits received	(150)	(310)
Repayment of leased liabilities	(90,977)	-
Distribution of cash dividends	(2,208,200)	(1,804,776)
Net cash generated from (used in) financing activities	3,072,195	(623,714)
EFFECT OF EXCHANGE RATE CHANGES ON THE BALANCE OF CASH AND CASH EQUIVALENTS HELD IN FOREIGN CURRENCIES	(70,278)	361,168
NET (DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(5,080,224)	5,273,985
CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE YEAR	12,712,172	7,438,187
CASH AND CASH EQUIVALENTS AT THE END OF THE YEAR	$ 7,631,948	$ 12,712,172

The accompanying notes are an integral part of the parent company only financial statements. (Concluded)

MACRONIX INTERNATIONAL CO., LTD.

NOTES TO PARENT COMPANY ONLY FINANCIAL STATEMENTS
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018
(In Thousands of New Taiwan Dollars, Unless Stated Otherwise)

1. GENERAL INFORMATION

Macronix International Co., Ltd. (the "Company") was incorporated in the Republic of China (ROC) on December 9, 1989 and commenced business in December 1989. The Company operates principally as a designer, manufacturer and supplier of integrated circuits (ICs) and memory chips. The Company also performs design, research and development, consultation and trade of relevant products.

The Company's shares have been listed on the Taiwan Stock Exchange (TWSE) since March 15, 1995.

The financial statements are presented in the Company's functional currency, the New Taiwan dollar.

2. APPROVAL OF FINANCIAL STATEMENTS

The financial statements were approved by the Company's board of directors and were authorized for issue on February 17, 2020.

3. APPLICATION OF NEW, AMENDED AND REVISED STANDARDS AND INTERPRETATIONS

a. Initial application of the amendments to the Regulations Governing the Preparation of Financial Reports by Securities Issuers and the International Financial Reporting Standards (IFRS), International Accounting Standards (IAS), Interpretations of IFRS (IFRIC), and Interpretations of IAS (SIC) (collectively, the IFRSs) endorsed and issued into effect by the FSC

   Except for the following, whenever applied, the initial application of the amendments to the Regulations Governing the Preparation of Financial Reports by Securities Issuers and the IFRSs endorsed and issued into effect by the FSC would not have any material impact on the Company's accounting policies:

   1) IFRS 16 "Leases"

      IFRS 16 sets out the accounting standards for leases that will supersede IAS 17, IFRIC4 and a number of related interpretations. Refer to Note 4 for information relating to the relevant accounting policies.

      <u>Definition of a lease</u>

      The company elects to apply the guidance of IFRS 16 in determining whether contracts are, or contain, a lease only to contracts entered into (or changed) on or after January 1, 2019. Contracts identified as containing a lease under IAS 17 and IFRIC 4 are not reassessed and are accounted for in accordance with the transitional provisions under IFRS 16.

The company as lessee

The company recognizes right-of-use assets, and lease liabilities for all leases on the financial balance sheets except for those whose payments under low-value asset and short-term leases are recognized as expenses on a straight-line basis. On the financial statements of comprehensive income, the company presents the depreciation expense charged on right-of-use assets separately from the interest expense accrued on lease liabilities; interest is computed using the effective interest method. On the financial statements of cash flows, cash payments for the principal portion of lease liabilities are classified within financing activities; cash payments for the interest portion are classified within financing activities. Prior to the application of IFRS 16, payments under operating lease contracts were recognized as expenses on a straight-line basis. Cash flows for operating leases were classified within operating activities on the financial statements of cash flows. Leased assets and finance lease payables were recognized on the financial balance sheets for contracts classified as finance leases.

The company elects to apply IFRS 16 using the modified retrospective approach with the application of this standard recognized in remaining durable life of opening balance on January 1, 2019. Comparative information is not restated.

The weighted average lessee's incremental borrowing rate applied to lease liabilities recognized on January 1, 2019 is 1.67%. The difference between the (i) lease liabilities recognized and (ii) operating lease commitments disclosed under IAS 17 on December 31, 2018 is explained as follows:

The future minimum lease payments of operating lease commitments on December 31, 2018	$ 1,184,994
Less: Recognition exemption for short-term leases	(68)
Recognition exemption for leases of low-value assets	(60)
Undiscounted amounts on January 1, 2019	$ 1,184,866
Discounted amounts using the incremental borrowing rate on January 1, 2019	$ 1,050,929
Lease liabilities recognized on January 1, 2019	$ 1,050,929

The company as lessor

Except for sublease transactions, the company does not make any adjustments for leases in which it is a lessor, and it accounts for those leases with the application of IFRS 16 starting from January 1, 2019.

The company subleased its leasehold park dormitories in the Science Park to a third party. Such sublease was classified as an operating lease under IAS 17. The company determines the sublease is classified as an operating lease on the basis of the remaining contractual terms and conditions of the head lease and sublease on January 1, 2019.

The impact on assets, liabilities and equity as of January 1, 2019 from the initial application of IFRS 16 is set out as follows:

	As Originally Stated on January 1, 2019	**Adjustments Arising from Initial Application**	**Restated on January 1, 2019**
Right-of-use assets	$ -	1,050,929	$ 1,050,929
Total effect on assets	$ -	$ 1,050,929	$ 1,050,929
Lease liabilities - current	$ -	$ 91,370	$ 91,370
Lease liabilities - non-current	-	959,559	959,559
Total effect on liabilities	$ -	$ 1,050,929	$ 1,050,929

b. The IFRSs endorsed by the Financial Supervisory Commission (FSC) for application starting from 2020

New, Revised or Amended Standards and Interpretations (the "New IFRSs")	**Effective Date Announced by the IASB (Note 1)**
Amendments to IFRS 3 "Definition of a Business"	January 1, 2020 (Note 1)
Amendments to IFRS 9, IAS 39 and IFRS 7 "Interest Rate Benchmark Reform"	January 1, 2020 (Note 2)
Amendments to IAS 1 and IAS 8 "Definition of Material"	January 1, 2020 (Note 3)

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

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

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

Except for the above impact, as of the date the financial statements were authorized for issue, the Company is continuously assessing the possible impact that the application of other standards and interpretations will have on the Company's financial position and financial performance and will disclose the relevant impact when the assessment is completed.

c. New IFRSs in issue but not yet endorsed and issued into effect by the FSC

New IFRSs	**Effective Date Announced by IASB (Note 1)**
Amendments to IFRS 10 and IAS 28 "Sale or Contribution of Assets between an Investor and its Associate or Joint Venture"	To be determined by IASB
IFRS 17 "Insurance Contracts"	January 1, 2021
Amendments to IAS 1 "Classification of Liabilities as Current or Non-current"	January 1, 2022

Note 1: Unless stated otherwise, the above New IFRSs are effective for annual reporting periods beginning on or after their respective effective dates.

Except for the above impact, as of the date the financial statements were authorized for issue, the Company is continuously assessing the possible impact that the application of other standards and interpretations will have on the Company's financial position and financial performance and will disclose the relevant impact when the assessment is completed.

4. SUMMARY OF SIGNIFICANT ACCOUNTING POLICY

a. Statement of compliance

The parent company only financial statements have been prepared in accordance with the Regulations Governing the Preparation of Financial Reports by Securities Issuers.

b. Basis of preparation

The financial statements have been prepared on the historical cost basis except for financial instruments which are measured at fair value and defined benefit liabilities.

The fair value measurements, which are grouped into Levels 1 to 3 based on the degree to which the fair value measurement inputs are observable and based on the significance of the inputs to the fair value measurement in its entirety, are described as follows:

1) Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities;

2) Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for an asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices); and

3) Level 3 inputs are unobservable inputs for an asset or liability.

When preparing its parent company only financial statements, the Company used equity method to account for its investment in subsidiaries and associates. In order for the amounts of the net profit for the year, other comprehensive income for the year and total equity in the parent company only financial statements to be the same with the amounts attributable to the owner of the Company in its consolidated financial statements, adjustments arising from the differences in accounting treatment between parent company only basis and consolidated basis were made to investments accounted for by equity method, share of profit or loss of subsidiaries and associates, share of other comprehensive income of subsidiaries and associates and related equity items, as appropriate, in the parent company only financial statements.

c. Classification of current and non-current assets and liabilities

Current assets include:

1) Assets held primarily for the purpose of trading;

2) Assets expected to be realized within 12 months after the reporting period; and

3) Cash and cash equivalents unless the asset is restricted from being exchanged or used to settle a liability for at least 12 months after the reporting period.

Current liabilities include:

1) Liabilities held primarily for the purpose of trading;

2) Liabilities due to be settled within 12 months after the reporting period, even if an agreement to refinance, or to reschedule payments, on a long-term basis is completed after the reporting period and before the financial statements are authorized for issue; and

3) Liabilities for which the Company does not have an unconditional right to defer settlement for at least 12 months after the reporting period. Terms of a liability that could, at the option of the counterparty, result in its settlement by the issue of equity instruments do not affect its classification.

Assets and liabilities that are not classified as current are classified as non-current.

d. Foreign currencies

In preparing the financial statements of the Company, transactions in currencies other than the entity's functional currency (foreign currencies) are recognized at the rates of exchange prevailing at the dates of the transactions.

At the end of each reporting period, monetary items denominated in foreign currencies are retranslated at the rates prevailing at that date. Exchange differences on monetary items arising from settlement or translation are recognized in profit or loss in the period in which they arise.

Non-monetary items measured at fair value that are denominated in foreign currencies are retranslated at the rates prevailing at the date when the fair value was determined. Exchange differences arising from the retranslation of non-monetary items are included in profit or loss for the period except for exchange differences arising from the retranslation of non-monetary items in respect of which gains and losses are recognized directly in other comprehensive income, in which cases, the exchange differences are also recognized directly in other comprehensive income.

Non-monetary items that are measured at historical cost in a foreign currency are not retranslated.

For the purpose of presenting parent company only financial statements, the functional currencies of the Company and the Group (including subsidiaries and associates that use currency different from the currency of the Company) are translated into the presentation currency - the New Taiwan dollar as follows: Assets and liabilities are translated at the exchange rates prevailing at the end of the reporting period; income and expense items are translated at the average exchange rates for the period. The resulting currency translation differences are recognized in other comprehensive income.

e. Inventories

Inventories consist of raw materials, supplies, finished goods, merchandise and work-in-process and are stated at the lower of cost or net realizable value. Inventory write-downs are made by item, except where it may be appropriate to group similar or related items. Net realizable value is the estimated selling price of inventories less all estimated costs of completion and costs necessary to make the sale. Inventories are recorded at standard cost and adjusted to approximate weighted - average cost on the balance sheet date.

f. Investments in subsidiaries

The Company uses the equity method to account for its investments in subsidiaries.

Subsidiaries are the entities controlled by the Company.

Under the equity method, the investment in a subsidiary is initially recognized at cost and the carrying amount is increased or decreased to recognize the Company's share of the profit or loss and other comprehensive income of the subsidiary after the date of acquisition. Besides, the Company also recognizes the Company's share of the change in other equity of the subsidiary.

Changes in the Company's ownership interest in a subsidiary that do not result in the Company losing control of the subsidiary are equity transactions. The Company recognizes directly in equity any difference between the carrying amount of the investment and the fair value of the consideration paid or received.

When the Company's share of losses of a subsidiary exceeds its interest in that subsidiary (which includes any carrying amount of the investment accounted for by the equity method and long-term interests that, in substance, form part of the Company's net investment in the subsidiary), the Company continues recognizing its share of further losses.

Any excess of the cost of acquisition over the Company's share of the net fair value of the identifiable assets and liabilities of a subsidiary at the date of acquisition is recognized as goodwill, which is included within the carrying amount of the investment and is not amortized. Any excess of the Company's share of the net fair value of the identifiable assets and liabilities over the cost of acquisition is recognized immediately in profit or loss.

The Company assesses its investment for any impairment by comparing the carrying amount with the estimated recoverable amount as assessed based on the entire financial statements of the invested company. Impairment loss is recognized when the carrying amount exceeds the recoverable amount. If the recoverable amount of the investment subsequently increases, the Company recognizes the reversal of the impairment loss; the adjusted post-reversal carrying amount should not exceed the carrying amount that would have been recognized (net of amortization or depreciation) had no impairment loss been recognized in prior years. An impairment loss recognized on goodwill cannot be reversed in a subsequent period.

When the Company loses control of a subsidiary, it recognizes the investment retained in the former subsidiary at its fair value at the date when control is lost. The difference between the fair value of the retained investment plus any consideration received and the carrying amount of the previous investment at the date when control is lost is recognized as a gain or loss in profit or loss. Besides, the Company accounts for all amounts previously recognized in other comprehensive income in relation to that subsidiary on the same basis as would be required if the Company had directly disposed of the related assets or liabilities.

Profits or losses resulting from downstream transactions are eliminated in full only in the parent's company only financial statements. Profits and losses resulting from upstream transactions and transactions between subsidiaries are recognized only in the parent's company financial statements only to the extent of interests in the subsidiaries that are not related to the Company.

g. Property, plant and equipment

Property, plant and equipment are stated at cost, less recognized accumulated depreciation and accumulated impairment loss.

Depreciation on property, plant and equipment is recognized using the straight-line method. Each significant part is depreciated separately. The estimated useful lives, residual values and depreciation method are reviewed at the end of each reporting period, with the effects of any changes in estimates accounted for on a prospective basis.

On derecognition of an item of property, plant and equipment the difference between the sales proceeds and the carrying amount of the asset is recognized in profit or loss.

h. Intangible assets

1) Intangible assets acquired separately

Intangible assets with finite useful lives that are acquired separately are initially measured at cost and subsequently measured at cost less accumulated amortization and accumulated impairment loss. Amortization is recognized on a straight-line basis. The estimated useful life, residual value, and amortization method are reviewed at the end of each reporting period, with the effect of any changes in estimate accounted for on a prospective basis. Intangible assets with indefinite useful lives that are acquired separately are measured at cost less accumulated impairment loss.

2) Internally-generated intangible assets - research and development expenditure

Expenditure on research activities is recognized as an expense in the period in which it is incurred.

An internally-generated intangible asset arising from the development phase of an internal project is recognized if, and only if, all of the following have been demonstrated:

a) The technical feasibility of completing the intangible asset so that it will be available for use or sale;

b) The intention to complete the intangible asset and use or sell it;

c) The ability to use or sell the intangible asset;

d) How the intangible asset will generate probable future economic benefits;

e) The availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset; and

f) The ability to measure reliably the expenditure attributable to the intangible asset during its development.

The amount initially recognized for internally-generated intangible assets is the sum of the expenditure incurred from the date when the intangible asset first meets the recognition criteria listed above. Subsequent to initial recognition, they are measured on the same basis as intangible assets that are acquired separately.

3) Derecognition of intangible assets

On derecognition of an intangible asset, the difference between the net disposal proceeds and the carrying amount of the asset is recognized in profit or loss.

i. Impairment of tangible and intangible assets other than goodwill

At the end of each reporting period, the Company reviews the carrying amounts of its tangible and intangible assets, excluding goodwill, to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss. When it is not possible to estimate the recoverable amount of an individual asset, the Company estimates the recoverable amount of the cash-generating unit to which the asset belongs. Corporate assets are allocated to the smallest group of cash-generating units on a reasonable and consistent basis of allocation.

Intangible assets with indefinite useful lives and intangible assets not yet available for use are tested for impairment at least annually, and whenever there is an indication that the asset may be impaired.

The recoverable amount is the higher of fair value less costs to sell and value in use. If the recoverable amount of an asset or cash-generating unit is estimated to be less than its carrying amount, the carrying amount of the asset or cash-generating unit is reduced to its recoverable amount, with the resulting impairment loss recognized in profit or loss.

When an impairment loss is subsequently reversed, the carrying amount of the corresponding asset or cash-generating unit is increased to the revised estimate of its recoverable amount, but only to the extent of the carrying amount that would have been determined had no impairment loss been recognized on the asset or cash-generating unit in prior years. A reversal of an impairment loss is recognized in profit or loss.

j. Financial instruments

Financial assets and financial liabilities are recognized when the Company becomes a party to the contractual provisions of the instruments.

Transaction costs that are directly attributable to the acquisition or issue of financial assets and financial liabilities (other than financial assets and financial liabilities at fair value through profit or loss) are added to or deducted from the fair value of the financial assets or financial liabilities, as appropriate, on initial recognition. Transaction costs directly attributable to the acquisition of financial assets or financial liabilities at fair value through profit or loss are recognized immediately in profit or loss.

1) Financial assets

All regular way purchases or sales of financial assets are recognized and derecognized on a settlement date basis.

a) Measurement category

Financial assets are classified into the following categories: Financial assets measured at amortized cost and investments in equity instruments at FVTOCI.

i. Financial assets measured at amortized cost

Financial assets that meet the following conditions are subsequently measured at amortized cost:

i) The financial assets are held within a business model whose objective is to hold financial assets in order to collect contractual cash flows; and

ii) The contractual terms of the financial assets give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

Subsequent to initial recognition, financial assets measured at amortized cost, including cash and cash equivalents and trade receivables measured at amortized cost, are measured at amortized cost, which equals the gross carrying amount determined using the effective interest method less any impairment loss. Exchange differences are recognized in profit or loss.

Interest income is calculated by applying the effective interest rate to the gross carrying amount of a financial asset, except for:

i) Purchased or originated credit-impaired financial assets, for which interest income is calculated by applying the credit-adjusted effective interest rate to the amortized cost of such a financial asset; and

ii) Financial assets that have subsequently become credit-impaired, for which interest income is calculated by applying the effective interest rate to the amortized cost of such a financial asset.

A financial asset is credit impaired when one or more of the following events have occurred:

i) Significant financial difficulty of the issuer or the borrower;

ii) Breach of contract, such as a default;

iii) It is becoming probable that the borrower will enter bankruptcy or undergo a financial reorganization; or

iv) The disappearance of an active market for that financial asset because of financial difficulties.

Cash equivalents include time deposits with original maturities, which are highly liquid, readily convertible to a known amount of cash and are subject to an insignificant risk of changes in value. These cash equivalents are held for the purpose of meeting short-term cash commitments.

ii Investments in equity instruments at FVTOCI

On initial recognition, the Company may make an irrevocable election to designate investments in equity instruments as at FVTOCI. Designation at FVTOCI is not permitted if the equity investment is held for trading or if it is contingent consideration recognized by an acquirer in a business combination.

Investments in equity instruments at FVTOCI are subsequently measured at fair value with gains and losses arising from changes in fair value recognized in other comprehensive income and accumulated in other equity. The cumulative gain or loss will not be reclassified to profit or loss on the disposal of the equity investments; instead, they will be transferred to retained earnings.

Dividends on these investments in equity instruments are recognized in profit or loss when the Company’s right to receive the dividends is established, unless the dividends clearly represent a recovery of part of the cost of the investment.

b) Impairment of financial assets

The Company recognizes a loss allowance for expected credit losses on financial assets measured at amortized cost (including trade receivables).

The Company always recognizes lifetime expected credit losses (i.e. ECLs) for trade receivables and lease receivables. For all other financial instruments, the Company recognizes lifetime ECLs when there has been a significant increase in credit risk since initial recognition. If, on the other hand, the credit risk on such a financial instrument has not increased significantly since initial recognition, the Company measures the loss allowance for that financial instrument at an amount equal to 12-month ECLs.

Expected credit losses reflect the weighted average of credit losses with the respective risks of a default occurring as the weights. Lifetime ECLs represent the expected credit losses that will result from all possible default events over the expected life of a financial instrument. In contrast, 12-month ECLs represent the portion of lifetime ECLs that is expected to result from default events on a financial instrument that are possible within 12 months after the reporting date.

For internal credit risk management purposes, the Company determines that the following situations indicate that a financial asset is in default (without taking into account any collateral held by the Company):

i. Internal or external information show that the debtor is unlikely to pay its creditors.

ii. When a financial asset is more than 90 days past due unless the Company has reasonable and corroborative information to support a more lagged default criterion.

The Company recognizes an impairment gain or loss in profit or loss for all financial instruments with a corresponding adjustment to their carrying amount through a loss allowance account, except for investments in debt instruments that are measured at FVTOCI, for which the loss allowance is recognized in other comprehensive income and does not reduce the carrying amount of the financial asset.

c) Derecognition of financial assets

The Company derecognizes a financial asset only when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership of the financial asset to another party.

If the Company neither transfers nor retains substantially all the risks and rewards of ownership and continues to control the transferred asset, the Company recognizes its retained interest in the asset and any associated liability for amounts it may have to pay. If the Company retains substantially all the risks and rewards of ownership of a transferred financial asset, the Company continues to recognize the financial asset and also recognizes a collateralized borrowing for the proceeds received.

On derecognition of a financial asset at amortized cost in its entirety, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognized in profit or loss. On derecognition of an investment in a debt instrument at FVTOCI, the difference between the asset's carrying amount and the sum of the consideration received and receivable and the cumulative gain or loss which had been recognized in other comprehensive income is recognized in profit or loss. However, on derecognition of an investment in an equity instrument at FVTOCI, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognized in profit or loss, and the cumulative gain or loss which had been recognized in other comprehensive income is transferred directly to retained earnings, without recycling through profit or loss.

2) Equity instruments

Equity instruments issued by the Company are recognized at the proceeds received, net of direct issue costs.

Repurchase of the Company's own equity instruments is recognized in and deducted directly from equity. No gain or loss is recognized in profit or loss on the purchase, sale, issue or cancellation of the Company's own equity instruments.

3) Financial liabilities

a) Subsequent measurement

Except the following situation, all financial liabilities are measured at amortized cost using the effective interest method:

i Financial liabilities at fair value through profit or loss

Financial liabilities are classified as at fair value through profit or loss when the financial liability is either held for trading or it is designated as at fair value through profit or loss.

Financial liabilities held for trading are stated at fair value, with any gain or loss arising on remeasurement recognized in profit or loss. The net gain or loss recognized in profit or loss does not incorporate any interest or dividend paid on the financial liability. Fair value is determined in the manner described in Note 29.

b) Derecognition of financial liabilities

The difference between the carrying amount of the financial liability derecognized and the consideration paid, including any non-cash assets transferred or liabilities assumed, is recognized in profit or loss.

4) Derivative financial instruments

The Company enters into foreign exchange forward contracts to manage its exposure to foreign exchange rate risks, including foreign exchange forward contracts.

Derivatives are initially recognized at fair value at the date the derivative contracts are entered into and are subsequently remeasured to their fair value at the end of each reporting period. The resulting gain or loss is recognized in profit or loss immediately unless the derivative is designated and effective as a hedging instrument, in which event the timing of the recognition in profit or loss depends on the nature of the hedge relationship. When the fair value of derivative financial instruments is positive, the derivative is recognized as a financial asset; when the fair value of derivative financial instruments is negative, the derivative is recognized as a financial liability.

Derivatives embedded in hybrid contracts that contain financial asset hosts that is within the scope of IFRS 9 are not separated; instead, the classification is determined in accordance with the entire hybrid contract. Derivatives embedded in non-derivative host contracts that are not financial assets that is within the scope of IFRS 9 (e.g. financial liabilities) are treated as separate derivatives when they meet the definition of a derivative; their risks and characteristics are not closely related to those of the host contracts; and the host contracts are not measured at FVTPL.

k. Provisions

Provisions are measured at the best estimate of the discounted cash flows of the consideration required to settle the present obligation at the end of the reporting period, taking into account the risks and uncertainties surrounding the obligation.

l. Revenue recognition

The Company identifies contracts with customers, allocates the transaction price to the performance obligations and recognizes revenue when performance obligations are satisfied.

For contracts entered into with the same customer (or related parties of the customer) at or near the same time, those contracts are accounted for as a single contract if the goods or services promised in the contracts are a single performance obligation.

1) Revenue from the sale of goods

Revenue from the sale of goods comes from sales of Memory products and wafer fabrication. Sales of Memory products and wafer fabrication are recognized as revenue when the goods are delivered to the customer’s specific location because it is the time when the customer has full discretion over the manner of distribution and price to sell the goods, and has the primary responsibility for sales to future customers and bears the risks of obsolescence. Trade receivables are recognized concurrently. For Memory products and wafer fabrication, revenue is recognized when the goods are delivered to the customer's specific location, and the transaction price received is recognized as a contract liability until the goods have been delivered to the customer.

The Company does not recognize revenue on materials delivered to subcontractors because this delivery does not involve a transfer of control.

2) Revenue from the rendering of services

As the Company provides rendering services, the related revenue is recognized when services are rendered. Payment for installation services is not due from the customer until the installation services are complete and, therefore, contract assets are recognized over the period in which the installation services are performed. The contract assets are reclassified to trade receivables when the installation is complete.

m. Lease

<u>2019</u>

At the inception of a contract, the Company assesses whether the contract is, or contains, a lease.

For a contract that contains a lease component and non-lease components, the Company allocates the consideration in the contract to each component on the basis of the relative stand-alone price and accounts for each component separately.

1) The Company as lessor

Rental income from operating leases is recognized on a straight-line basis over the term of the relevant lease.

When the Company subleases a right-of-use assets, the sublease is classified by reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset. However, if the head lease is a short-term lease that the Company, as a lessee, has accounted for applying recognition exemption, the sublease is classified as an operating lease.

Lease payments (less any lease incentives payable) from operating leases are recognized as income on a straight-line basis over the terms of the relevant leases. Initial direct costs incurred in obtaining operating leases are added to the carrying amounts of the underlying assets and recognized as expenses on a straight-line basis over the lease terms.

2) The Company as lessee

The Company recognizes right-of-use assets and lease liabilities for all leases at the commencement date of a lease, except for short-term leases and low-value asset leases accounted for applying a recognition exemption where lease payments are recognized as expenses on a straight-line basis over the lease terms.

Right-of-use assets are initially measured at cost, which comprises the initial measurement of lease liabilities adjusted for lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs needed to restore the underlying assets, and less any lease incentives received. Right-of-use assets are subsequently measured at cost less accumulated depreciation and impairment losses and adjusted for any remeasurement of the lease liabilities. Right-of-use assets are presented on a separate line in the balance sheets.

Right-of-use assets are depreciated using the straight-line method from the commencement dates to the earlier of the end of the useful lives of the right-of-use assets or the end of the lease terms. However, if leases transfer ownership of the underlying assets to the Company by the end of the lease terms or if the costs of right-of-use assets reflect that the Company will exercise a purchase option, the Company depreciates the right-of-use assets from the commencement dates to the end of the useful lives of the underlying assets.

Lease liabilities are initially measured at the present value of the lease payments, which comprise fixed payments, in-substance fixed payments, variable lease payments which depend on an index or a rate, residual value guarantees, the exercise price of a purchase option if the Company is reasonably certain to exercise that option, and payments of penalties for terminating a lease if the lease term reflects such termination, less any lease incentives receivable. The lease payments are discounted using the interest rate implicit in a lease, if that rate can be readily determined. If that rate cannot be readily determined, the Company uses the lessee's incremental borrowing rate.

Subsequently, lease liabilities are measured at amortized cost using the effective interest method, with interest expense recognized over the lease terms. When there is a change in a lease term, a change in the amounts expected to be payable under a residual value guarantee, a change in the assessment of an option to purchase an underlying asset, or a change in future lease payments resulting from a change in an index or a rate used to determine those payments, the Group remeasures the lease liabilities with a corresponding adjustment to the right-of-use-assets. However, if the carrying amount of the right-of-use assets is reduced to zero, any remaining amount of the remeasurement is recognized in profit or loss. Lease liabilities are presented on a separate line in the balance sheets.

<u>2018</u>

Leases are classified as finance leases whenever the terms of a lease transfer substantially all the risks and rewards of ownership to the lessee. All other leases are classified as operating leases.

1) The Company as lessor

Amounts due from lessees under finance leases are recognized as receivables at the amount of the Company's net investment in the leases. Finance lease income is allocated to accounting periods so as to reflect a constant periodic rate of return on the Company's net investment outstanding in respect of the leases.

Rental income from operating leases is recognized on a straight-line basis over the term of the relevant lease. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and amortized on a straight-line basis over the lease term.

2) The Company as lessee

Assets held under finance leases are initially recognized as assets of the Company at their fair value at the inception of the lease or, if lower, at the present value of the minimum lease payments. The corresponding liability to the lessor is included in the balance sheets as a finance lease obligation.

Finance expenses implicit in lease payments for each period are recognized immediately in profit or loss, unless they are directly attributable to qualifying assets; in which case, they are capitalized.

Operating lease payments are recognized as expenses on a straight-line basis over the lease term.

n. Borrowing costs

Borrowing costs directly attributable to an acquisition, construction or production of qualifying assets are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale.

Other than stated above, all other borrowing costs are recognized in profit or loss in the year in which they are incurred.

o. Employee benefits

1) Short-term employee benefits

Liabilities recognized in respect of short-term employee benefits are measured at the undiscounted amount of the benefits expected to be paid in exchange for the related service.

2) Retirement benefits

Payments to defined contribution retirement benefit plans are recognized as an expense when employees have rendered services entitling them to the contributions.

Defined benefit costs (including service cost, net interest and remeasurement) under defined benefit retirement benefit plans are determined using the projected unit credit method. Service cost (including current service cost) and net interest on the net defined benefit liability are recognized as employee benefit expenses in the period they occur. Remeasurement, comprising actuarial gains and losses, the effect of the changes to the asset ceiling and the return on plan assets (excluding interest), is recognized in other comprehensive income in the period in which they occur. Remeasurement recognized in other comprehensive income is reflected immediately in retain earnings and will not be reclassified to profit or loss.

Net defined benefit liability represents the actual deficit in the Company's defined benefit plan. Any surplus resulting from this calculation is limited to the present value of any refunds from the plans or reductions in future contributions to the plans.

3) Other long-term employee benefits

Other long-term employee benefits are accounted for in the same way as the accounting required for defined benefit plan except that remeasurement is recognized in profit or loss.

4) Termination benefits

A liability for a termination benefit is recognized at the earlier of when the Company can no longer withdraw the offer of the termination benefit and when the Company recognizes any related restructuring costs.

p. Share-based payment arrangements

The fair value at the grant date of the restricted shares for employees is expensed on a straight-line basis over the vesting period, based on the Company's best estimates of the number of shares or options that are expected to ultimately vest, with a corresponding increase in other equity - unearned employee benefit. It is recognized as an expense in full at the grant date if vesting immediately.

When restricted shares for employees are issued, other equity - unearned employee benefits are recognized on the grant date, with a corresponding increase in capital surplus - restricted shares for employees.

At the end of each reporting period, the Company revises its estimate of the number of equity instruments expected to vest. The impact of the revision of the original estimates is recognized in profit or loss such that the cumulative expense reflects the revised estimate, with a corresponding adjustment to the capital surplus - employee share options or capital surplus-restricted share option.

q. Treasury shares

The parent company's shares held by subsidiaries is reclassified to treasury shares from investment accounted for using equity method and recognized with the original investment cost. Cash dividends earned by subsidiaries are write-off with investment income and adjust capital surplus-treasury share transaction.

r. Taxation

Income tax expense represents the sum of the tax currently payable and deferred tax.

1) Current tax

According to the Income Tax Law, an additional tax of unappropriated earnings is provided for as income tax in the year the shareholders approve to retain the earnings.

Adjustments of prior years' tax liabilities are added to or deducted from the current year's tax provision.

2) Deferred tax

Deferred tax is recognized on temporary differences between the carrying amounts of assets and liabilities and the corresponding tax bases used in the computation of taxable profit.

Deferred tax liabilities are generally recognized for all taxable temporary differences. Deferred tax assets are generally recognized for all deductible temporary differences, unused loss carry forward and unused tax credits for purchases of machinery, equipment and technology, research and development expenditures and personnel training expenditures to the extent that it is probable that taxable profits will be available against which those deductible temporary differences can be utilized.

Deferred tax liabilities are recognized for taxable temporary differences associated with investments in subsidiaries and associates, except where the Company is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. Deferred tax assets arising from deductible temporary differences associated with such investments and interests are only recognized to the extent that it is probable that there will be sufficient taxable profits against which to utilize the benefits of the temporary differences and they are expected to reverse in the foreseeable future.

The carrying amount of deferred tax assets is reviewed at the end of each reporting period and reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered. A previously unrecognized deferred tax asset is also reviewed at the end of each reporting period and recognized to the extent that it has become probable that future taxable profit will allow the deferred tax asset to be recovered.

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

3) Current and deferred taxes

Current and deferred taxes are recognized in profit or loss, except when they relate to items that are recognized in other comprehensive income or directly in equity, in which case, the current and deferred taxes are also recognized in other comprehensive income or directly in equity, respectively.

5. CRITICAL ACCOUNTING JUDGMENTS AND KEY SOURCES OF ESTIMATION UNCERTAINTY

In the application of the Company's accounting policies, management is required to make judgments, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimate is revised if the revision affects only that period or in the period of the revision and future periods if the revision affects both current and future years.

a. Write-down of inventory

The net realizable value of inventory is the estimated selling price in the ordinary course of business less the estimated costs of completion and disposal. The estimation of net realizable value was based on current market conditions and historical experience with product sales of a similar nature. Changes in market conditions may have a material impact on the estimation of net realizable value.

b. Recognition and measurement of defined benefit plans

The net defined liabilities (assets) and the resulting defined benefit costs under the defined benefit pension plans are calculated using the projected unit credit method. Actuarial assumptions comprise the discount rates, rates of employee turnover, future salary increase, etc. Changes in economic circumstances and market conditions will affect these assumptions and may have a material impact on the amount of related expense and the liabilities.

c. Income taxes

The realizability of deferred tax asset mainly depends on whether sufficient future profit or taxable temporary differences will be available. In cases where the actual future profit generated is less than expected, a material reversal of deferred tax assets may arise, which would be recognized in profit or loss for the period in which such a reversal takes place.

6. CASH AND CASH EQUIVALENTS

	December 31	
	2019	**2018**
Cash on hand	$ -	$ -
Checking accounts and demand deposits	6,611,696	8,577,335
Cash equivalents		
Time deposits	1,020,252	4,134,837
	$ 7,631,948	$ 12,712,172

7. FINANCIAL ASSETS AT FAIR VALUE THROUGH OTHER COMPREHENSIVE INCOME

	December 31	
	2019	2018
Non-current		
Investments in equity instruments		
Domestic investments		
Listed shares	$ 1,109,115	$ 934,749
Unlisted shares	331,459	267,075
	$ 1,440,574	$ 1,201,824

These investments in equity instruments are not held for trading. Instead, they are held for medium- to long-term strategic purposes. Accordingly, the management elected to designate these investments in equity instruments as at FVTOCI as they believe that recognizing short-term fluctuations in these investments' fair value in profit or loss would not be consistent with the Company's strategy of holding these investments for long-term purposes.

The Company recognized dividends income of NT$105,188 thousand and NT$102,920 thousand for the years ended December 31, 2019 and 2018, respectively. As of December 31, 2019 and 2018, the Company's related investments held amounted to NT$1,440,574 thousand and NT$1,201,824 thousand, respectively.

8. NOTES RECEIVABLE, TRADE RECEIVABLES AND OTHER RECEIVABLES

	December 31	
	2019	2018
Trade receivables		
Total amount of trade receivable measured at amortized cost	$ 2,926,906	$ 3,111,645
Less: Allowance for impairment loss	(16,795)	(16,812)
	$ 2,910,111	$ 3,094,833
Other receivables		
Tax receivable	$ 120,450	$ 106,140
Others	4,798	37,547
	$ 125,248	$ 143,687

a. Trade receivables

The average credit period for sales of goods was 60 days.

In determining the recoverability of a trade receivable, the Company evaluates each customer's credibility and financial position and considers any change in the credit quality of the trade receivable since the date credit was initially granted to the end of the reporting period.

The Company measures the loss allowance for trade receivables at an amount equal to lifetime ECLs.

The expected credit losses on trade receivables are estimated using a provision matrix by reference to past default experience with the respective debtors and an analysis of the debtors' current financial positions, adjusted for factors that are specific to the debtors, general economic conditions of the industry in which the debtors operate and an assessment of both the current as well as the forecasted direction of the conditions at the reporting date. The Company estimates expected credit losses based on the number of days for which receivables are past due. As the Company's historical credit loss experience shows significantly different loss patterns for different customer segments, the provision for losses based on past due status of receivables is not further distinguished according to the different segments of the Company's customer base.

The aging of trade receivables is as follows:

	December 31	
	2019	2018
Neither past due nor impaired	$ 2,767,426	$ 2,880,922
Past due but not impaired		
Within 60 days	142,685	201,298
61-120 days	-	137
Over 120 days	-	12,476
	$ 2,910,111	$ 3,094,833

The above aging schedule was based on the past due days from the end of the credit term.

As of December 31, 2019 and 2018, the Company did not hold collateral for most of its receivables.

The movements of the allowance for doubtful trade receivables are as follows:

	December 31	
	2019	2018
Balance at January 1	$ 16,812	$ 16,812
Less: Amounts written off	(17)	-
Balance at December 31	$ 16,795	$ 16,812

b. Other receivables

No allowance for impairment loss of other receivables was recognized since the other receivables of the Company were not past due and the Company assessed that there was no uncertainty of recoverability.

9. INVENTORIES

	December 31	
	2019	2018
Finished goods and merchandise	$ 959,606	$ 1,328,106
Work in progress	10,780,915	15,662,467
Raw materials	1,027,796	915,982
	$ 12,768,317	$ 17,906,555

The reversal of inventory write-downs resulting from the increase in the net realizable value was included in the cost of goods sold as below.

	December 31	
	2019	**2018**
Inventory loss	$ 2,699,600	$ 1,590,792

10. INVESTMENTS ACCOUNTED FOR USING EQUITY METHOD

	December 31	
	2019	**2018**
Investment in subsidiaries	$ 2,397,392	$ 2,128,488

a. Investments in subsidiaries

	December 31	
	2019	**2018**
Macronix (BVI) Co., Ltd. (MXBVI)	$ 2,121,373	$ 1,894,118
Macronix America, Inc. (MXA)	163,382	153,352
Hui Ying Investment Ltd. (Hui Ying)	75,708	61,346
Mxtran Inc. (Mxtran)	22,331	5,853
Run Hong Investment Ltd. (Run Hong)	14,598	13,819
	$ 2,397,392	$ 2,128,488

	Proportion of Ownership and Voting Rights	
	December 31	
Name of Subsidiaries	**2019**	**2018**
MXBVI	100.00%	100.00%
MXA	100.00%	100.00%
Hui Ying	100.00%	100.00%
Mxtran	90.43%	90.43%
Run Hong	100.00%	100.00%

The investments in subsidiaries accounted for using the equity method and the share of profit or loss and other comprehensive income of those investments for the years ended December 31, 2019 and 2018 were based on the subsidiaries' financial statements which have been audited for the same years.

11. PROPERTY, PLANT AND EQUIPMENT

	December 31, 2019
Assets used by the Company	$ 28,904,312

a. Assets used by the Company - 2019

	Years Ended December 31, 2019				
	Balance, Beginning of Year	Additions	Disposals	Reclassification	Balance, End of Year
Cost					
Freehold land	$ 598,076	$ -	$ -	$ -	$ 598,076
Buildings	24,667,411	-	31,832	313,078	24,948,657
Machinery equipment	87,236,825	-	2,338,064	6,736,729	91,635,490
Research and development equipment	3,775,547	-	51,683	(159,434)	3,564,430
Transportation equipment	22,050	-	1,140	5,871	26,781
Leasehold improvements	3,230	-	-	-	3,230
Miscellaneous equipment	1,093,957	-	58,300	84,591	1,120,248
Advance payments and construction in progress	4,135,257	12,667,133	-	(6,980,835)	9,821,555
	121,532,353	$ 12,667,133	$ 2,481,019	$ -	131,718,467
Accumulated depreciation					
Buildings	20,150,462	$ 389,970	$ 26,066	$ -	20,514,366
Machinery equipment	79,576,059	1,921,392	2,322,942	239,194	79,413,703
Research and development equipment	1,929,783	221,219	51,683	(239,194)	1,860,125
Transportation equipment	15,643	2,576	1,140	-	17,079
Leasehold improvements	2,001	539	-	-	2,540
Miscellaneous equipment	1,028,736	35,906	58,300	-	1,006,342
	102,702,684	$ 2,571,602	$ 2,460,131	$ -	102,814,155
Carrying amount at December 31, 2019	$ 18,829,669				$ 28,904,312

The above items of property, plant and equipment are depreciated on a straight-line basis over their estimated useful lives as follows:

Buildings	
Main buildings	31 years
Electronic equipment	11 years
Facility equipment	15 years
Machinery equipment	11 years
Research and development equipment	11 years
Transportation equipment	5 years
Leasehold improvements	6 years
Miscellaneous equipment	3-6 years

For the year ended December 31, 2019, there was no indication of an impairment loss; therefore, the Company did not perform impairment assessment.

Property, plant and equipment pledged as collateral for bank borrowings are set out in Note 31.

b. 2018

	Years Ended December 31, 2018				
	Balance, Beginning of Year	Additions	Disposals	Reclassification	Balance, End of Year
Cost					
Freehold land	$ 598,076	$ -	$ -	$ -	$ 598,076
Buildings	24,246,262	-	3,162	424,311	24,667,411
Machinery equipment	85,198,563	-	454,142	2,492,404	87,236,825
Research and development equipment	3,163,935	-	40	611,652	3,775,547
Transportation equipment	21,740	-	6,770	7,080	22,050
Leasehold improvements	3,230	-	-	-	3,230
Miscellaneous equipment	1,057,978	-	6,426	42,405	1,093,957
Advance payments and construction in progress	2,587,750	5,125,359	-	(3,577,852)	4,135,257
	116,877,534	$ 5,125,359	$ 470,540	$ -	121,532,353

(Continued)

	Years Ended December 31, 2018				
	Balance, Beginning of Year	Additions	Disposals	Reclassification	Balance, End of Year
Accumulated depreciation					
Buildings	$ 19,784,245	$ 369,379	$ 3,162	$ -	$ 20,150,462
Machinery equipment	78,465,322	1,489,346	454,142	75,533	79,576,059
Research and development equipment	1,815,735	189,621	40	(75,533)	1,929,783
Transportation equipment	20,238	1,395	5,990	-	15,643
Leasehold improvements	1,463	538	-	-	2,001
Miscellaneous equipment	1,009,210	25,952	6,426	-	1,028,736
	101,096,213	$ 2,076,231	$ 469,760	$ -	102,702,684
Carrying amount at December 31, 2018	$ 15,781,321				$ 18,829,669

(Concluded)

For the year ended December 31, 2018, no indication of an impairment loss was present and no impairment assessment was performed.

The above items of property, plant and equipment are depreciated on a straight-line basis over their following estimated useful lives as follows:

Buildings	
Main buildings	31 years
Electronic equipment	11 years
Facility equipment	15 years
Machinery equipment	11 years
Research and development equipment	11 years
Transportation equipment	5 years
Leasehold improvements	6 years
Miscellaneous equipment	3-6 years

Property, plant and equipment pledged as collateral for bank borrowings are set out in Note 31.

12. LEASE ARRANGEMENTS

a. Right-of-use assets - 2019

	December 31, 2019
Carrying amounts	
Freehold land	$ 934,665
Buildings	32,323
Transportation equipment	3,135
Miscellaneous equipment	499
	$ 970,622

	For the Year Ended December 31, 2019
Additions to right-of-use assets	$ 1,574
Depreciation charge for right-of-use assets	
Freehold land	$ 69,984
Buildings	8,382
Transportation equipment	1,519
Miscellaneous equipment	1,996
	$ 81,881
Income from the subleasing of right-of-use assets (included in other income)	$ (3,744)

b. Lease liabilities - 2019

	December 31, 2019
Carrying amounts	
Current	$ 72,307
Non-current	$ 906,049

Range of discount rate for lease liabilities was as follows:

	December 31, 2019
Freehold land	1.67%
Buildings	1.07%-1.22%
Transportation equipment	1.22%
Miscellaneous equipment	1.22%

c. Material lease-in activities and terms

The Company also leased certain land and buildings for the use as plant and office in a period of one to twenty years. The Company does not have bargain purchase options to acquire the leasehold land and buildings at the end of the lease terms. In addition, the Company is prohibited from subleasing or transferring all or any portion of the underlying assets without the lessor's consent.

d. Other lease information

2019

	For the Year Ended December 31, 2019
Expenses relating to short-term leases	$ 2,100
Expenses relating to low-value asset leases	$ 60
Expenses relating to variable lease payments not included in the measurement of lease liabilities	$ 6,562
Total cash outflow for leases	$ (99,699)

The Company leases certain office buildings which qualify as short-term leases and certain office equipment which qualifies as low-value asset leases. The Company has elected to apply the recognition exemption and thus, did not recognize right-of-use assets and lease liabilities for these leases.

2018

The future minimum lease payments of non-cancellable operating lease commitments are as follows:

	December 31, 2018
Not later than 1 year	$ 81,979
Later than 1 year and not later than 5 years	306,306
Later than 5 years	752,158
	$ 1,140,443

The lease payments and sublease payments recognized in profit or loss were as follows:

	For the Year Ended December 31, 2018
Minimum lease payments	$ 81,549

13. INTANGIBLE ASSETS

	Year Ended December 31, 2019			
Item	**Balance, Beginning of Year**	**Additions**	**Disposals**	**Balance, End of Period**
Cost				
Software	$ 70,578	$ 32,654	$ 13,259	$ 89,973
Others	13,000	-	-	13,000
	83,578	$ 32,654	$ 13,259	102,973
Accumulated amortization				
Software	33,240	$ 27,516	$ 13,259	47,497
Others	7,583	4,334	-	11,917
	40,823	$ 31,850	$ 13,259	59,414
Carrying amounts at December 31, 2019	$ 42,755			$ 43,559

Item	Year Ended December 31, 2018			
	Balance, Beginning of Year	Additions	Disposals	Balance, End of Period
Cost				
Software	$ 65,238	$ 25,011	$ 19,671	$ 70,578
Others	13,000	-	-	13,000
	78,238	$ 25,011	$ 19,671	83,578
Accumulated amortization				
Software	30,839	$ 22,072	$ 19,671	33,240
Others	3,250	4,333	-	7,583
	34,089	$ 26,405	$ 19,671	40,823
Carrying amounts at December 31, 2018	$ 44,149			$ 42,755

Intangible assets are amortized on a straight-line basis over their estimated useful lives as follows:

Software	3 years
Others	3 years

14. OTHER FINANCIAL ASSETS

	December 31	
	2019	2018
Non-current		
Restricted time deposits (Note 31)	$ 157,665	$ 157,665
Refundable deposits	4,137	4,088
Long-term receivables	-	18,204
	$ 161,802	$ 179,957

15. OTHER ASSETS

	December 31	
	2019	2018
Current		
Prepayments	$ 226,115	$ 417,946

16. BORROWINGS

a. Short-term borrowings

	December 31	
	2019	2018
Line of credit borrowings	$ 1,550,000	$ -
Interest rate	0.98%-1.10%	-

b. Long-term borrowings

	December 31	
	2019	2018
Secured borrowings from financial institutions	$ 10,237,531	$ 7,354,650
Unsecured borrowings from financial institutions	2,840,000	1,887,500
	13,077,531	9,242,150
Less: Current portion	3,267,200	3,334,772
Less: Arrangement fee	36,001	22,060
Long-term borrowings	$ 9,774,330	$ 5,885,318
Interest rate	1.23%-1.97%	1.23%-1.97%

		December 31	
Borrowing Type	Repayment Terms	2019	2018
Secured syndicated loan denominated in NT$	From December 2017 to December 2022.	$ 4,818,662	$ 6,100,000
Secured bank borrowing denominated in NT$	From June 2019 to February 2024.	4,600,000	-
Unsecured bank borrowing denominated in NT$	From June 2019 to June 2021.	1,200,000	-
Unsecured bank borrowing denominated in NT$	From April 2019 to April 2022.	600,000	-
Secured bank borrowing denominated in JPY	From September 2018 to September 2021.	459,375	700,000
Secured bank borrowing denominated in NT$	From September 2017 to September 2022	343,750	468,750
Unsecured bank borrowing denominated in NT$	From August 2019 to August 2022	300,000	-
Unsecured bank borrowings denominated in NT$	From July 2019 to July 2022	300,000	-
Unsecured bank borrowings denominated in NT$	From September 2018 to September 2021	240,000	300,000
Unsecured bank borrowings denominated in NT$	From September 2018 to September 2020	200,000	300,000
Secured bank borrowing denominated in NT$	From January 2015 to January 2020	15,744	78,719
Unsecured bank borrowing denominated in NT$	Paid off in February 2019.	-	87,500
Secured bank borrowing denominated in NT$	Paid off in March 2019.	-	7,181

(Continued)

Borrowing Type	Repayment Terms	December 31 2019	2018
Unsecured bank borrowing denominated in NT$	Paid off in June 2019.	$ -	$ 400,000
Unsecured bank borrowing denominated in NT$	Paid off in December 2019.	-	800,000
Less: Current portion		3,267,200	3,334,772
Less: Arrangement fee		36,001	22,060
Total long-term borrowings		$ 9,774,330	$ 5,885,318

(Concluded)

To repay the vested liabilities, purchase equipment or machinery and increase operating funds, the Company signed a 5-year syndicated loan agreement with 7 financial institutions in November 2017 with a total amount of NT$7.7 billion.

To purchase equipment or machinery, the Company has entered into a 5-year syndicated loan agreement with 9 financial institutions including the Taiwan Cooperative Bank in January 2019 with the total amount of NT$8 billion. The Company provided notes used as refundable guarantees for syndicated loan mentioned above that will be cancelled upon termination of the guarantee.

In addition, the Company's floating borrowing rate on the above borrowing is reset every one to three months.

The loan agreement requires the maintenance of a current ratio, debt ratio, and interest coverage ratio based on the Company's semi-annual and annual financial statements. For the year ended December 31, 2019, the Company had met the financial ratio covenants.

The details of assets pledged as collateral for long-term loans are set in Note 31.

17. NOTES PAYABLE AND TRADE PAYABLES

	December 31 2019	2018
Trade payables	$ 2,140,288	$ 2,611,878

The Company has financial risk management policies in place to ensure that all payables are paid within the pre-agreed upon credit terms.

18. OTHER PAYABLES

	December 31 2019	2018
Payables for bonuses	$ 250,753	$ 251,067
Payables for maintenance and repairs	219,965	207,623
Payables for patents	165,357	214,709
Payables for donations	98,144	-
Payables for insurances	74,497	64,379
Others	536,975	572,665
	$ 1,345,691	$ 1,310,443

19. OTHER LIABILITIES

	December 31	
	2019	2018
Current		
Refund liabilities	$ 184,232	$ 302,717
Receipts under custody	30,793	33,971
Others	7,681	146
	$ 222,706	$ 336,834
Non-current		
Guarantee deposits	$ 10,272	$ 10,091

20. PROVISIONS

	December 31	
	2019	2018
Current		
Employee benefits (a)	$ 4,856	$ 14,106

a. The provision for employee benefits represents vested long service leave entitlements accrued.

21. RETIREMENT BENEFIT PLANS

a. Defined contribution plans

The Company adopted a pension plan under the Labor Pension Act (LPA), which is a state-managed defined contribution plan. Under on the LPA, the Company makes monthly contributions to employees' individual pension accounts at 6% of monthly salaries and wages.

b. Defined benefit plans

The defined benefit plan adopted by the Company in accordance with the Labor Standards Law is operated by the government. Pension benefits are calculated on the basis of the length of service and average monthly salaries of the 6 months before retirement. The Company contributes amounts equal to 2% of total monthly salaries and wages to a pension fund administered by the pension fund monitoring committee. Pension contributions are deposited in the Bank of Taiwan in the committee's name. Before the end of each year, the Company assesses the balance in the pension fund. If the amount of the balance in the pension fund is inadequate to pay retirement benefits for employees who conform to retirement requirements in the next year, the Company is required to fund the difference in one appropriation that should be made before the end of March of the next year. The pension fund is managed by the Bureau of Labor Funds, Ministry of Labor (the "Bureau"); the Company has no right to influence the investment policy and strategy.

The amounts in the balance sheets in respect of the Company’s defined benefit plans were as follows:

	December 31 2019	December 31 2018
Present value of defined benefit obligation	$ 1,903,616	$ 1,890,484
Fair value of plan assets	(791,902)	(710,318)
Net defined benefit liability	$ 1,111,714	$ 1,180,166

Movements in net defined benefit liability were as follows:

	Present Value of Defined Benefit Obligation	Fair Value of the Plan Assets	Net Defined Benefit Liabilities (Assets)
Balance at January 1, 2018	$ 1,842,116	$ 665,599	$ 1,176,517
Service cost			
Current service cost	5,875	-	5,875
Net interest expense	27,316	-	27,316
Return on plan assets	-	9,910	(9,910)
Recognized in profit or loss	33,191	9,910	23,281
Remeasurement			
Return on plan assets	-	17,836	(17,836)
Actuarial loss - experience adjustments	17,672	-	17,672
Actuarial loss - change in financial assumptions	52,580	-	52,580
Recognized in other comprehensive income	70,252	17,836	52,416
Contributions from the employer	-	72,048	(72,048)
Benefits paid	(55,075)	(55,075)	-
Balance at December 31, 2018	1,890,484	710,318	1,180,166
Service cost			
Current service cost	5,296	-	5,296
Net interest expense	23,300	-	23,300
Return on plan assets	-	8,772	(8,772)
Recognized in profit or loss	28,626	8,772	19,854
Remeasurement			
Return on plan assets	-	13,955	(13,955)
Actuarial loss - experience adjustments	-	-	-
Actuarial loss - change in financial assumptions	91,727	-	91,727
Recognized in other comprehensive income	91,727	13,955	77,772
Contributions from the employer	-	166,078	(166,078)
Benefits paid	(107,221)	(107,221)	-
Balance at December 31, 2019	$ 1,903,616	$ 791,902	$ 1,111,714

An analysis by function of the amounts recognized in profit or loss in respect of the defined benefit plans is as follows:

	For the Year Ended December 31	
	2019	2018
Operating costs	$ 10,688	$ 12,600
Selling and marketing expenses	1,051	1,260
General and administration expenses	3,630	4,283
Research and development expenses	4,485	5,138
	$ 19,854	$ 23,281

Through the defined benefit plans under the Labor Standards Law, the Company is exposed to the following risks:

1) Investment risk: The plan assets are invested in domestic and foreign equity and debt securities, bank deposits, etc. The investment is conducted at the discretion of the Bureau or under the mandated management. However, in accordance with relevant regulations, the return generated by plan assets should not be below the interest rate for a 2-year time deposit with local banks.

2) Interest risk: A decrease in the government/corporate bond interest rate will increase the present value of the defined benefit obligation; however, this will be partially offset by an increase in the return on the plan's debt investments.

3) Salary risk: The present value of the defined benefit obligation is calculated by reference to the future salaries of plan participants. As such, an increase in the salary of the plan participants will increase the present value of the defined benefit obligation.

The actuarial valuations of the present value of the defined benefit obligation were carried out by qualified actuaries. The significant assumptions used for the purposes of the actuarial valuations were as follows:

	December 31	
	2019	2018
Discount rate	0.80%	1.25%
Expected rate of salary increase	3.00%	3.00%
Expected return on plan assets increase	0.80%	1.25%

If possible reasonable change in each of the significant actuarial assumptions will occur and all other assumptions will remain constant, the present value of the defined benefit obligation would increase (decrease) as follows:

	For the Year Ended December 31	
	2019	2018
Discount rate		
0.50% increase	$ (101,540)	$ (105,932)
0.50% decrease	$ 109,956	$ 114,591
Expected rate of salary increase		
0.50% increase	$ 126,190	$ 121,893
0.50% decrease	$ (117,415)	$ (113,520)

The sensitivity analysis presented above may not be representative of the actual change in the present value of the defined benefit obligation as it is unlikely that the change in assumptions would occur in isolation of one another as some of the assumptions may be correlated.

	December 31	
	2019	**2018**
The expected contributions to the plan for the next year	$ 30,384	$ 31,032
The average duration of the defined benefit obligation	11.1 years	11.7 years

The Company maintains a separate executive pension plan and the net periodic pension costs were NT$8,651 thousand and NT$9,173 thousand for the years ended December 31, 2019 and 2018, respectively.

Movements in net defined benefit liability were as follows:

	Present Value of Defined Benefit Obligation
Balance at January 1, 2018	$ 433,281
Service cost	
Current service cost	2,745
Net interest expense	6,428
Recognized in profit or loss	9,173
Remeasurement	
Actuarial loss - experience adjustments	21,240
Actuarial loss - changes in financial assumptions	5,748
Recognized in other comprehensive income	26,988
Benefits paid	(9,455)
Balance at December 31, 2018	459,987
Service cost	
Current service cost	2,928
Net interest expense	5,723
Recognized in profit or loss	8,651
Remeasurement	
Actuarial loss - experience adjustments	21,594
Actuarial loss - changes in financial assumptions	8,629
Recognized in other comprehensive income	30,223
Benefits paid	-
Balance at December 31, 2019	$ 498,861

An analysis by function of the amounts recognized in profit or loss in respect of the defined benefit plans is as follows:

	For the Year Ended December 31	
	2019	**2018**
General and administration expenses	$ 8,651	$ 9,173

The actuarial valuations of the present value of the defined benefit obligation of executive pension plan were carried out by qualified actuaries. The significant assumptions used for the purposes of the actuarial valuations were as follows:

	December 31	
	2019	2018
Discount rate	0.80%	1.25%
Expected rate of salary increase	-	-
Expected return on plan assets increase	0.80%	1.25%

22. EQUITY

a. Share capital

Ordinary shares

	December 31	
	2019	2018
Number of shares authorized (in thousands)	6,550,000	6,550,000
Shares authorized	$ 65,500,000	$ 65,500,000
Number of shares issued and fully paid (in thousands)	1,839,927	1,840,292
Share issued	$ 18,399,271	$ 18,402,919

Fully paid ordinary shares, which have a par value of $10, carry one vote per share and carry a right to dividends.

A total of 864,704 thousand shares and 650,000 thousand shares of the Company's authorized shares were reserved for the issuance of convertible bonds and employee share options.

b. Capital surplus

	December 31	
	2019	2018
May be used to offset a deficit, distributed as cash dividends, or transferred to share capital (1)		
Donations	37	37
Treasury share transactions	6,422	6,422
	$ 6,459	$ 6,459
May be used to offset a deficit only		
Changes in percentage of ownership interests in subsidiaries (2)	$ 4,609	$ 4,609
Treasury share transactions	24,347	21,999
	$ 28,956	$ 26,608
May not be used for any purpose		
Employee restricted shares	$ 508,505	$ (89,308)

1) Such capital surplus may be used to offset a deficit; in addition, when the Company has no deficit, such capital surplus may be distributed as cash dividends or transferred to share capital (limited to a certain percentage of the Company's capital surplus and once a year).

2) Such capital surplus arises from changes in capital surplus of subsidiaries accounted for by using the equity method.

c. Retained earnings and dividend policy

The Company's Articles of Incorporation, state that, where the Company made profit in a fiscal year, the profit shall be first utilized for paying taxes, offsetting losses of previous years, setting aside a legal reserve 10% of the remaining profit (until the amount of the legal reserve equals the amount of the Company's paid-in capital), setting aside or reversing a special reserve in accordance with the laws and regulations, and then any remaining profit together with any undistributed retained earnings shall be used by the Company's board of directors as the basis for proposing a distribution plan, which should be resolved in the shareholders' meeting for the distribution of dividends and bonuses to shareholders. For the policies on the distribution of employees' compensation and remuneration of directors stated by the Company's Articles of Incorporation, refer to "Employees' compensation and remuneration of directors" in Note 24 (f).

The Company is classified under the capital intensive industry. In accordance with the long-term financial program of the Company, the above shareholders' dividends can be retained as undistributed earnings, and then be distributed in the future, as determined by the shareholders at the Annual General Meeting.

Distributions shall be prioritized to take the form of cash dividends. Nevertheless, it still depends on the Company's financial, sales or operating condition. The Company's Articles of Incorporation provide that no more than 50% of the current year's total amount of distributable earnings can be distributed in the form of share dividends.

The appropriation of earnings to a legal reserve shall be made until the legal reserve equals the Company's paid-in capital. The legal reserve may be used to offset any deficit. If the Company has no deficit and the legal reserve has exceeded 25% of the Company's paid-in capital, the excess may be transferred to capital or distributed in cash.

Items referred under Rule No. 1010047490 issued by the FSC and in the directive titled "Questions and Answers for Special Reserves Appropriated Following Adoption of IFRSs" should be appropriated to or reversed from a special reserve by the Company.

The appropriation of earnings for 2018 and 2017, which had been proposed by the Company's general meeting of shareholders on June 18, 2019 and June 14, 2018, respectively. The appropriation and dividends per share were as follows:

	For the Year Ended December 31	
	2018	**2017**
Legal reserve	$ 899,301	$ 541,360
Special reserve	$ 932,777	$ 74,275
Cash dividends	$ 2,208,200	$ 1,804,776
Share dividends	$ -	$ 360,955
Cash dividends per share	$ 1.2	$ 1.0
Share dividends per share	$ -	$ 0.2

d. Special reserve

	For the Year Ended December 31	
	2019	2018
Beginning at January 1	$ 74,275	$ -
Appropriations in respect of		
Treasury Shares	48,882	74,275
Reversal of the debits to other equity items	883,895	-
Balance at December 31	$ 1,007,052	$ 74,275

According to the shareholding ratio, the special reserve is calculated based on the difference between the market value of the parent company's stock holdings and the book value, and the special reserve will be partially reversed on market price.

e. Other equity items

1) Exchange differences on translating foreign operations

	For the Year Ended December 31	
	2019	2018
Balance at January 1	$ (137,132)	$ (85,183)
Effect of retrospective application of IFRS 9	-	(146,758)
Exchange differences on translating foreign operations	(98,748)	94,809
Balance at December 31	$ (235,880)	$ (137,132)

2) Unrealized gain on available-for-sale financial assets

	For the Year Ended December 31	
	2019	2018
Balance at January 1	$ (746,762)	$ -
Effect of retrospective application of IFRS 9	-	112,903
Recognized for the year		
Unrealized gain/(loss) - equity instrument	238,750	(567,696)
Share from associates accounted for using the equity method	208,972	(391,039)
Other comprehensive income recognized for the year	(299,040)	(845,832)
Cumulative unrealized gain/(loss) of equity instruments transferred to retained earnings due to disposal	-	99,070
Balance at December 31	$ (299,040)	$ (746,762)

3) Employee unearned benefit

In the meetings of shareholders on June 18, 2014 and June 16, 2016, the shareholders approved a restricted share plan for employees. Refer to Note 27 for the information on restricted shares issued.

	For the Year Ended December 31	
	2019	**2018**
Balance at January 1	$ (19,978)	$ (85,600)
Grant by this year	(508,772)	-
Share-based payment expenses recognized	84,407	63,583
Adjustments for change of turnover rate	1,277	2,039
Balance at December 31	$ (443,066)	$ (19,978)

f. Treasury shares

The Company's shares held by its subsidiaries at December 31, 2019 and 2018 were as follows:

Name of Subsidiary	Number of Shares Held (In Thousands)	Carrying Amount	Market Price
December 31, 2019			
Hui Ying	1,957	$ 159,061	$ 72,786
December 31, 2018			
Hui Ying	1,957	$ 159,061	$ 35,904

The Company's shares held by subsidiaries are regarded as treasury shares; shareholders' rights are retained, except for the rights to participate in any share issuances for cash and to vote.

23. REVENUE

a. Segmentation of revenue from contracts with customers

	For the Year Ended December 31	
	2019	**2018**
Product type		
Flash	$ 18,731,911	$ 22,665,939
ROM	13,290,888	11,166,444
Foundry	2,196,612	2,445,263
Others	16,558	3,081
	$ 34,235,969	$ 36,280,727

b. Contract balances

	For the Year Ended December 31	
	2019	2018
Contract liabilities (classified as current liabilities)	$ 97,101	$ 13,598

The changes in the contract liability balances primarily result from the timing difference between the satisfaction of the performance obligations and the customer's payment.

The Company recognized revenue from the beginning balance of contract liabilities as follows:

	For the Year Ended December 31	
	2019	2018
From the beginning balance of contract liabilities		
Sale of goods	$ 13,278	$ 52,337

24. NET PROFIT (LOSS) FROM CONTINUING OPERATIONS

a. Other income

	For the Year Ended December 31	
	2019	2018
Dividend income	$ 105,188	$ 102,920
Interest income	22,539	29,830
Intellectual property income	-	2,473,600
Others	26,616	18,022
	$ 154,343	$ 2,624,372

b. Other gains and losses

	For the Year Ended December 31	
	2019	2018
Net foreign exchange gains (losses)	$ (62,996)	$ 245,065
Gains on disposal of investments	7,410	180
Other losses	(1,198)	(485)
	$ (56,784)	$ 244,760

c. Finance costs

	For the Year Ended December 31	
	2019	2018
Interest on loans	$ 215,886	$ 159,779
Interest on lease liabilities	16,832	-
Other interest expenses	-	1,223
Less: Amounts included in the cost of qualifying assets	(37,915)	(17,649)
	$ 194,803	$ 143,353

Information about capitalized interest was as follows:

	For the Year Ended December 31	
	2019	2018
Capitalized interest	$ 37,915	$ 17,649
Capitalization rate	1.67%	1.45%

d. Depreciation and amortization

	For the Year Ended December 31	
	2019	2018
An analysis of depreciation by function		
Operating costs	$ 2,295,217	$ 1,769,579
Operating expenses	358,266	306,652
	$ 2,653,483	$ 2,076,231
An analysis of amortization by function		
Operating costs	$ 10,447	$ 9,226
Operating expenses	21,403	17,179
	$ 31,850	$ 26,405

e. Employee benefits expense

	For the Year Ended December 31	
	2019	2018
Post-employment benefits (Note 21)		
Defined contribution plans	$ 192,348	$ 192,865
Defined benefit plans	28,505	32,454
	220,853	225,319
Share-based payments		
Equity-settled	84,407	63,583
Other employee benefits	5,597,242	6,778,343
Total employee benefits expense	$ 5,902,502	$ 7,067,245
An analysis of employee benefits expense by function		
Operating costs	$ 3,005,845	$ 3,572,553
Operating expenses	2,896,657	3,494,692
	$ 5,902,502	$ 7,067,245

f. Employees' compensation and remuneration of directors

In compliance with the Articles of Incorporation, the Company accrued employees' compensation and remuneration of directors at the rates of 15% and no higher than 2%, respectively, of net profit before income tax, employees' compensation, and remuneration of directors. For the years ended December 31, 2019 and 2018, the estimated employees' compensation and the remuneration of directors resolved by the board of directors on February 17, 2020 and March 12, 2019, respectively, were as follows:

Amount

	For the Year Ended December 31	
	2019	2018
Employees' compensation	$ 544,330	$ 1,669,586
Remuneration of directors	$ 72,577	$ 222,611

If there is a change in the amounts after the annual parent company only financial statements are authorized for issue, the differences are recorded as a change in the accounting estimate.

There is no difference between the actual amount of employees' compensation and remuneration of directors paid and the amount recognized in the financial statements for the years ended December 31, 2018 and 2017.

Information on the employees' compensation and remuneration of directors resolved by the Company's board of directors in 2019 and 2018 is available at the Market Observation Post System website of the Taiwan Stock Exchange.

25. INCOME TAXES RELATING TO CONTINUING OPERATIONS

a. Major components of income tax expense (benefit) recognized in profit or loss:

	For the Year Ended December 31	
	2019	2018
Current tax		
Income tax on unappropriated earnings	$ -	$ 184,257
Overseas income tax	-	247,360
Adjustments for prior year	(74,208)	-
Deferred tax		
In respect of the current year	74,208	(186,246)
Income tax expense recognized in profit or loss	$ -	$ 245,371

A reconciliation of accounting loss and income tax expenses is as follows:

	For the Year Ended December 31	
	2019	2018
Income before tax from continuing operations	$ 3,011,960	$ 9,238,377
Income tax expense calculated at the statutory rate	$ 602,392	$ 1,847,675
Non-deductible expenses in determining taxable income	6,791	7,321
Non-taxable income	(22,389)	(23,193)
Realized loss on investment	-	(296,074)
Income tax on unappropriated earnings	-	184,257
Unrecognized temporary differences	(586,794)	(1,288,369)
Recognized loss carryforwards	74,208	(186,246)
Adjustments for prior year	(74,208)	-
Income tax expense recognized in profit or loss	$ -	$ 245,371

The Income Tax Act in the ROC was amended in 2018, and the corporate income tax rate was adjusted from 17% to 20%. The effect of the change in tax rate on deferred tax income to be recognized in profit or loss is recognized in full in the period in which the change in tax rate occurs. In addition, the rate of the corporate surtax applicable to the 2018 unappropriated earnings will be reduced from 10% to 5%.

In July 2019, the President of the ROC announced the amendments to the Statute of Industrial Innovation, which that stipulate that the construction or purchase of specific assets or technologies from the undistributed surplus from the year 2018 may be used as the deduction item for the calculation of the undistributed surplus. The Company has already deducted the amount of capital expenditure from the unappropriated earnings in 2018 that was reinvested when calculating the tax on unappropriated earnings for the year ended December 31, 2019.

b. Current tax assets and liabilities

	December 31	
	2019	2018
Current tax assets		
Tax refund receivable	$ 2,978	$ 3,409
Current tax liabilities		
Income tax payable	$ -	$ 184,257

c. Deferred tax assets and liabilities

The Company offset certain deferred tax assets and deferred tax liabilities which met the offset criteria.

The movements of deferred tax assets and deferred tax liabilities were as follows:

For the year ended December 31, 2019

Deferred Tax Assets	Opening Balance	Recognized in Profit or Loss	Closing Balance
Loss carryforwards	$ 1,179,084	$ (74,208)	$ 1,104,876

For the year ended December 31, 2018

Deferred Tax Assets	Opening Balance	Recognized in Profit or Loss	Closing Balance
Loss carryforwards	$ 992,838	$ 186,246	$ 1,179,084

d. Deductible temporary differences, unused loss carryforwards and unused investment credits for which no deferred assets have been recognized in the parent company only balance sheets

	December 31	
	2019	2018
Loss carryforwards		
Expire in 2024	$ -	$ 1,152,670
Expire in 2025	-	2,520,314
Expire in 2026	1,789,017	2,873,493
	$ 1,789,017	$ 6,546,477
Investment credits		
Research and development expenditures	$ 200,028	$ 257,783
Deductible temporary differences	$ 26,375,606	$ 18,621,158

The unrecognized investment credits will expire in 2020.

e. Information about unused investment credits and unused loss carry-forward

As of December 31, 2019, the investment tax credits comprised of:

Law and Statutes	Tax Credit Source	Remaining Creditable Amount	Expiry Year
Statute for Industrial Innovation	Research and development expenditures	$ 180,316	2019
Statute for Industrial Innovation	Research and development expenditures	200,028	2020
		$ 380,344	

Loss carryforwards as of December 31, 2019 comprised of:

Unused Tax Amount	Expiry Year
$ 383,917	2024
504,063	2025
574,699	2026
$ 1,462,679	

f. Income tax assessments

The Company's tax returns through 2016 have been assessed by the tax authorities.

26. EARNINGS PER SHARE

Unit: NT$ Per Share

	For the Year Ended December 31	
	2019	**2018**
Basic earnings per share	$ 1.64	$ 4.94
Diluted earnings per share	$ 1.61	$ 4.65

The income and weighted average number of ordinary shares outstanding in the computation of earnings per share from continuing operations were as follows:

Net Income for the Year

	For the Year Ended December 31	
	2019	**2018**
Income for the year attributable to owners of the Company	$ 3,011,960	$ 8,993,006

Weighted average number of ordinary shares outstanding (in thousand shares):

	For the Year Ended December 31	
	2019	**2018**
Weighted average number of ordinary shares in computation of basic earnings per share	1,831,825	1,822,137
Effect of potentially dilutive ordinary shares:		
Restricted shares to employees	6,243	15,406
Employees' compensation or bonus issue to employees	29,428	95,189
Weighted average number of ordinary shares in computation of diluted earnings per share	1,867,496	1,932,732

Since the Company offered to settle compensation or bonuses paid to employees in cash or shares, the Company assumed the entire amount of the compensation or bonus will be settled in shares and the resulting potential shares were included in the weighted average number of shares outstanding used in the computation of diluted earnings per share, as the effect is dilutive. Such dilutive effect of the potential shares is included in the computation of diluted earnings per share until the number of shares to be distributed to employees is resolved in the following year.

27. SHARE-BASED PAYMENT ARRANGEMENTS

Restricted share plan for employees

Information on share plan for employees were as follows:

Approved Date	Grant Shares (Thousand)	Board of Directors Approved Grant Shares (Thousand)	Grant Date	Issued Date	Issued Shares (Thousand)	Fair Value
2014/06/18	123,251	38,365	2014/08/28	2014/12/25	37,301	$ 7.76
		62,213	2015/03/16	2015/07/22	61,279	6.82
2016/06/16	123,535	58,971	2016/10/25	2017/01/03	57,476	4.73
2019/06/18	35,294	16,815	2019/10/21	Note	Note	32.55

Note: After the Company's application to the competent authority has been declared effective on October 8, 2019, the shares will be issued once or in installments, depending on actual needs.

To meet the vesting conditions, an employee has to meet performance and other conditions over the vesting period, as follows:

1) If an employee remains employed by the Company for one year after the grant date; and has a current year's performance rating of "successful" (or higher) /A0 or A1, 40% of the restricted shares will be vested;

2) If an employee remains employed by the Company for two years after the grant date; and has a current year's performance rating of "successful" (or higher) /A0 or A1, 30% of the restricted shares will be vested;

3) If an employee remains employed by the Company for three years after grant date; and has a current year's performance rating of "successful" (or higher) /A0 or A1, 30% of the restricted shares will be vested.

In addition to the vesting conditions, the limitations are as follows:

1) Employees, except for inheritance, should not sell, transfer, pledge, donate or in any other way dispose of the shares.

2) The shares should be held in a share trust.

3) Except for the above two paragraphs, the other rights of the restricted share plan for employees, which include, but are not limited to, dividends, bonuses, the distribution rights of the legal reserve and capital surplus, share options of cash capital, voting rights of shareholders, etc., are the same as the Company's issued ordinary shares.

4) The dividends of restricted share plan for employees are not restricted by existing conditions.

5) When a new share is returned in cash due to the Company's capital reduction, the refund of the vested capital loss shall be under custodian trust. In accordance with the issuance method, such capital and shares shall be granted if the vesting conditions for new restricted employee shares are met. The vested shares are granted to employees without interests; if the vested conditions are not met, such cash will be recovered by the Company (applicable to the shareholders' resolution of restricted share plan in the 2019 shareholders' meeting)

When employees do not reach the vesting conditions of restricted share plan for employees during the year, the Company will recover and cancel the shares.

Information on restricted share plan for employees was as follows:

	Number of Shares (In Thousands)	
	For the Year Ended December 31	
	2019	**2018**
Balance at January 1	7,787	24,461
Vested	(7,506)	(15,970)
Forfeited (Notes 1 and 2)	(258)	(704)
Balance at December 31	23	7,787

Note 1: The forfeited shares for the year ended December 31, 2019 include 18 thousand shares which will be cancelled and 240 thousand shares which were already cancelled.

Note 2: The forfeited shares for the year ended December 31, 2018 include 125 thousand shares which will be cancelled and 579 thousand shares which were already cancelled.

For the years ended December 31, 2019 and 2018, the compensation costs recognized were NT$84,407 thousand and NT$63,583 thousand, respectively.

28. CAPITAL MANAGEMENT

The Company manages its capital to ensure that the Company will be able to operate under the premises of going concerns and growth while maximizing the return to shareholders through the optimization of the debt and equity balance.

The Company's strategy for managing the capital structure is to lay out the plan of product development and expand the market share considering the growth and the magnitude of industry and further developing an integral plan founded on the required capacity, capital outlay, and magnitude of assets in long-term development. Ultimately, considering the risk factors such as the fluctuation of the industry cycle and the life cycle of products, the Company determines the optimal capital structure by estimating the profitability of products, operating profit ratio, and cash flow based on the competitiveness of products.

The management of the Company periodically examines the capital structure and contemplates on the potential costs and risks involved while exerting different financial tools. In general, the Company implements prudent strategy of risk management.

29. FINANCIAL INSTRUMENTS

a. Fair value of financial instruments not measured at fair value

The management considers that the carrying amounts of financial assets and financial liabilities recognized in the financial statements approximate their fair values or their fair values cannot be reliably measured.

b. Fair value of financial instruments measured at fair value on a recurring basis

1) Fair value hierarchy

December 31, 2019

	Level 1	Level 2	Level 3	Total
Financial assets at FVTOCI				
Equity securities				
Securities listed in ROC	$ 1,109,115	$ -	$ -	$ 1,109,115
Securities unlisted in ROC	-	-	331,459	331,459
	$ 1,109,115	$ -	$ 331,459	$ 1,440,574

December 31, 2018

	Level 1	Level 2	Level 3	Total
Financial assets at FVTOCI				
Equity securities				
Securities listed in ROC	$ 934,749	$ -	$ -	$ 934,749
Securities unlisted in ROC	-	-	267,075	267,075
	$ 934,749	$ -	$ 267,075	$ 1,201,824

There were no transfers between Level 1 and Level 2 in the current and prior years.

2) Reconciliation of Level 3 fair value measurements of financial assets

Financial Assets	Financial Assets at FVTOCI For the Year Ended December 31 2019	2018
Balance at January 1	$ 267,075	$ 419,527
Total gain recognized in other comprehensive (unrealized gain on financial assets at FVTOCI)	64,384	(152,452)
Balance at December 31	$ 331,459	$ 267,075

3) Valuation used in Level 3 fair value measurement

The fair values of equity securities listed in the ROC and other countries was arrived at using either the asset-based approach or based on the multiplier evaluated in the active market by the market approach and adjustments of liquidity.

c. Categories of financial instruments

	December 31 2019	2018
Financial assets		
Measured at amortized cost (1)	$ 12,550,331	$ 17,338,688
Measured at FVTOCI	1,440,574	1,201,824
Financial liabilities		
Measured at amortized cost (2)	23,525,343	25,486,031

1) The balances included financial assets measured at amortized cost, which comprise cash and cash equivalents, trade receivables (including receivables from related parties), other receivables and other financial assets.

2) The balances included financial liabilities measured at amortized cost, which comprise, notes payable and trade payables (including payables to related parties), other payables (including other payables to related parties), payable for purchases of equipment and long-term loans (including current portion).

d. Financial risk management objectives and policies

The Company manages its exposure to risks relating to the operations through market risk, credit risk, and liquidity risk with the objective to reduce the potentially adverse effects the market uncertainties may have on its financial performance.

The plans for material treasury activities are reviewed by management in accordance with procedures required by relevant regulations or internal controls. During the implementation of such plans, the Company must comply with certain treasury procedures that provide guiding principles for overall financial risk management.

1) Market risk

The Company's activities exposed it primarily to the financial risks of changes in foreign currency exchange rates (see (a) below), interest rates (see (b) below), and other price risk (see (c) below).

a) Foreign currency risk

The Company had foreign currency sales and purchases, which exposed the Company to foreign currency risk. Exchange rate exposures were managed within approved policy parameters utilizing foreign exchange forward contracts.

Sensitivity analysis

The Company was mainly exposed to the USD and JPY.

The sensitivity analysis of foreign currency risk focuses mainly on exchange rates for transactions in currencies other than the entity's functional currency (i.e. foreign currencies) which are recognized at the rates of exchange prevailing at the end of each reporting period.

The following table details the Company's sensitivity to a 3% and 10% increase in the New Taiwan dollars (i.e. the functional currency) against the USD and JPY, respectively. The sensitivity rates used are 3% and 10% when reporting foreign currency risk internally to key management personnel.

	USD Impact		**JPY Impact**	
	For the Year Ended December 31		**For the Year Ended December 31**	
	2019	**2018**	**2019**	**2018**
Pre-tax profit decrease (increase)	$ 110,197	$ 68,504	$ 116,377	$ (64,714)

b) Interest rate risk

The Company is exposed to interest rate risk from outstanding bank loans. Interest rates of the Company's long-term bank loans are floating, and changes in interest rates would affect the future cash flows but not the fair value.

The sensitivity analysis of interest is performed based on the financial liabilities exposed to cash flow interest rate risk at the end of each reporting period.

If interest rates had been 50 basis points higher/lower, the Company's pre-tax profit for the years ended December 31, 2019 and 2018 would decreased/increased by NT$65,388 thousand and NT$46,211 thousand, respectively.

c) Other price risk

The Company was exposed to equity price risk through its investments in listed equity securities. Equity investments are held for strategic rather than trading purposes. The Company does not actively trade these investments.

Sensitivity analysis

A sensitivity analysis of equity prices is performed based on the fair values of equity investments at the end of each reporting period.

If equity prices had been 10% higher/lower, equity for the years ended December 31, 2019 and 2018 would have increased/decreased by NT$144,058 thousand and NT$120,182 thousand, as a result of the changes in fair value of available-for-sale investments.

2) Credit risk

Credit risk refers to the risk that counterparty will default on its contractual obligations resulting in financial loss to the Company. The Company's exposure to credit risk mainly arises from trade receivables - operating, bank deposits, and other financial instruments. Credit risk is managed separately for business related and financial related exposures.

Business related credit risk

In order to maintain the credit quality of trade receivables, the Company has established procedures to monitor and limit exposure to credit risk on trade receivables.

Credit evaluation is performed in the consideration of the relevant factors such as financial condition, external and internal credit scoring, historical experience, and economic conditions, which may affect the customer's paying ability. The Company holds some of the credit enhancements such as prepayments and collateral to mitigate its credit risks.

Trade receivables consisted of a large number of customers, spread across diverse industries and geographical areas.

As of December 31, 2019 and 2018, the Company's ten largest customers accounted for 61% and 57% of its total trade receivables (including receivables from related parties), respectively. The Company believed that the concentration of credit risk is relatively insignificant for the remaining trade receivables.

Financial credit risk

The Company's exposure to financial credit risk which pertained to bank deposits and other financial instruments were evaluated and monitored by Corporate Treasury function. The Company only deals with creditworthy counterparties and banks so that no significant credit risk was identified.

3) Liquidity risk

The objective of liquidity risk management is to ensure the Company has sufficient liquidity to fund its business requirements of cash and cash equivalents and the unused of financing facilities associated with existing operations.

The table below summarizes the maturity profile of the Company's financial liabilities based on contractual and undiscounted payments, including principal and estimated interest.

December 31, 2019

	On Demand or Less than 1 Year	1-3 Years	3-5 Years	5+ Years	Total
Non-derivative financial liabilities					
Non-interest bearing	$ 10,369,812	$ -	$ -	$ -	$ 10,369,812
Lease liabilities	87,968	172,589	159,151	675,783	1,095,491
Interest bearing	3,491,961	7,162,099	2,920,035	-	13,574,095
	$ 13,949,741	$ 7,334,688	$ 3,079,186	$ 675,783	$ 25,039,398

Additional information about the maturity analysis for lease liabilities:

	Less than 1 Year	1-5 Years	5-10 Years	10-15 Years	15-20 Years	20+ Years
Lease liabilities	$ 87,968	$ 331,740	$ 381,878	$ 293,905	$ -	$ -

December 31, 2018

	On Demand or Less than 1 Year	1-3 Years	3-5 Years	5+ Years	Total
Non-derivative financial liabilities					
Non-interest bearing	$ 16,568,718	$ -	$ -	$ -	$ 16,568,718
Interest bearing	3,479,800	4,530,019	1,529,733	-	9,539,552
	$ 20,048,518	$ 4,530,019	$ 1,529,733	$ -	$ 26,108,270

The amounts included above for variable interest rate instruments for both non-derivative financial assets and liabilities was subject to change if changes in variable interest rates were to differ from those estimates of interest rates determined at the end of the reporting period.

30. TRANSACTIONS WITH RELATED PARTIES

In addition to those disclosed in other notes, detail of transactions between the Company and related parties are disclosed below.

a. Related parties and their relationships associated with the Company:

Related Parties	Relationship with the Company
Macronix America, Inc. (MXA)	Subsidiary
Mxtran Inc. (Mxtran)	Subsidiary
Macronix (Hong Kong) Co., Limited (MXHK)	Indirect subsidiary
Macronix Europe N.V. (MXE)	Indirect subsidiary
Macronix Pte Ltd (MPL)	Indirect subsidiary
Macronix (Asia) Limited (MX Asia)	Indirect subsidiary
MegaChips Corporation (MegaChips)	Key management personnel
Ardentec Corporation (Ardentec)	The Company is its major management authority
TM Technology, Inc. (TMTECH) (Note)	Others（Note）
Etron Technology, Inc. (Etron)	Others
Macronix Education Foundation (MXIC Education)	Others

Note: As TM Technology, Inc. disposed of its shares in Etron Technology, Inc. on October 22, 2019, the Company lost its significant influence over Etron Technology, Inc.

b. Operating revenues

Line Items	Related Parties Categories/Name	For the Year Ended December 31 2019	2018
Sales	Key management personnel		
	MegaChips	$ 13,236,202	$ 11,104,912
	Subsidiaries		
	MXHK	4,440,347	4,983,410
	Others	1,265,699	1,416,372
	Others	365	604
		$ 18,942,613	$ 17,505,298

Sale prices to foreign related parties were negotiated based on those charged to ultimate customers and were not comparable to those with external customers as foreign related parties were the primary regional distributors. Sales to domestic related parties were priced at a markup on the unit cost of the product, price that was not comparable to those with other customers.

Sales prices for the related parties were not comparable to those for external customers as the Company sells the specific purpose product. The sales terms to the related parties were between 30 to 60 days after monthly closing, similar to those with external customers.

c. Purchases

Related Parties Categories/Name	For the Year Ended December 31 2019	2018
Key management personnel		
MegaChips	$ 2,800,371	$ 11,056,200

Materials purchased from related parties were for manufacturing process. The payment term was 30 days after monthly closing and after acceptance of materials.

d. Receivables from related parties

Line Items	Related Parties Categories/Name	December 31 2019	2018
Receivables from related parties, net	Subsidiaries		
	MXHK	$ 731,345	$ 379,948
	Others	137,251	133,063
	Key management personnel		
	MegaChips	973,076	695,028
		$ 1,841,672	$ 1,208,039
Other receivables	Subsidiaries		
	MXHK	$ 120	$ 137
	Mxtran	119	82
	Key management personnel	-	5
		$ 239	$ 224

The outstanding trade receivables from related parties are unsecured. For the year ended December 31, 2019 and 2018, no impairment loss was recognized for trade receivables from related parties.

e. Payables to related parties

Line Items	Related Parties Categories/Name	December 31 2019	December 31 2018
Payables to related parties	Key management personnel		
	MegaChips	$ 4,653,909	$ 8,849,935
	The Company is its major management authority	66,303	76,266
		$ 4,720,212	$ 8,926,201
Other payables to related parties	Subsidiaries		
	MXA	$ 66,988	$ 78,108
	MXE	49,364	51,940
	MX Asia	26,128	22,786
	Others	7,467	6,852
	Others	-	426
		$ 149,947	$ 160,112

The outstanding trade payables from related parties are unsecured and will be settled in cash.

f. Other transactions with related parties

Line Items	Related Parties Categories/Name	For the Year Ended December 31 2019	For the Year Ended December 31 2018
Manufacturing expense	The Company is its major management authority		
	Ardentec	$ 255,716	$ 269,306
	Key management personnel	9,254	-
		$ 264,970	$ 269,306
Operating expense	Subsidiaries		
	MXA	$ 205,571	$ 228,565
	MXE	149,678	148,877
	MXAsia	108,412	97,019
	Others	50,143	21,478
	Others	22,837	22,235
		$ 536,641	$ 518,174
IT service revenue	Subsidiaries		
	Mxtran	$ 321	$ 326
Rental revenue	Subsidiaries		
	Mxtran	$ 435	$ 435

The manufacturing expense and operating expense of related parties were comparable to those with other vendors. The payment term was between 30 to 75 days after monthly closing.

The Company leases offices to its subsidiaries (rentals are classified under other gains and losses). The amount of lease payment was based on the office space leased by each related party and was collected on a monthly basis.

Under certain contracts, the Company provided the IT service to the above related parties. The specifically negotiated terms were not comparable to those with external customers.

g. Compensation of key management personnel

	For the Year Ended December 31	
	2019	2018
Short-term benefits	$ 259,209	$ 635,779
Post-employment benefits	8,651	9,173
Share-based payments	13,899	8,965
Other long-term employee benefits	(27)	(2)
	$ 281,732	$ 653,915

The remuneration of key executives was determined by the remuneration committee based on the performance of individuals and market trends.

31. ASSETS PLEDGED AS COLLATERAL OR FOR SECURITY

The following assets were provided as collateral for bank borrowings, the tariff of imported raw materials guarantees, natural gas agreements, and land lease agreements:

	December 31	
	2019	2018
Property, plant and equipment, net	$ 13,228,948	$ 9,927,203
Pledge deposits (classified as other financial assets - non-current)	157,665	157,665
	$ 13,386,613	$ 10,084,868

32. SIGNIFICANT CONTINGENT LIABILITIES AND UNRECOGNIZED COMMITMENTS

In addition to those disclosed in other notes, significant commitments and contingencies of the Company as of December 31, 2019 and 2018 were as follows:

a. As of December 31, 2019 and 2018, unused letters of credit amounted to approximately $36,917 thousand and $0 thousand, respectively.

b. Unrecognized commitments are as follows:

	December 31	
	2019	2018
Acquisition of property, plant and equipment	$ 1,420,915	$ 6,819,449

c. In January 2019, the Company again signed an agreement with IBM to continue the joint development of phase-change memory technology, and the agreement is effective from January 2019 to January 2022. Under the agreement, both parties share the related expenditures of the technology development, and the unrecognized contract amounts were US$8,000 thousand.

d. The Company's board of directors passed a resolution to donate "The Macronix Innovation Building" to "National Cheng Kung University" with a donation amount of NT$420,000 thousand. As of September 30, 2019, the Company has not paid any donation payment yet.

33. SIGNIFICANT ASSETS AND LIABILITIES DENOMINATED IN FOREIGN CURRENCIES

The Company' significant financial assets and liabilities denominated in foreign currencies aggregated by the foreign currencies other than functional currencies and the related exchange rates between foreign currencies and respective functional currencies were as follows:

December 31, 2019

	Foreign Currencies (In thousands)	Exchange Rate	Carrying Amount
Financial assets			
Monetary items			
JPY	$ 21,738,886	0.2760	$ 5,999,933
USD	164,911	29.98	4,944,045
			$ 10,943,978
Non-monetary items			
Investments accounted for using the equity method			
USD	2,284,613	29.98	$ 68,492,698
Financial liabilities			
Monetary items			
JPY	17,522,332	0.2760	$ 4,836,164
USD	42,388	29.98	1,270,792
			$ 6,106,956

December 31, 2018

	Foreign Currencies (In thousands)	Exchange Rate	Carrying Amount
Financial assets			
Monetary items			
JPY	$ 29,851,090	0.2782	$ 8,304,573
USD	138,577	30.715	4,256,383
			$ 12,560,956
Non-monetary items			
Investments accounted for using the equity method			
USD	66,660	30.715	$ 2,047,470
Financial liabilities			
Monetary items			
JPY	32,177,273	0.2782	$ 8,951,717
USD	64,233	30.715	1,972,923
			$ 10,924,640

For the years ended December 31, 2019 and 2018, realized and unrealized net foreign exchange gains (losses) were NT$(62,996) thousand and NT$245,065 thousand, respectively. It is impractical to disclose net foreign exchange losses by each significant foreign currency due to the variety of the foreign currency transactions.

34. SEPARATELY DISCLOSED ITEMS

a. Information on significant transactions and information on investees:

1) Financing provided to others: None

2) Endorsements/guarantees provided: None

3) Marketable securities held (excluding investment in subsidiaries, associates and joint controlled entities): Table 1 (attached)

4) Marketable securities acquired and disposed of at costs or prices of at least NT$300 million or 20% of the paid-in capital: None

5) Acquisition of individual real estate at costs of at least NT$300 million or 20% of the paid-in capital: None

6) Disposal of individual real estate at prices of at least NT$300 million or 20% of the paid-in capital: None

7) Total purchases from or sales to related parties amounting to at least NT$100 million or 20% of the paid-in capital: Table 2 (attached)

8) Receivables from related parties amounting to at least NT$100 million or 20% of the paid-in capital: Table 3 (attached)

9) Trading in derivative instruments: None

10) Information on investees: Table 4 (attached)

c. Information on investments in mainland China

1) Information on any investee company in mainland China, showing the name, principal business activities, paid-in capital, method of investment, inward and outward remittance of funds, shareholding ratio, investment gain or loss, carrying amount of the investment at the end of the period, repatriation of investment gains, and limit on the amount of investment in the mainland China area: Table 5 (attached)

2) Any of the significant transactions with investee companies in mainland China, either directly or indirectly through a third area, and their prices, payment terms, and unrealized gains or losses: None

TABLE 1

MACRONIX INTERNATIONAL CO., LTD.

MARKETABLE SECURITIES HELD
DECEMBER 31, 2019
(In Thousands of New Taiwan Dollars, Unless Stated Otherwise)

Holding Company Name	Type and Name of Marketable Securities	Relationship with the Holding Company	Financial Statement Account	December 31, 2019				Shares as Collateral
				Shares/Units (In Thousands)	Carrying Amount	Percentage of Ownership (%)	Fair Value (Note)	
The Company	Shares							
	Ardentec Corporation	The Company serves as member of its board of directors	Financial assets at FVTOCI - non current	35,951,871	$ 1,109,115	7.33	$ 1,109,115	None
	United Industrial Gases Co., Ltd.	None	”	6,671,877	331,459	3.06	331,459	None
	Aetas Technology Inc.	None	”	145,850	-	0.29	-	None
	Zowie Technology Co., Ltd.	None	”	20,426	-	0.12	-	None
	Quality Test System Inc.	None	”	4,538,333	-	14.64	-	None
MXBVI	Shares							
	Chipbond Technology Corporation	None	Financial assets at FVTOCI - non current	1,088,319	73,135	0.17	73,135	None
	Tower Semiconductor Ltd.	None	”	584,893	421,894	0.55	421,894	None
	Global Strategic Investment Fund (Cayman)	None	”	490,000	15,572	2.52	15,572	None
	Global Strategic Investment Fund (Samoa)	None	”	1,739,783	19,820	4.90	19,820	None
Hui Ying	Shares							
	Macronix International Co., Ltd.	The Company	Financial assets at FVTOCI - non current	1,956,619	72,786	0.11	72,786	None
	Raio Technology Co., Ltd.	None	”	1,247,288	30,135	10.03	30,135	None

TABLE 2

MACRONIX INTERNATIONAL CO., LTD.

TOTAL PURCHASES FROM OR SALES TO RELATED PARTIES AMOUNTING TO AT LEAST NT$100 MILLION OR 20% OF THE PAID-IN CAPITAL
FOR THE YEAR ENDED DECEMBER 31, 2019
(In Thousands of New Taiwan Dollars, Unless Stated Otherwise)

Buyer	Related Party	Relationship	Transaction Details				Abnormal Transaction		Notes/Accounts Receivable (Payable)		Note
			Purchase/ Sale	Amount	% to Total	Payment Terms	Unit Price	Payment Term	Ending Balance	% to Total	
The Company	MegaChips	Its subsidiary, Shun Ying Investment, is represented in MXIC's board of directors	Sales	$ 13,236,202	39	30 days after monthly closing	Note 30	Note 30	$ 973,076	20	-
	MXHK	Indirect subsidiary	Sales	4,440,347	13	45 days after monthly closing	Note 30	Note 30	731,345	15	-
	MXA	Subsidiary	Sales	1,265,518	4	Net 60 days	Note 30	Note 30	137,184	3	-
	MegaChips	Its subsidiary, Shun Ying Investment, is represented in MXIC's board of directors	Purchase	2,800,371	34	30 days after monthly closing and after acceptance of materials	Note 30	Note 30	4,653,909	68	
MXHK	The Company	Indirect subsidiary	Purchase	US$ 140,018 RMB 26,573	100	45 days after monthly closing	No material difference	No material difference	US$ 24,399	100	-
MXA	The Company	Subsidiary	Purchase	US$ 41,000	100	Net 60 days	No material difference	No material difference	US$ 4,574	100	-

TABLE 3

MACRONIX INTERNATIONAL CO., LTD.

RECEIVABLES FROM RELATED PARTIES AMOUNTING TO AT LEAST NT$100 MILLION OR 20% OF THE PAID-IN CAPITAL
DECEMBER 31, 2019
(In Thousands of New Taiwan Dollars, Unless Stated Otherwise)

Company Name	Related Party	Relationship	Ending Balance	Turnover Rate	Overdue		Amounts Received in Subsequent Period	Allowance for Impairment Loss
					Amount	Action Taken		
The Company	MegaChips	Its subsidiary, Shun Ying Investment, is represented in MXIC's board of directors	$ 973,076	15.87 times	$ -	-	898,306 thousand	$ -
	MXHK	Indirect subsidiary	731,345	7.99 times	-	-	381,090 thousand	-
	MXA	Subsidiary	137,184	9.37 times	-	-	97,647 thousand	-

TABLE 4

MACRONIX INTERNATIONAL CO., LTD.

INFORMATION ON INVESTEES
FOR THE YEAR ENDED DECEMBER 31, 2019
(In Thousands of New Taiwan Dollars, Unless Stated Otherwise)

Investor Company	Investee Company	Location	Main Businesses and Products	Original Investment Amount		Balance as of December 31, 2019			Net Income (Loss) of the Investee	Share of Profit (Loss)	Note
				December 31, 2019	December 31, 2018	Shares	%	Carrying Amount			
The Company	MXBVI	Tortola, British Virgin Islands	Investment holding company	$ 7,348,057	$ 7,348,057	212,048,000	100.00	$ 2,121,373	$ 104,637	$ 104,815	Subsidiary
	MXA	San Jose, California, USA.	Sales and marketing	2,640	2,640	100,000	100.00	163,382	10,015	10,015	Subsidiary
	Hui Ying	Taipei, Taiwan	Investment	500,000	500,000	-	100.00	75,708	12,682	10,334	Subsidiary
	Mxtran	Hsinchu, Taiwan	IC design	755,287	755,287	69,627,323	90.43	22,331	17,884	16,498	Subsidiary
	Run Hong	Taipei, Taiwan	Investment	984,432	984,432	-	100.00	14,598	780	780	Subsidiary
MXBVI	New Trend Technology Inc.	San Jose, California, USA.	IC design	891,291	882,141	27,150,000	100.00	292,971	(8,468)	Note	Subsidiary
	MXE	Belgium	After-sales service	2,106	2,106	999	100.00	120,689	7,255	Note	Subsidiary
	MPL	Singapore	After-sales service	3,291	3,291	174,000	100.00	20,327	1,123	Note	Subsidiary
	MXHK	Hong Kong	Sales and marketing	378,427	378,427	89,700,000	100.00	805,136	88,280	Note	Subsidiary
	MX Asia	Cayman Island	Investment holding company	26,325	26,325	700,000	100.00	68,001	5,297	Note	Subsidiary
Run Hong	Mxtran	Hsinchu, Taiwan	IC design	40,318	40,318	3,393,200	4.41	1,089	17,884	Note	Subsidiary
Mxtran	Mxtran Samoa	Samoa	Investment holding company	35,979	35,979	1,170,000	100.00	1,038	2	Note	Subsidiary
Mxtran Samoa	Mxtran (H.K.) Holding Co., Limited	Hong Kong	Investment holding company	23,880	23,880	6,152,000	100.00	440	1	Note	Subsidiary

Note : Under relevant regulations, no disclosure of investment gain (loss) is needed.

TABLE 5

MACRONIX INTERNATIONAL CO., LTD.

INFORMATION ON INVESTMENT IN MAINLAND CHINA
FOR THE YEARS ENDED DECEMBER 31, 2019
(In Thousands of New Taiwan Dollars, Unless Stated Otherwise)

Investee Company	Main Businesses and Products	Paid-in Capital	Method of Investment	Accumulated Outward Remittance for Investment from Taiwan as of January 1, 2019	Remittance of Funds		Accumulated Outward Remittance for Investment from Taiwan as of December 31, 2019	Net Income (Loss) of the Investee	% Ownership for Direct or Indirect Investment	Investment Gain (Loss) (Note 1)	Carrying Amount as of December 31, 2019	Accumulated Repatriation of Investment Income as of December 31, 2019
					Outward	Inward						
MXm	Development of integrated circuit system and software	$ 296,160	MXHK (Note 2)	$ 296,160	$ -	$ -	$ 296,160	$ 17,530	100	$ 17,530	$ 382,803	$ -

Accumulated Outward Remittance for Investment in Mainland China as of December 31, 2019	Investment Amount Authorized by the Investment Commission, MOEA	Upper Limit on the Amounts of Investment Stipulated by Investment Commission, MOEA
$ 296,160	$ 296,160	(Note 3)

Note 1: The amount was recognized based on the audited financial statements of the investee company.

Note 2: The Company invested in a company located in mainland China indirectly through the existing company in a third country.

Note 3: As the Company has obtained the certificate of being qualified for operating headquarters issued by the Industrial Development Bureau, MOEA in March 2017, the upper limit on investments in mainland China pursuant to “Principle of investment or Technical Cooperation in Mainland China” is not applicable.

Macronix International Co., Ltd.

Chairman：Miin Chyou Wu