

**1987**

Leases 6-inch fab (Fab 1)  
from the Ministry of  
Economic Affairs and ITRI

**1992**

Fab 2 Module B  
begins production

**1993**

Begins construction  
on Fab 3, TSMC's first  
8-inch fab

**1997**

Fab 4 & Fab 5  
begin production

**1999**

Breaks ground on the  
first full-scale 12-inch  
fab, Fab 12, in Hsinchu  
Science Park

**2000**

Fab 6 begins production



## 6. Financial Highlights and Analysis

### 6.1 Financial Highlights

#### 6.1.1 Condensed Balance Sheet

##### Condensed Balance Sheet from 2017 to 2021 (Consolidated)

Unit: NT\$ thousands

Item	Year	2017	2018	2019	2020	2021
Current Assets		857,203,110	951,679,721	822,613,914	1,092,185,308	1,607,072,907
Long-term Investments (Note 1)		41,569,074	29,304,796	30,172,039	27,728,208	29,384,701
Property, Plant and Equipment		1,062,542,322	1,072,050,279	1,352,377,405	1,555,589,120	1,975,118,704
Right-of-use Assets		0	0	17,232,402	27,728,382	32,734,537
Intangible Assets		14,175,140	17,002,137	20,653,028	25,768,179	26,821,697
Other Assets (Note 2)		16,371,997	20,091,105	21,756,244	31,712,208	54,370,909
Total Assets		1,991,861,643	2,090,128,038	2,264,805,032	2,760,711,405	3,725,503,455
Current Liabilities						
Before Distribution		358,706,680	340,542,586	590,735,701	617,151,048	739,503,358
After Distribution		566,149,724	547,985,630	655,561,652	681,976,999	810,811,904 (Note 3)
Noncurrent Liabilities		110,395,320	72,089,056	51,973,905	292,938,358	815,266,892
Total Liabilities						
Before Distribution		469,102,000	412,631,642	642,709,606	910,089,406	1,554,770,250
After Distribution		676,545,044	620,074,686	707,535,557	974,915,357	1,626,078,796 (Note 3)
Equity Attributable to Shareholders of the Parent						
Capital Stock		259,303,805	259,303,805	259,303,805	259,303,805	259,303,805
Capital Surplus		56,309,536	56,315,932	56,339,709	56,347,243	64,761,602
Retained Earnings						
Before Distribution		1,233,362,010	1,376,647,841	1,333,334,979	1,588,686,081	1,906,829,661
After Distribution		1,025,918,966	1,169,204,797	1,268,509,028	1,523,860,130	1,835,521,115 (Note 3)
Others		(26,917,818)	(15,449,913)	(27,568,369)	(54,679,873)	(62,608,515)
Equity Attributable to Shareholders of the Parent						
Before Distribution		1,522,057,533	1,676,817,665	1,621,410,124	1,849,657,256	2,168,286,553
After Distribution		1,314,614,489	1,469,374,621	1,556,584,173	1,784,831,305	2,096,978,007 (Note 3)
Noncontrolling Interests		702,110	678,731	685,302	964,743	2,446,652
Total Equity						
Before Distribution		1,522,759,643	1,677,496,396	1,622,095,426	1,850,621,999	2,170,733,205
After Distribution		1,315,316,599	1,470,053,352	1,557,269,475	1,785,796,048	2,099,424,659 (Note 3)

Note 1: Long-term investments as of December 31, 2017 include noncurrent held-to-maturity financial assets, financial assets carried at cost and investments accounted for using equity method. Starting from 2018, upon initial application of IFRS 9 "Financial Instruments", the category includes noncurrent financial assets at fair value through other comprehensive income, noncurrent financial assets at amortized cost, and investments accounted for using equity method.

Note 2: Other assets consist of deferred income tax assets, refundable deposits, and other noncurrent assets.

Note 3: The amount approved by Board of Directors on February 15, 2022.

##### Condensed Balance Sheet from 2017 to 2021 (Unconsolidated)

Unit: NT\$ thousands

Item	Year	2017	2018	2019	2020	2021
Current Assets		436,769,337	469,966,106	355,118,125	580,949,248	783,205,937
Long-term Investments (Note 1)		464,401,415	550,524,494	559,380,999	565,432,338	603,640,944
Property, Plant and Equipment		1,016,355,970	1,025,286,941	1,310,900,634	1,511,784,556	1,889,970,529
Right-of-use Assets		0	0	15,030,020	25,184,827	30,123,052
Intangible Assets		9,870,127	12,429,930	16,271,444	21,733,597	22,910,400
Other Assets (Note 2)		11,992,542	17,253,537	18,774,850	28,420,547	48,644,283
Total Assets		1,939,389,391	2,075,461,008	2,275,476,072	2,733,505,113	3,378,495,145
Current Liabilities						
Before Distribution		308,383,240	328,060,518	605,540,547	680,529,735	704,833,370
After Distribution		515,826,284	535,503,562	670,366,498	745,355,686	776,141,916 (Note 3)
Noncurrent Liabilities		108,948,618	70,582,825	48,525,401	203,318,122	505,375,222
Total Liabilities						
Before Distribution		417,331,858	398,643,343	654,065,948	883,847,857	1,210,208,592
After Distribution		624,774,902	606,086,387	718,891,899	948,673,808	1,281,517,138 (Note 3)
Equity						
Capital Stock		259,303,805	259,303,805	259,303,805	259,303,805	259,303,805
Capital Surplus		56,309,536	56,315,932	56,339,709	56,347,243	64,761,602
Retained Earnings						
Before Distribution		1,233,362,010	1,376,647,841	1,333,334,979	1,588,686,081	1,906,829,661
After Distribution		1,025,918,966	1,169,204,797	1,268,509,028	1,523,860,130	1,835,521,115 (Note 3)
Others		(26,917,818)	(15,449,913)	(27,568,369)	(54,679,873)	(62,608,515)
Total Equity						
Before Distribution		1,522,057,533	1,676,817,665	1,621,410,124	1,849,657,256	2,168,286,553
After Distribution		1,314,614,489	1,469,374,621	1,556,584,173	1,784,831,305	2,096,978,007 (Note 3)

Note 1: Long-term investments as of December 31, 2017 include financial assets carried at cost and investments accounted for using equity method. Starting from 2018, upon initial application of IFRS 9 "Financial Instruments", the category includes noncurrent financial assets at fair value through other comprehensive income and investments accounted for using equity method.

Note 2: Other assets consist of deferred income tax assets, refundable deposits, and other noncurrent assets.

Note 3: The amount approved by Board of Directors on February 15, 2022.

## 6.1.2 Condensed Statement of Comprehensive Income

### Condensed Statement of Comprehensive Income from 2017 to 2021 (Consolidated)

Unit: NT\$ thousands (Except EPS: NT\$)

Item	Year	2017	2018	2019	2020	2021
Net Revenue		977,447,241	1,031,473,557	1,069,985,448	1,339,254,811	1,587,415,037
Gross Profit		494,826,402	497,874,253	492,701,896	711,130,120	819,537,266
Income from Operations		385,559,223	383,623,524	372,701,090	566,783,698	649,980,897
Non-operating Income and Expenses		10,573,807	13,886,739	17,144,246	17,993,482	13,145,417
Income before Income Tax		396,133,030	397,510,263	389,845,336	584,777,180	663,126,314
Net Income		343,146,848	351,184,406	345,343,809	518,158,082	597,073,134
Other Comprehensive Income (Loss) for the Year, Net of Income Tax		(28,821,631)	9,836,976	(11,823,562)	(30,321,802)	(7,619,456)
Total Comprehensive Income for the Year		314,325,217	361,021,382	333,520,247	487,836,280	589,453,678
Net Income Attributable to:						
Shareholders of the Parent		343,111,476	351,130,884	345,263,668	517,885,387	596,540,013
Noncontrolling Interests		35,372	53,522	80,141	272,695	533,121
Total Comprehensive Income Attributable to:						
Shareholders of the Parent		314,294,993	360,965,015	333,440,460	487,563,478	588,918,059
Noncontrolling Interests		30,224	56,367	79,787	272,802	535,619
Basic/ Diluted Earnings Per Share (Note)		13.23	13.54	13.32	19.97	23.01

Note: Based on weighted average shares outstanding in each year.

### Condensed Statement of Comprehensive Income from 2017 to 2021 (Unconsolidated)

Unit: NT\$ thousands (Except EPS: NT\$)

Item	Year	2017	2018	2019	2020	2021
Net Revenue		969,136,109	1,023,925,713	1,059,646,793	1,314,793,013	1,574,745,881
Gross Profit		478,937,691	492,955,501	480,143,141	682,004,023	788,629,037
Income from Operations		374,690,117	384,027,838	365,923,992	543,465,507	629,632,836
Non-operating Income and Expenses		18,626,059	12,170,315	22,821,227	39,153,435	30,869,355
Income before Income Tax		393,316,176	396,198,153	388,745,219	582,618,942	660,502,191
Net Income		343,111,476	351,130,884	345,263,668	517,885,387	596,540,013
Other Comprehensive Income (Loss) for the Year, Net of Income Tax		(28,816,483)	9,834,131	(11,823,208)	(30,321,909)	(7,621,954)
Total Comprehensive Income for the Year		314,294,993	360,965,015	333,440,460	487,563,478	588,918,059
Basic/ Diluted Earnings Per Share (Note)		13.23	13.54	13.32	19.97	23.01

Note: Based on weighted average shares outstanding in each year.

## 6.1.3 Financial Analysis

### Financial Analysis from 2017 to 2021 (Consolidated)

		2017	2018	2019	2020	2021
Capital Structure Analysis	Debts Ratio (%)	23.55	19.74	28.38	32.97	41.73
	Long-term Fund to Property, Plant and Equipment (%)	153.70	163.20	123.79	137.80	151.18
Liquidity Analysis	Current Ratio (%)	238.97	279.46	139.25	176.97	217.32
	Quick Ratio (%)	217.94	248.76	124.92	154.35	190.61
	Times Interest Earned (Times)	119.95	131.28	120.92	281.95	123.48
Operating Performance Analysis	Average Collection Turnover (Times)	7.74	8.19	7.95	9.35	9.20
	Days Sales Outstanding	47.16	44.57	45.91	39.04	39.67
	Average Inventory Turnover (Times)	7.88	6.02	6.20	5.70	4.65
	Average Inventory Turnover Days	46.32	60.63	58.87	64.04	78.49
	Average Payment Turnover (Times)	16.82	16.56	15.48	15.45	17.10
	Property, Plant and Equipment Turnover (Times)	0.95	0.97	0.88	0.92	0.90
	Total Assets Turnover (Times)	0.50	0.51	0.49	0.53	0.49
Profitability Analysis	Return on Total Assets (%)	17.84	17.34	15.99	20.69	18.56
	Return on Equity attributable to Shareholders of the Parent (%)	23.57	21.95	20.94	29.84	29.69
	Operating Income to Paid-in Capital Ratio (%)	148.69	147.94	143.73	218.58	250.66
	Pre-tax Income to Paid-in Capital Ratio (%)	152.77	153.30	150.34	225.52	255.73
	Net Margin (%)	35.11	34.05	32.28	38.69	37.61
	Basic Earnings Per Share (NT\$)	13.23	13.54	13.32	19.97	23.01
	Diluted Earnings Per Share (NT\$)	13.23	13.54	13.32	19.97	23.01
Cash Flow	Cash Flow Ratio (%)	163.17	168.54	104.13	133.30	150.39
	Cash Flow Adequacy Ratio (%)	112.41	113.11	106.60	100.74	97.84
	Cash Flow Reinvestment Ratio (%)	11.08	9.06	8.45	11.24	13.56
Leverage	Operating Leverage	2.16	2.28	2.41	1.97	2.05
	Financial Leverage	1.01	1.01	1.01	1.00	1.01
Industry Specific Key Performance Indicator	Advanced Technologies (7-nanometer and below) Percentage of Wafer Sales (%)	-	9	27	41	50
	Sales Growth (%)	3.11	5.53	3.73	25.17	18.53
	Net Income Growth (%)	2.65	2.34	-1.67	50.00	15.19

Analysis of deviation of 2021 vs. 2020 over 20%:

1. Debts ratio increased by 27% mainly due to increase in bonds payable and other noncurrent liabilities.
2. Current ratio increased by 23% mainly due to increase in cash and cash equivalents and inventories.
3. Quick ratio increased by 23% mainly due to increase in cash and cash equivalents.
4. Times interest earned decreased by 56% mainly due to increase in interest expenses.
5. Average inventory turnover days increased by 23% mainly due to a higher level of inventories of 5nm technology.
6. Cash flow reinvestment ratio increased by 21% as a result of increase in cash provided by operating activities.

Note: Capacity includes wafers committed by Vanguard and SSMC.

\* Glossary

1. Capital Structure Analysis
  - (1) Debt Ratio = Total Liabilities / Total Assets
  - (2) Long-term Fund to Property, Plant and Equipment Ratio = (Shareholders' Equity + Noncurrent Liabilities) / Net Property, Plant and Equipment
2. Liquidity Analysis
  - (1) Current Ratio = Current Assets / Current Liabilities
  - (2) Quick Ratio = (Current Assets - Inventories - Prepaid Expenses) / Current Liabilities
  - (3) Times Interest Earned = Earnings before Interest and Taxes / Interest Expenses
3. Operating Performance Analysis
  - (1) Average Collection Turnover = Net Sales / Average Trade Receivables (including Accounts Receivable and Notes Receivable originated from operation)
  - (2) Days Sales Outstanding = 365 / Average Collection Turnover
  - (3) Average Inventory Turnover = Cost of Sales / Average Inventory
  - (4) Average Inventory Turnover Days = 365 / Average Inventory Turnover
  - (5) Average Payment Turnover = Cost of Sales / Average Trade Payables (including Accounts Payable and Notes Payable originated from operation)
  - (6) Property, Plant and Equipment Turnover = Net Sales / Average Net Property, Plant and Equipment
  - (7) Total Assets Turnover = Net Sales / Average Total Assets
4. Profitability Analysis
  - (1) Return on Total Assets = (Net Income + Interest Expenses \* (1 - Effective Tax Rate)) / Average Total Assets
  - (2) Return on Equity Attributable to Shareholders of the Parent = Net Income Attributable to Shareholders of the Parent / Average Equity Attributable to Shareholders of the Parent
  - (3) Operating Income to Paid-in Capital Ratio = Operating Income / Paid-in Capital
  - (4) Pre-tax Income to Paid-in Capital Ratio = Income before Tax / Paid-in Capital
  - (5) Net Margin = Net Income / Net Sales
  - (6) Earnings Per Share = (Net Income Attributable to Shareholders of the Parent - Preferred Stock Dividend) / Weighted Average Number of Shares Outstanding
5. Cash Flow
  - (1) Cash Flow Ratio = Net Cash Provided by Operating Activities / Current Liabilities
  - (2) Cash Flow Adequacy Ratio = Five-year Sum of Cash from Operations / Five-year Sum of Capital Expenditures, Inventory Additions, and Cash Dividend
  - (3) Cash Flow Reinvestment Ratio = (Cash Provided by Operating Activities - Cash Dividends) / (Gross Property, Plant and Equipment + Long-term Investments + Other Noncurrent Assets + Working Capital)
6. Leverage
  - (1) Operating Leverage = (Net Sales - Variable Cost) / Income from Operations
  - (2) Financial Leverage = Income from Operations / (Income from Operations - Interest Expenses)

## Financial Analysis from 2017 to 2021 (Unconsolidated)

		2017	2018	2019	2020	2021
Capital Structure Analysis	Debt Ratio (%)	21.52	19.21	28.74	32.33	35.82
	Long-term Fund to Property, Plant and Equipment Ratio (%)	160.48	170.43	127.39	135.80	141.47
Liquidity Analysis	Current Ratio (%)	141.63	143.26	58.64	85.37	111.12
	Quick Ratio (%)	118.68	113.07	45.81	65.93	84.33
	Times Interest Earned (Times)	144.04	137.46	122.80	330.85	261.58
Operating Performance Analysis	Average Collection Turnover (Times)	7.86	8.45	8.32	9.80	9.80
	Days Sales Outstanding	46.44	43.21	43.88	37.24	37.23
	Average Inventory Turnover (Times)	8.39	6.31	6.65	6.13	4.98
	Average Inventory Turnover Days	43.49	57.89	54.91	59.58	73.23
	Average Payment Turnover (Times)	16.39	16.22	15.10	14.89	17.06
	Property, Plant and Equipment Turnover (Times)	0.97	1.00	0.91	0.93	0.93
	Total Assets Turnover (Times)	0.51	0.51	0.49	0.52	0.52
Profitability Analysis	Return on Total Assets (%)	18.29	17.62	16.00	20.74	19.59
	Return on Equity (%)	23.57	21.95	20.94	29.84	29.69
	Operating Income to Paid-in Capital Ratio (%)	144.50	148.10	141.12	209.59	242.82
	Pre-tax Income to Paid-in Capital Ratio (%)	151.68	152.79	149.92	224.69	254.72
	Net Margin (%)	35.40	34.29	32.58	39.39	37.88
	Basic Earnings Per Share (NT\$)	13.23	13.54	13.32	19.97	23.01
	Diluted Earnings Per Share (NT\$)	13.23	13.54	13.32	19.97	23.01
Cash Flow	Cash Flow Ratio (%)	184.45	173.17	98.00	114.56	153.79
	Cash Flow Adequacy Ratio (%)	99.42	113.52	106.59	99.88	97.62
	Cash Flow Reinvestment Ratio (%)	10.98	9.23	8.23	10.93	14.20
Leverage	Operating Leverage	2.22	2.28	2.46	2.04	2.11
	Financial Leverage	1.01	1.01	1.01	1.00	1.00

Analysis of deviation of 2021 vs. 2020 over 20%:

1. Current ratio increased by 30% mainly due to increase in cash and cash equivalents and inventories.
2. Quick ratio increased by 28% mainly due to increase in cash and cash equivalents.
3. Times interest earned decreased by 21% mainly due to increase in interest expenses.
4. Average inventory turnover days increased by 23% mainly due to a higher level of inventories of 5nm technology.
5. Cash flow ratio increased by 34% and cash flow reinvestment ratio increased by 30% as a result of increase in cash provided by operating activities.

### \* Glossary

#### 1. Capital Structure Analysis

- (1) Debt Ratio = Total Liabilities / Total Assets
- (2) Long-term Fund to Property, Plant and Equipment Ratio = (Shareholders' Equity + Noncurrent Liabilities) / Net Property, Plant and Equipment

#### 2. Liquidity Analysis

- (1) Current Ratio = Current Assets / Current Liabilities
- (2) Quick Ratio = (Current Assets - Inventories - Prepaid Expenses) / Current Liabilities
- (3) Times Interest Earned = Earnings before Interest and Taxes / Interest Expenses

#### 3. Operating Performance Analysis

- (1) Average Collection Turnover = Net Sales / Average Trade Receivables (including Accounts Receivable and Notes Receivable originated from operation)
- (2) Days Sales Outstanding = 365 / Average Collection Turnover
- (3) Average Inventory Turnover = Cost of Sales / Average Inventory
- (4) Average Inventory Turnover Days = 365 / Average Inventory Turnover
- (5) Average Payment Turnover = Cost of Sales / Average Trade Payables (including Accounts Payable and Notes Payable originated from operation)
- (6) Property, Plant and Equipment Turnover = Net Sales / Average Net Property, Plant and Equipment
- (7) Total Assets Turnover = Net Sales / Average Total Assets

#### 4. Profitability Analysis

- (1) Return on Total Assets = (Net Income + Interest Expenses \* (1 - Effective Tax Rate)) / Average Total Assets
- (2) Return on Equity = Net Income / Average Shareholders' Equity
- (3) Operating Income to Paid-in Capital Ratio = Operating Income / Paid-in Capital
- (4) Pre-tax Income to Paid-in Capital Ratio = Income before Tax / Paid-in Capital
- (5) Net Margin = Net Income / Net Sales
- (6) Earnings Per Share = (Net Income - Preferred Stock Dividend) / Weighted Average Number of Shares Outstanding

#### 5. Cash Flow

- (1) Cash Flow Ratio = Net Cash Provided by Operating Activities / Current Liabilities
- (2) Cash Flow Adequacy Ratio = Five-year Sum of Cash from Operations / Five-year Sum of Capital Expenditures, Inventory Additions, and Cash Dividend
- (3) Cash Flow Reinvestment Ratio = (Cash Provided by Operating Activities - Cash Dividends) / (Gross Property, Plant and Equipment + Long-term Investments + Other Noncurrent Assets + Working Capital)

#### 6. Leverage

- (1) Operating Leverage = (Net Sales - Variable Cost) / Income from Operations
- (2) Financial Leverage = Income from Operations / (Income from Operations - Interest Expenses)

## 6.1.4 Auditors' Opinions from 2017 to 2021

Year	CPA	Audit Opinion
2017	Yih-Hsin Kao, Yu-Feng Huang	An Unmodified Opinion
2018	Mei Yen Chiang, Yu-Feng Huang	An Unmodified Opinion
2019	Mei Yen Chiang, Yu-Feng Huang	An Unmodified Opinion
2020	Mei Yen Chiang, Yu-Feng Huang	An Unmodified Opinion
2021	Mei Yen Chiang, Shang Chih Lin	An Unmodified Opinion

Deloitte & Touche  
20F, No. 100, Songren Rd., Xinyi Dist., Taipei, Taiwan, R.O.C.  
Tel: 886-2-2725-9988

## 6.1.5 Audit Committee's Review Report

The Board of Directors has prepared the Company's 2021 Business Report, Financial Statements, and proposal for allocation of quarterly earnings. The CPA firm of Deloitte & Touche was retained to audit TSMC's Financial Statements and has issued an audit report relating to the Financial Statements. The Business Report, Financial Statements, and quarterly earnings allocation proposal have been reviewed and determined to be correct and accurate by the Audit Committee members of Taiwan Semiconductor Manufacturing Company Limited. According to relevant requirements of the Securities and Exchange Act and the Company Law, we hereby submit this report.

Taiwan Semiconductor Manufacturing Company Limited

Chairman of the Audit Committee: Sir Peter L. Bonfield



February 15, 2022

## 6.1.6 Financial Difficulties

The Company should disclose the financial impact to the Company if the Company and its affiliated companies have incurred any financial or cash flow difficulties in 2021 and as of the date of this Annual Report: None.

## 6.1.7 Consolidated Financial Statements and Independent Auditors' Report along with Parent Company Only Financial Statements and Independent Auditors' Report

Please refer to Annual Report section (II), Financial Statements.

## 6.2 Financial Status and Operating Results

### 6.2.1 Financial Status

#### Consolidated

Unit: NT\$ thousands

Item	2021	2020	Difference	%
Current Assets	1,607,072,907	1,092,185,308	514,887,599	47%
Long-term Investments (Note 1)	29,384,701	27,728,208	1,656,493	6%
Property, Plant and Equipment	1,975,118,704	1,555,589,120	419,529,584	27%
Right-of-use Assets	32,734,537	27,728,382	5,006,155	18%
Intangible Assets	26,821,697	25,768,179	1,053,518	4%
Other Assets (Note 2)	54,370,909	31,712,208	22,658,701	71%
Total Assets	3,725,503,455	2,760,711,405	964,792,050	35%
Current Liabilities	739,503,358	617,151,048	122,352,310	20%
Noncurrent Liabilities	815,266,892	292,938,358	522,328,534	178%
Total Liabilities	1,554,770,250	910,089,406	644,680,844	71%
Capital Stock	259,303,805	259,303,805	0	0%
Capital Surplus	64,761,602	56,347,243	8,414,359	15%
Retained Earnings	1,906,829,661	1,588,686,081	318,143,580	20%
Others	(62,608,515)	(54,679,873)	(7,928,642)	-15%
Equity Attributable to Shareholders of the Parent	2,168,286,553	1,849,657,256	318,629,297	17%
Total Equity	2,170,733,205	1,850,621,999	320,111,206	17%

Note 1: Long-term investments consist of noncurrent financial assets at fair value through other comprehensive income, noncurrent financial assets at amortized cost, and investments accounted for using equity method.

Note 2: Other assets consist of deferred income tax assets, refundable deposits, and other noncurrent assets.

#### ● Analysis of Deviation over 20%

Increase in current assets: The increase was mainly due to increase in cash and cash equivalents and inventories.

Increase in property, plant and equipment: The increase was mainly due to increase in equipment under installation and construction in progress.

Increase in other assets: The increase in other assets was mainly due to increase in deferred income tax assets.

Increase in total assets: The increase in total assets was mainly due to increase in current assets and property, plant and equipment.

Increase in current liabilities: The increase was mainly due to increase in short-term loans and accrued expenses and other current liabilities.

Increase in noncurrent liabilities: The increase was mainly due to issuance of corporate bonds in 2021 and increase in other noncurrent liabilities.

Increase in total liabilities: The increase was mainly due to increase in noncurrent liabilities.

Increase in retained earnings: The increase was mainly due to net income of 2021, partially offset by distribution of earnings.

#### ● Major Impact on Financial Position

The above deviations had no major impact on TSMC's financial position.

● Future Plan on Financial Position: Not applicable.

#### Unconsolidated

Unit: NT\$ thousands

Item	2021	2020	Difference	%
Current Assets	783,205,937	580,949,248	202,256,689	35%
Long-term Investments (Note 1)	603,640,944	565,432,338	38,208,606	7%
Property, Plant and Equipment	1,889,970,529	1,511,784,556	378,185,973	25%
Right-of-use Assets	30,123,052	25,184,827	4,938,225	20%
Intangible Assets	22,910,400	21,733,597	1,176,803	5%
Other Assets (Note 2)	48,644,283	28,420,547	20,223,736	71%
Total Assets	3,378,495,145	2,733,505,113	644,990,032	24%
Current Liabilities	704,833,370	680,529,735	24,303,635	4%
Noncurrent Liabilities	505,375,222	203,318,122	302,057,100	149%
Total Liabilities	1,210,208,592	883,847,857	326,360,735	37%
Capital Stock	259,303,805	259,303,805	0	0%
Capital Surplus	64,761,602	56,347,243	8,414,359	15%
Retained Earnings	1,906,829,661	1,588,686,081	318,143,580	20%
Others	(62,608,515)	(54,679,873)	(7,928,642)	-15%
Total Equity	2,168,286,553	1,849,657,256	318,629,297	17%

Note 1: Long-term investments consist of noncurrent financial assets at fair value through other comprehensive income and investments accounted for using equity method.

Note 2: Other assets consist of deferred income tax assets, refundable deposits, and other noncurrent assets.

#### ● Analysis of Deviation over 20%

Increase in current assets: The increase was mainly due to increase in cash and cash equivalents and inventories.

Increase in property, plant and equipment: The increase was mainly due to increase in equipment under installation and construction in progress.

Increase in right-of-use assets: The increase was mainly due to increase in leases of land.

Increase in other assets: The increase in other assets was mainly due to increase in deferred income tax assets.

Increase in total assets: The increase in total assets was mainly due to increase in current assets and property, plant and equipment.

Increase in noncurrent liabilities: The increase was mainly due to issuance of corporate bonds in 2021 and increase in other noncurrent liabilities.

Increase in total liabilities: The increase was mainly due to increase in noncurrent liabilities.

Increase in retained earnings: The increase was mainly due to net income of 2021, partially offset by distribution of earnings.

#### ● Major Impact on Financial Position

The above deviations had no major impact on TSMC's financial position.

● Future Plan on Financial Position: Not applicable.

## 6.2.2 Financial Performance

### Consolidated

Unit: NT\$ thousands

Item	2021	2020	Difference	%
Net Revenue	1,587,415,037	1,339,254,811	248,160,226	19%
Cost of Revenue	767,877,771	628,124,691	139,753,080	22%
Gross Profit	819,537,266	711,130,120	108,407,146	15%
Operating Expenses	169,222,934	145,056,549	24,166,385	17%
Other Operating Income and Expenses, Net	(333,435)	710,127	(1,043,562)	-147%
Income from Operations	649,980,897	566,783,698	83,197,199	15%
Non-operating Income and Expenses	13,145,417	17,993,482	(4,848,065)	-27%
Income before Income Tax	663,126,314	584,777,180	78,349,134	13%
Income Tax Expenses	66,053,180	66,619,098	(565,918)	-1%
Net Income	597,073,134	518,158,082	78,915,052	15%
Other Comprehensive Loss, Net of Income Tax	(7,619,456)	(30,321,802)	22,702,346	75%
Total Comprehensive Income for the Year	589,453,678	487,836,280	101,617,398	21%
Total Net Income Attributable to Shareholders of the Parent	596,540,013	517,885,387	78,654,626	15%
Total Comprehensive Income Attributable to Shareholders of the Parent	588,918,059	487,563,478	101,354,581	21%

#### • Analysis of Deviation over 20%

Increase in cost of revenue: The increase was mainly due to higher sales.

Decrease in other operating income and expenses, net: The decrease was mainly due to a net loss on disposal of property, plant and equipment in 2021 compared to a net gain on disposal of property, plant and equipment in 2020.

Decrease in non-operating income and expenses: The decrease was mainly due to lower interest income and higher interest expenses in 2021.

Decrease in other comprehensive loss, net of income tax: The decrease was mainly due to decrease in currency exchange loss arising from translation of foreign operations in 2021.

Increase in total comprehensive income for the year and total comprehensive income attributable to shareholders of the parent: The increase was mainly due to higher net income in 2021.

#### • Sales Volume Forecast and Related Information

For additional details, please refer to "1. Letter to Shareholders."

#### • Major Impact on Financial Performance

The above deviations had no major impact on TSMC's financial performance.

#### • Future Plan on Financial Performance: Not applicable.

### Unconsolidated

Unit: NT\$ thousands

Item	2021	2020	Difference	%
Net Revenue	1,574,745,881	1,314,793,013	259,952,868	20%
Cost of Revenue	786,116,844	632,788,990	153,327,854	24%
Gross Profit	788,629,037	682,004,023	106,625,014	16%
Operating Expenses	158,667,757	139,285,510	19,382,247	14%
Other Operating Income and Expenses, Net	(328,444)	746,994	(1,075,438)	-144%
Income from Operations	629,632,836	543,465,507	86,167,329	16%
Non-operating Income and Expenses	30,869,355	39,153,435	(8,284,080)	-21%
Income before Income Tax	660,502,191	582,618,942	77,883,249	13%
Income Tax Expenses	63,962,178	64,733,555	(771,377)	-1%
Net Income	596,540,013	517,885,387	78,654,626	15%
Other Comprehensive Loss, Net of Income Tax	(7,621,954)	(30,321,909)	22,699,955	75%
Total Comprehensive Income for the Year	588,918,059	487,563,478	101,354,581	21%

#### • Analysis of Deviation over 20%

Increase in net revenue: The increase was mainly attributed to rise in average selling price due to higher advanced technology revenue weighting and increase in wafer shipments during 2021, partially offset by the unfavorable impact of change in foreign exchange rate.

Increase in cost of revenue: The increase was mainly due to higher sales.

Decrease in other operating income and expenses, net: The decrease was mainly due to a net loss on disposal of property, plant and equipment in 2021 compared to a net gain on disposal of property, plant and equipment in 2020.

Decrease in non-operating income and expenses: The decrease was mainly due to lower share of profits of subsidiaries and associates in 2021.

Decrease in other comprehensive loss, net of income tax : The decrease was mainly due to decrease in currency exchange loss arising from translation of foreign operations in 2021.

Increase in total comprehensive income for the year: The increase was mainly due to higher net income in 2021.

#### • Sales Volume Forecast and Related Information

For additional details, please refer to "1. Letter to Shareholders."

#### • Major Impact on Financial Performance

The above deviations had no major impact on TSMC's financial performance.

#### • Future Plan on Financial Performance: Not applicable.

### 6.2.3 Cash Flow

#### Consolidated

Unit: NT\$ thousands

Cash Balance 12/31/2020	Net Cash Provided by Operating Activities in 2021	Net Cash Used in Investing Activities in 2021	Net Cash Generated by Financing Activities in 2021	Effect of Exchange Rate Changes on Cash and Cash Equivalents in 2021	Cash Balance 12/31/2021	Remedy for Liquidity Shortfall	
						Investment Plan	Financing Plan
660,170,647	1,112,160,722	(836,365,863)	136,608,438	(7,583,752)	1,064,990,192	None	None

#### • Analysis of Cash Flow

NT\$1,112.2 billion net cash generated by operating activities: mainly include net income, along with depreciation and amortization expenses.

NT\$836.4 billion net cash used in investing activities: primarily for capital expenditures.

NT\$136.6 billion net cash generated by financing activities: mainly for issuance of corporate bonds, partially offset by cash dividend payment.

#### • Remedial Actions for Liquidity Shortfall

As a result of positive operating cash flows and cash on-hand, remedial actions are not required.

#### • Cash Flow Projection for Next Year: Not applicable.

#### Unconsolidated

Unit: NT\$ thousands

Cash Balance 12/31/2020	Net Cash Provided by Operating Activities in 2021	Net Cash Used in Investing Activities in 2021	Net Cash Used in Financing Activities in 2021	Cash Balance 12/31/2021	Remedy for Liquidity Shortfall	
					Investment Plan	Financing Plan
303,165,717	1,083,932,185	(799,191,132)	(191,612,529)	396,294,241	None	None

#### • Analysis of Cash Flow

NT\$1,083.9 billion net cash generated by operating activities: mainly include net income, along with depreciation and amortization expenses.

NT\$799.2 billion net cash used in investing activities: primarily for capital expenditures.

NT\$191.6 billion net cash used in financing activities: mainly for decrease in short-term loans and cash dividend payment, partially offset by issuance of corporate bonds.

#### • Remedial Actions for Liquidity Shortfall

As a result of positive operating cash flows and cash on-hand, remedial actions are not required.

#### • Cash Flow Projection for Next Year: Not applicable.

### 6.2.4 Recent Years Major Capital Expenditures and Impact on Financial and Business

Unit: NT\$ thousands

Plan	Actual or Planned Source of Capital	Total Amount for 2021 and 2020	Actual Use of Capital	
			2021	2020
Production Facilities, R&D and Production Equipment	Cash flow generated from operations and issuance of corporate bonds	1,327,249,575	831,096,598	496,152,977
Others	Cash flow generated from operations	19,184,855	8,099,110	11,085,745
Total		1,346,434,430	839,195,708	507,238,722

Based on capital expenditures listed above, TSMC's annual production capacity increased by approximately 0.9 million 12-inch equivalent wafers in 2021.

### 6.2.5 Long-term Equity Investment Policy and Results

TSMC's long-term equity investments, accounted for using the equity method, were all made for strategic purposes. In 2021, the gains from these investments amounted to 5,603,084 thousand on a consolidated basis, up from the previous year mainly due to increases in product demand. In the future, TSMC's long-term equity investments, accounted for using the equity method, will continue to focus on strategic purposes through prudent assessments.

### 6.3 Risk Management

The Board of Directors plays a key role in helping TSMC identify and manage risks. According to the Audit Committee's charter, approved by the Board of Directors, the Audit Committee is authorized to review TSMC's enterprise risk management (ERM), including business continuity management policy and plans, ERM procedures and implementation status. The risk management organization annually briefs the Audit Committee on TSMC's ever-changing risk environment, the key points of TSMC's ERM, and risk assessment and mitigation efforts. The Audit Committee's Chairperson also reports to the Board of Directors on the risk environment and risk mitigation measures to be taken.

TSMC operates an ERM program based on its corporate vision and its long-term, sustainable responsibility to both industry and society, integrating and managing potential sustainability risks including strategic, operational, financial and hazardous risks. ERM seeks to provide the appropriate management of risks on behalf of all stakeholders. TSMC applies a risk management framework (including risk identification and assessment, risk control and mitigation, risk response, risk monitoring and reporting) and a risk map to assess the risk levels by defining likelihood and impact severity of events on TSMC's operations, and to prioritize controls and implement corresponding mitigation measures.

#### Scope of Risk Management

##### Strategic Perspective

- Changes in technology (including IT security) and industry
- Decrease in demand and average selling price
- Competition
- Changes in the government policies and regulatory environment

##### Operational Perspective

- Capacity expansion
- Construction of new fabs
- Sales concentration
- Purchasing concentration

- Intellectual property rights
- Litigious and non-litigious matters
- Mergers and acquisitions
- Recruiting quality personnel
- Future R&D plans and expected R&D spending
- Change in corporate reputation
- Change in management

#### Financial Perspective

- Interest rate fluctuation, foreign exchange volatility, inflation, and amendments to tax regulations or implementation of new tax laws
- External financing
- High-risk/highly leveraged investments; lending, endorsements, and guarantees for other parties; and financial derivative transactions
- Impairment charges

#### Hazardous Event Perspective

- Earthquakes and natural disaster
- Fire or chemical spills
- Climate change
- Pandemics
- Utility supply disruption

### Enterprise Risk Management Framework

#### Risk Identification and Assessment

- RM Steering Committee and Audit Committee of the Board of Directors review and approve implementation of risk management strategy and prioritization of risk controls
- RM Executive Council adopts risk map which assesses likelihood and impact of risk events on operations



#### Risk Control and Mitigation

- RM Program conducts cross-functional risk communication to facilitate each function for enhancing risk prevention and mitigation controls
- RM Executive Council implements risk controls and improves continuously
- Each department includes the effectiveness of risk controls into annual self-assessment



#### Risk Response

- RM task forces establish crisis management and business continuity plans
- RM Program plans and implements the response and exercise for material crisis events
- Each department implements the planning and execution of business continuity plan



#### Risk Monitoring and Reporting

- Risk management organization reports to RM Steering Committee and Audit Committee on the focus of enterprise risk management, risk assessment, and mitigation efforts

To mitigate the TSMC's operational impacts of crisis events, TSMC's risk management organization conducts pre-crisis risk assessment and identifies feasible strategies for crisis prevention. Response procedures and recovery plans are established for various scenarios. For specific severe crisis events involving multiple TSMC manufacturing sites, the cross-functional central crisis command center, composed of operations and support functions, is responsible for direction and internal coordination to speed up TSMC's response time to crisis event and proactively communicate with stakeholders. To raise risk awareness and strengthen the risk management culture in TSMC, RM task forces have been formed to enhance risk assessment and conduct crisis response exercises for potential critical events such as fire, earthquake, IT service disruption, IT security breach, supply chain disruption, major yield loss, and utility supply disruption. In order to continuously mitigate corporate risks, crisis response exercises are used to test the integrity of ERM and effectiveness of risk controls.

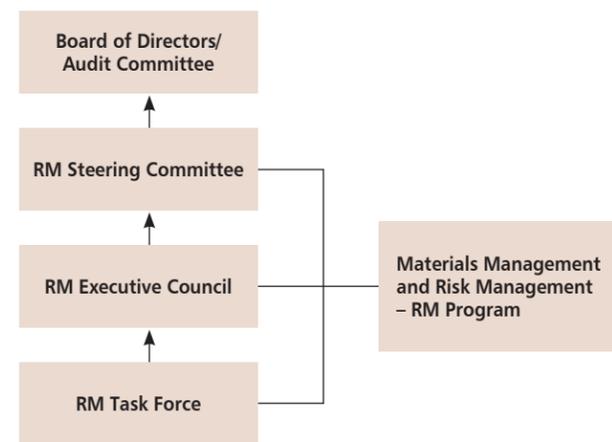
To mitigate supply chain disruption risks, TSMC has created a task force comprised of members of fab operations, materials management, risk management and quality systems management to work with suppliers to develop business continuity plans and enhance supply chain resilience. Partly as a result of these efforts, there were no interruptions in TSMC's supply chain in 2021.

As production capacity continues to expand with more advanced technology, TSMC has initiated and implemented seismic protection engineering design, risk treatment practices and green manufacturing projects during the design phase of all new fabs.

### 6.3.1 Risk Management Organization and Implementation Status

The TSMC risk management organization is composed of the RM steering committee, the RM executive council, the RM program and the RM task force. The role and responsibility of the risk management organization and its implementation status are summarized as follows:

#### Risk Management Organization Chart



#### RM Steering Committee

- Consist of functional heads, with internal audit head sitting in as an observer
- Report to the Audit Committee of the Board of Directors
- Advise and approve risk control prioritization
- Supervise continuous improvements for risk management

#### RM Executive Council

- Consist of director-level representatives from each function
- Identify and implement risk control plans
- Continuously improve risk management practices and effectiveness

#### RM Program

- Consolidate ERM reports and update the RM Steering Committee
- Coordinate and facilitate the RM Executive Council's risk management activities
- Facilitate RM task forces to enhance the effectiveness of risk controls

#### RM Task Force

- Identify potential scenarios and business impacts
- Plan and execute risk prevention and mitigation actions in accordance with various scenarios
- Establish crisis management procedures and conducts exercises

#### The Implementation in 2021

##### Systemic Risk Management Enhancement

- In addition to current risk identification and assessment, compliance check, lessons learned from internal and external incidents, and benchmarking, a series of risk interviews and analysis are conducted to identify any unknown systemic risks and risk control measures to be enhanced. TSMC

continuously improves the effectiveness of risk controls and risk culture through cross-functional collaborations.

#### Continue Existing Risk Management Organization's Activities

- For enterprise risks, each RM task forces conduct risk assessment and lesson-learned from incidents, identify potential risk scenarios continuously, plan and implement risk prevention and mitigation measures, emergency response, crisis management and corresponding exercises.
- The RM executive council reviews and follows up on the progress and results of RM task force activities, including the response to systemic risks and emerging risks, improving opportunities identified from compliance checks, and sharing and learning of best practices.
- The RM steering committee advises and approves the risk map and the prioritization of risk controls and review the continuous improvement in managing systemic risks.

### 6.3.2 Strategic Risks

#### Risks Associated with Changes in Technology and Industry

##### • Industry Developments

The electronics industries and semiconductor market are cyclical and subject to significant and often rapid fluctuations in product demand, which could impact TSMC's semiconductor foundry business. Variations in order levels from TSMC's customers may result in volatility in the Company's revenue and earnings.

From time to time, the electronics and semiconductor industries have experienced significant and occasionally prolonged periods of downturns and overcapacity. Because TSMC is, and will continue to be, dependent on the requirements of electronics and semiconductor companies for its services, periods of downturns and overcapacity in the general electronics and semiconductor industries could lead to reduced demand for overall semiconductor foundry services, including TSMC's services. If TSMC cannot take appropriate actions, such as reducing its costs to sufficiently offset declines in demand, the Company's revenue, margin and earnings will likely suffer during periods of downturns and overcapacity.

##### • Changes in Technology

The semiconductor industry and its technologies are constantly changing. TSMC competes by developing process technologies using increasingly advanced nodes and on manufacturing products with more functions. The Company also competes by developing new derivative technologies. If TSMC does not anticipate these changes in technologies and rapidly develop new and innovative technologies, or the Company's

competitors unforeseeably gain sudden access to additional technologies, TSMC may not be able to provide foundry services on competitive terms. In addition, TSMC's customers have significantly decreased the time in which their products or services are launched into the market. If TSMC is unable to meet these shorter product time-to-market, it risks losing these customers. These factors have also been intensified by the shift of the global technology market to consumer driven products, such as smartphones, and increasing competition and concentration of customers (all further discussed separately among these risk factors).

Also, the uncertainty and instability inherent in advanced technologies also impose challenges for achieving expected product quality and product yield. If TSMC fails to maintain quality, it may result in loss of revenue and additional cost, as well as loss of business or customer trust. For example, in January 2019, the Company discovered yield problems in 12-nanometer and 16-nanometer wafers caused by a batch of photoresist, which resulted in delayed delivery of products and had a negative effect on TSMC's gross margin and operating margin in the first quarter of 2019. To reduce future risks of such incidences, the Company has since strengthened inline wafer inspection and tightened control of incoming material to deal with the increasing complexity of leading-edge technologies. If TSMC is unable to innovate new technologies that meet the demand of its customers or overcome the above factors, it may become less competitive and its revenue may decline significantly.

Regarding the response measures for the above-mentioned risks, please refer to "2.2.4 TSMC Position, Differentiation and Strategy" on pages 14-16 of this Annual Report.

##### • IT Security

Even though TSMC has established a comprehensive internet and computing security network, the Company cannot guarantee that its computing systems which control or maintain vital corporate functions, such as its manufacturing operations and enterprise accounting, would be completely immune to crippling cyberattacks. In the event of a serious cyberattack, TSMC's systems may lose important corporate data or its production lines may be shut down pending the resolution of such attack. Major cyberattacks could also lead to loss or divulgence of trade secrets and other sensitive information, such as proprietary information of our customers and other stakeholders and personal information of our employees. While TSMC seeks to continuously review and assess its cybersecurity policies and procedures to ensure their adequacy and effectiveness, the Company cannot guarantee

that it will not be susceptible to new and emerging risks and attacks in the evolving landscape of cybersecurity threats.

Malicious hackers may also try to introduce computer viruses, corrupted software or ransomware into TSMC's network systems to disrupt its operations, blackmail it to regain control of its computing systems, or spy on it for sensitive information. These attacks may result in TSMC having to pay damages for its delayed or disrupted orders or incur significant expense in implementing remedial and improvement measures to further enhance its cybersecurity network, and may also expose the Company to significant legal liabilities arising from or related to legal proceedings or regulatory investigations associated with such breaches.

In the past, TSMC experienced and may in the future be subject to attacks by malicious software contained in the equipment the Company purchases and installs. TSMC has implemented and continually updates rigorous cybersecurity measures to prevent and minimize harm caused by such attacks. Such measures include advanced virus scanning tools to prevent a fab from installing virus-infected software, strengthening firewall and network controls to prevent computer viruses from spreading among tools and fabs, the installation of anti-virus and advanced malware detection solutions across Company computer devices, and enhancement of data center security through faster patch cycle times. In addition, TSMC has deployed secure PCs and laptops, developed a public cloud security policy with monitoring, defined and regularly reviewed the security key performance indicators (KPI), introduced new technology for data protection, and improved email phishing detection and regularly performed employee awareness testing. TSMC also established an integrated and automatic security operation platform, enhanced the automation of cybersecurity event detection and response, enhanced internal assessment automation, practiced the response to ransomware attacks and conducted external security risk assessments. In addition, to reduce supply chain risks, through collaboration, TSMC helped major suppliers improve their security maturity with KPI monitoring and share with them industry security events and best practices on demand and by schedule. Moreover, TSMC led the SEMI standard taskforce to formulate and release information security standards for semiconductor equipment (SEMI E187) to help improve the resilience of semiconductor supply chain. While these ongoing enhancements further improve Company's cybersecurity defense solutions, there can be no assurance that the Company is immune to cyberattacks.

In addition, TSMC employs certain third-party service providers for itself and its affiliates worldwide with whom it needs to

share highly sensitive and confidential information to enable them to provide the relevant services. Despite requiring the third-party service providers to strictly fulfill the confidentiality and/or internet security requirements in its service agreements with them, there is no assurance that each of them will comply with such obligations. Moreover, such third-party service providers may also be susceptible to cyberattacks. If TSMC or its service providers are not able to timely resolve the respective technical difficulties caused by such cyberattacks, or ensure the integrity and availability of its data (and data belonging to its customers and other third parties) or maintain control of its or its service providers' computing systems, the Company's commitments to its customers and other stakeholders may be materially impaired and its results of operations, financial condition, prospects and reputation may also be materially and adversely affected.

#### **Risks Associated with Decrease in Demand and Average Selling Price**

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

#### **Risks Associated with Competition**

The markets for TSMC's foundry services are highly competitive. The Company competes with other foundry service providers, as well as a number of integrated device manufacturers. Some of these companies may have access to more advanced

technologies than TSMC. Other companies may have greater financial and other resources than TSMC, such as the possibility of receiving direct or indirect government subsidies, economic stimulus funds, or other incentives that may be unavailable to TSMC. For example, Chinese companies are expected to be key players for new semiconductor fab development and fab equipment spending in part due to various incentives provided by the Chinese government. The governments of Europe, the United States, South Korea, and Japan also have incentive programs to incentivize developments of their domestic semiconductor industries. Although governments in certain of the countries or regions where TSMC is currently expanding or planning to expand its production capacity have extended or may in the future extend certain financial incentives to the Company, there is no assurance that TSMC will be able to apply for or receive such financial incentives at the levels TSMC expects or at all. Additionally, any financial incentives the Company receive may be subject to strict conditions, or the grantors could seek to recover any funds provided to TSMC, or cancel, reduce or deny our requests subsidies or grants in the future. This could materially increase TSMC's operating costs and adversely affect its results of operations.

Furthermore, the Company's competitors may, from time to time, also decide to undertake aggressive pricing initiatives in one or several technology nodes. These competitive activities may decrease TSMC's customer base or its ASP, or both. If TSMC is unable to compete effectively with such new and aggressive competitors on technology, manufacturing capacity, product quality and customer satisfaction, it risks losing customers to such new contenders.

#### **Risks Associated with Changes in the Government Policies and Regulatory Environment**

TSMC management closely monitors all domestic and foreign governmental policies and regulations that might impact TSMC's business and financial operations. In 2021 and as of the date of this Annual Report, there were no governmental policies or regulatory changes would materially impact TSMC's operations or financial condition.

#### **6.3.3 Operational Risks**

##### **Risks Associated with Capacity Expansion**

TSMC performs long-term market demand forecasting for its products and services to manage its overall capacity. Based on its market demand forecasts, the Company has continued to add capacity to meet market needs for its products and services, including in Taiwan, in Nanjing, China, in Arizona, U.S., and in Kumamoto, Japan.

Implementing these capacity expansion plans will increase its costs, and the increases may be substantial. For example, the Company would need to build new facilities, purchase additional equipment and hire and train personnel to operate the new equipment. If TSMC does not increase its net revenue accordingly, its financial performance may be adversely affected by these increased costs.

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

In order to mitigate the risk associated with capacity expansion, TSMC continuously watches for changes in market conditions and works closely with its customers. When market demand is not as expected, the Company tries to adjust its capacity plans in a timely manner to reduce the impact on its financial performance.

##### **Risks Associated with Construction of New Fabs**

The Company has multiple expansion projects that are currently underway, including the design and construction of new fabs worldwide. Labor shortages, interruptions in the supply chains for various building materials, and construction issues could substantially delay the completion of our expansion projects. Any prolongation of such delays could result in us incurring substantial additional costs or failing to meet our capacity expansion plans. In addition, future expansions of its operations in the R.O.C. could be limited by the limited availability of commercial-use land.

##### **Risks Associated with Sales Concentration**

Over the years, the profile of the Company's customers and the nature of the Company's customers' business have changed dramatically. While TSMC generates revenue from hundreds of customers worldwide, TSMC's ten largest customers in 2019, 2020 and 2021 accounted for approximately, 71%, 74% and 71% of TSMC's net revenue in the respective year. TSMC's largest customer in 2019, 2020 and 2021 accounted for 23%, 25% and 26% of the Company's net revenue in the respective year. TSMC's second largest customer in 2019, 2020 and 2021 accounted for 14%, 12% and 10% of TSMC's net revenue in the respective year.

A more concentrated customer base will subject TSMC's revenue to seasonal demand fluctuations from the Company's large customers, and cause different seasonal patterns in the Company's business. This customer concentration results in part from the changing dynamics of the electronics industry with the structural shift to mobile devices and applications and software that provide the content for such devices.

There are only a limited number of customers who are successfully exploiting this new business model paradigm. Also, TSMC has seen the changes of nature in its customers' business models in response to this new business model paradigm. For example, there is a growing trend toward the system companies developing their own designed semiconductors and working directly with semiconductor foundries which makes their products and services more marketable in a changing consumer market.

Also, since the global semiconductor industry is becoming increasingly competitive, some of TSMC's customers have engaged in industry consolidations in order to remain competitive. Such consolidations have taken the form of mergers and acquisitions. If more of TSMC's major customers consolidate, this will further decrease the overall number of the Company's customer pool. In addition, regulatory restrictions, such as export control directed at TSMC's major customers, could impact the Company's ability to supply products to those customers, reduce those customers' demand for TSMC's products and services and impact their business operations.

The loss of, or significant curtailment of purchases by, one or more of the Company's top customers, including curtailments due to increased competitive pressures, heightened regulatory scrutiny, industry consolidation, changes in applicable regulatory restrictions, product designs, manufacturing sourcing or outsourcing policies or practices of these customers, or the timing of customer or distributor inventory adjustments, or changes in its major customers' business models, may adversely affect TSMC's results of operations and financial condition.

#### **Risks Associated with Purchasing Concentration**

##### **• Raw Materials**

TSMC's production operations require that it obtain adequate supplies of raw materials, such as silicon wafers, gases, chemicals, and photoresist, on a timely basis and at commercially reasonable prices. In the past, shortages in the supply of some materials, whether by specific vendors or by the semiconductor industry generally, have resulted in occasional industry-wide price adjustments and delivery delays. Moreover, major natural disasters, trade barriers and political or economic

turmoil, including military conflicts and inflation occurring within the country of origin of such raw materials may also significantly disrupt the availability of such raw materials or increase their prices. Also, since TSMC procures some of its raw materials from sole-sourced suppliers, there is a risk that the Company's needs for such raw materials may not be met or that back-up supplies may not be readily available. Importation and domestic production limitations may also limit our ability to obtain adequate supplies of raw materials as well as materials of the necessary quality. In addition, recent trade tensions could result in increased prices or even unavailability of raw materials due to tariffs, export control or other non-tariff barriers. TSMC's revenue and earnings could decline if it is unable to obtain adequate supplies of the necessary raw materials in a timely manner or if there are significant increases in the costs of raw materials. To reduce the supply chain risk and to manage the cost effectively, TSMC commits resources toward developing new supply sources. Further, the Company continually encourages its suppliers to reduce their supply chain risk by decentralizing production plants and to improve their cost competitiveness by moving their production facilities to Taiwan from higher-cost areas.

Given that qualified backup suppliers are hard to find, TSMC engages early and extensively with primary suppliers on managing quality and capacity issues so as to be prepared for any unexpected need to ramp up or curtail production when the Company lacks sufficient time to re-tune its production process. For leading technology nodes, TSMC not only adopts world-class processes and facilities but also requires world-class materials. To streamline supply chain risk, the Company has increased supplier site audits and meetings to extend supply chain best practices to its upstream suppliers. In addition, in response to the rapid increase or decrease in production capacity of new products, TSMC has continued to improve its inventory monitoring system to achieve more accurate demand forecasts and ensure that the supply chain maintains sufficient inventory levels. The Company has established a supply chain risk assessment to ensure that critical suppliers meet various standards in labor, ethics, ESH (environmental, safety and health) and BCP (business continuity plan). Onsite audits are conducted regularly to encourage suppliers to take responsibility for their supply chain, as any regulatory violations or adverse environmental impact event, or failure to meet sustainability requirements could result in business reduction or termination.

##### **• Equipment**

The Company's operations and ongoing expansion plans depend on its ability to obtain an appropriate amount of equipment and related services from a limited number of suppliers in a market that is characterized from time to time

by limited supply and long delivery cycles. During such times, supplier-specific or industry-wide lead times for delivery can be longer than previously expected and the cost of ownership may intrinsically increase.

To better manage its supply chain, the Company has implemented various collaborative business models and risk management contingencies with suppliers to ensure supply and shorten the procurement lead times. However, if TSMC is unable to timely acquire the equipment and parts needed, the Company may fail to successfully implement its capacity expansion plans and exploit time sensitive business opportunities. Additionally, ongoing trade tensions or protectionist measures could result in increased prices for, or even unavailability of, key equipment, including as a result of necessary export licenses being delayed or denied, additional export control measures, and other tariff or non-tariff barriers. If TSMC is unable to obtain equipment in a timely manner to fulfill its customers' demand on technology and production capacity, or at a reasonable cost, its financial condition and results of operations could be negatively impacted.

#### **Risks Associated with Intellectual Property Rights**

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

The Company has received, from time to time, communications from third parties, including non-practicing entities and semiconductor companies, asserting that TSMC's technologies, its manufacturing processes, or the design IPs

of the semiconductors made by TSMC or the use of those semiconductors by its customers may infringe their patents or other intellectual property rights. Because of the nature of the industry, its market position, and the expansion of its manufacturing operations outside of Taiwan, the Company may receive an increased number of such communications in the future. The assertions made and lawsuits initiated by litigious, well-funded, non-practicing entities are particularly aggressive in their monetary demand and in seeking court-issued injunctions. Such lawsuits and assertions may increase TSMC's cost of doing business and may potentially be extremely disruptive if these asserting entities succeed in blocking the trade of products made and services offered by TSMC. Also, with the expansion of its manufacturing operations into certain non-R.O.C jurisdictions, it has faced increased challenges in managing risks of intellectual property misappropriation. Despite our efforts to adopt robust measures to mitigate the risk of intellectual property misappropriation in such new jurisdictions, we cannot guarantee that the protection measures we adopted will be sufficient to prevent us from potential infringements by others, or at all.

If the Company fails to obtain or maintain certain technologies or intellectual property licenses or fails to prevent our intellectual property from being misappropriated and, if litigation relating to alleged intellectual property matters occurs, it could: (1) prevent the Company from manufacturing particular products or selling particular services or applying particular technologies; and (2) reduce our ability to compete effectively against entities benefiting from our misappropriated intellectual property, which could reduce its opportunities to generate revenue.

The Company has taken related measures to minimize potential loss of shareholder value arising from intellectual property claims and litigation filed against it. These measures include: strategically obtaining licenses from certain semiconductor and other technology companies as needed; timely securing intellectual property rights originating within and outside of TSMC for defensive and/or offensive protection of TSMC technology and business; and aggressively defending against baseless litigation.

#### **Risks Associated with Litigious and Non-litigious Matters**

As is the case with many companies in the semiconductor industry, the Company has received from time to time communications from third parties asserting that its technologies, its manufacturing processes, or the design of the semiconductors made by TSMC or the use of those semiconductors by its customers may infringe upon their patents or other intellectual property rights. These assertions

have at times resulted in litigation by or against the Company and settlement payments by the Company. Irrespective of the validity of these claims, the Company could incur significant costs in the defense thereof or could suffer adverse effects on its operations. The Company is also subject to antitrust compliance requirements and scrutiny by governmental regulators in multiple jurisdictions. Any adverse results of such proceeding or other similar proceedings that may arise in those jurisdictions could harm TSMC's business and distract its management, and thereby have a material adverse effect on its results of operations or prospects, and subject the Company to potential significant legal liability.

In 2021 and as of the date of this Annual Report, TSMC is not currently a party to any material legal proceedings.

#### **Risks Associated with Mergers and Acquisitions**

In 2021 and as of the date of this Annual Report, TSMC had not conducted any merger or acquisition.

#### **Risks Associated with Recruiting Quality Personnel**

TSMC relies on the continued service and contribution of its management team, skilled technical and professional personnel. The Company's business could suffer from the inability to fulfill personnel needs with high quality professionals in a timely fashion caused by the loss of personnel, illegal talent poaching, immigration controls, or related changes in market demand for its products and services. Since there is fierce competition for talent recruitment, the Company cannot ensure timely fulfillment of its personnel demand.

In order to reduce the risk of talent recruitment challenges, TSMC encourages job rotation and employs an on-the-job training and certification system. In this way, employees can learn and enhance their work efficiency and effectiveness in the actual workplace. Moreover, TSMC creates multiple recruitment channels and continues to hire various top-notch, talented professionals from Taiwan and overseas. At the same time, the Company continues to expand industry-academic cooperation to meet outstanding talented individuals at an early Phase in order to recruit them in the future.

#### **Future R&D Plans and Expected R&D Spending**

For additional details, see "5.2.7 Future R&D Plans" on pages 95-96 of this Annual Report.

#### **Changes in Corporate Reputation and Impact on Company's Crisis Management**

TSMC has established an excellent reputation based on its core values of integrity, commitment, innovation and customer

trust. The Company's positive image also reflects outstanding operations, rigorous corporate governance and dedication to social responsibility by serving as a good corporate citizen. TSMC continues to pursue innovation in the economic, environmental and social dimensions.

In 2021, TSMC was honored with numerous awards for achievements in operations, corporate governance, patents, profit growth, investor relations, environmental protection, corporate sustainability and other fields. These included: the inaugural Terra Carta Seal Award launched by HRH The Prince of Wales' Sustainable Markets Initiative; the Taiwan Institute for Sustainable Energy 2021 Taiwan Corporate Sustainability Awards' Most Prestigious Sustainability Award – Top Ten Domestic Corporates, Best Sustainability Report Award, Cyclical Economy Leadership Award, Supply Chain Leadership Award, and Information Security Leadership Award; First Place in *CommonWealth Magazine's* Excellence in Corporate Social Responsibility Award for Large-Cap companies; ranked top 5% in the Taiwan Stock Exchange corporate governance evaluation; member of *Fortune Magazine's* 2021 World's Most Admired Companies and the 2021 Global 500; the R.O.C. Ministry of Economic Affairs Industrial Development Bureau's Energy Conservation Benchmark Award; the R.O.C. Environmental Protection Administration's Enterprise Green Procurement Award; membership in the *Corporate Knights* 100 Most Sustainable Corporations for 2021; membership in the 2021 Carbon Clean 200 list by *Corporate Knights* and *As You Sow*; and membership in the *Time Magazine* 100 Most Influential Companies. In addition, TSMC was selected as a part of the Dow Jones Sustainability Indices for the 21<sup>st</sup> consecutive year.

As TSMC strives to excel in corporate social responsibility, the Company also encourages employees to make innovative breakthroughs in how they think about things and do things, as well as nurture their empathy and broaden their horizons. In 2021, the ESG Steering Committee, led by Chairman Dr. Mark Liu, held the second "TSMC ESG AWARD," taking tangible action to encourage all employees to propose ideas for sustainability in the five ESG strategic directions, including green manufacturing, building a responsible supply chain, creating a diverse & inclusive workplace, talent development, and caring for the disadvantaged. The award further motivates TSMC colleagues to think innovatively about their work and implement corporate social responsibility. Compared with 785 sustainability proposals in the first year, the second annual ESG Award received 1,257 innovative ideas, adding new energy to the Company's culture of sustainability.

With its global reputation in mind, TSMC employs numerous preventative measures to address potential risks from earthquakes, fires, IT service disruption, yield loss, information security, supply chain disruption, pandemics, environmental events, and utility supply disruption. TSMC sets crisis response and recovery measures according to possible crisis events and maintains a "TSMC crisis command center control instruction" as well as a "TSMC emergency response procedure" to establish its emergency response command structure. TSMC also performs regular exercises for crisis scenarios to ensure that crisis response procedures are comprehensive. In 2021, TSMC received a rating of "low risk" from the Sustainability ESG Risk Rating.

TSMC holds monthly meetings of the Environment, Safety and Health Committee, which coordinates relevant departments in each fab to conduct regular emergency response drills and continuously improve their notification and operational procedures to ensure clear channels of communication to stakeholders in crisis management, with the public relations department serving as the designated gateway for external communications.

In the event of an emergency, all departments immediately deploy emergency response measures to eliminate or minimize impact on personnel safety, the surrounding environment, company property and manufacturing operations. Responders also alert the public relations department at the earliest stages of response to ensure timely, clear and consistent communication regarding the situation.

#### **Risks Associated with Change in Management**

In 2021 and as of the date of this Annual Report, there were no such risks for TSMC.

#### **6.3.4 Financial Risks**

##### **Economic Risks**

Any future systemic political, economic or financial crisis or market volatility, including but not limited to interest rate and foreign exchange rate fluctuations, inflation or deflation and changes in economic, fiscal and monetary policies in major economies, could cause revenue or profits for the semiconductor industry as a whole to decline dramatically, and if the economic conditions or financial conditions of the Company's customers were to deteriorate, the demand for its products and services may decrease and additional accounting related allowances may be required, which could reduce our operating income and net income.

##### **• Interest Rate Fluctuation**

TSMC is exposed to interest rate risks primarily in relation to its investment portfolio and outstanding debt. Changes in interest rates affect the interest earned on the Company's cash and cash equivalents and fixed income securities, the fair value of those securities, as well as the interest paid on its debt.

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

TSMC has entered and may in the future enter into interest rate derivatives to partially hedge interest rate risk on its fixed income investments and anticipated debt issuance. However, these hedges can offset only a limited portion of the financial impact from movements in interest rates.

All of the Company's short-term debt is floating-rate, hence a rise in interest rates may result in higher interest expense than expected. The majority of its long-term debt is fixed-rate and measured at amortized cost and, as such, changes in interest rates would not affect future cash flows or the carrying amount.

Certain of TSMC's fixed income investments are primarily based on the London Interbank Offered Rate (LIBOR), which will be replaced by alternative benchmark rates after June 30, 2023. The transition from LIBOR to alternative benchmark rates might result in a reduction in TSMC's interest income.

##### **• Foreign Exchange Volatility**

Substantially all of TSMC's sales are denominated in U.S. dollars and over half of its capital expenditures are denominated in currencies other than the NT dollar, primarily in U.S. dollars, Euros and Japanese yen. As a result, any significant fluctuations to its disadvantage in the exchange rate of the NT dollar against such currencies, in particular a weakening of the U.S. dollar against the NT dollar, would have an adverse impact on the Company's revenue and operating profit as expressed in NT

dollars. For example, every one percent depreciation of the U.S. dollar against the NT dollar would result in an approximately 0.4 percentage point decrease in the Company's operating margin based on its 2021 results.

Conversely, if the U.S. dollar appreciates significantly versus other major currencies, the demand for the products and services of TSMC's customers and for its goods and services will likely decrease, which will negatively affect the Company's revenue.

TSMC uses foreign currency derivative contracts, such as currency forwards or currency swaps, to protect against currency exchange rate risks associated with non-NT-dollar-denominated assets and liabilities and certain forecasted transactions. These hedges reduce, but do not entirely eliminate, the effect of foreign currency exchange rate movements on its assets and liabilities.

Fluctuations in the exchange rate between the U.S. dollar and the NT dollar may affect the U.S. dollar value of the Company's common shares and the market price of the Company's American Depositary Shares (ADSs) as well as any cash dividends paid in NT dollar on TSMC's common shares represented by ADSs.

#### ● Inflation

If inflation continues running higher, the Federal Reserve would take tightening monetary policy which could result in higher interest rates, adversely affecting the fair value of TSMC's fixed income investments and causing higher interest expenses of future debt issuance. In order to control the interest rate risk, TSMC closely monitors the market development and monetary policy. TSMC has entered – and may in the future enter – into interest rate derivatives to partially hedge the interest rate risk on its fixed income investments and anticipated debt issuance.

#### ● Amendments to Tax Regulations or Implementation of New Tax Laws

Any amendments to existing tax regulations or the implementation of any new tax laws in the jurisdictions in which TSMC operates its business may have an adverse effect on its net income.

While the Company is subject to tax laws and regulations in various jurisdictions in which it operates or conducts business, TSMC's principal operations are in the R.O.C. and it is exposed primarily to taxes levied by the R.O.C. government. Any unfavorable changes of tax laws and regulations in this jurisdiction could increase TSMC's effective tax rate and have

an adverse effect on its operating results. Further changes in the tax laws of foreign jurisdictions could arise as a result of the base erosion and profit shifting (BEPS) project that was undertaken by the Organisation for Economic Cooperation and Development (OECD). These changes may increase tax uncertainty and have an adverse effect on TSMC's operating results.

In order to control tax risk, the Company closely monitors all domestic and foreign governmental policies and regulations that might impact its financial operations. TSMC has established risk management procedures to collect information, analyze potential tax implications, and develop countermeasures.

#### Risks Associated with External Financing

In times of market instability, sufficient external financing may not be available to the Company on a timely basis, or on commercially reasonable terms to the Company, or at all. If sufficient external financing is not available when TSMC needs such financing to meet its capital requirements, the Company may be forced to curtail its expansion, modify plans or delay the deployment of new or expanded services until it obtains such financing.

#### Risks Associated with High-Risk/Highly Leveraged Investments; Lending, Endorsements, and Guarantees for Other Parties; and Financial Derivative Transactions

In 2021 and as of the date of this Annual Report, TSMC made no high-risk or highly leveraged financial investments. All financial derivative transactions engaged by TSMC were strictly for hedging and not for trading or speculative purposes. All guarantees and intercompany loans provided by TSMC and TSMC's subsidiaries were solely for TSMC and/or TSMC's wholly-owned subsidiaries. All guarantees and intercompany loans were in compliance with relevant rules and regulations.

To manage risks of various financial transactions, TSMC has established internal control policies and procedures based on sound financial and business practices, all in compliance with the relevant rules and regulations issued by the R.O.C. Financial Supervisory Commission. TSMC's policies and procedures include "Procedures for Financial Derivatives Transactions," "Procedures for Lending Funds to Other Parties," "Procedures for Acquisition or Disposal of Assets," and "Procedures for Endorsement and Guarantee."

#### Risks Associated with Impairment Charges

Under Taiwan-IFRSs, TSMC is required to evaluate its tangible assets, right-of-use assets and intangible assets for impairment

whenever triggering events or changes in circumstances indicate that the asset may be impaired. If certain criteria are met, TSMC is required to record an impairment charge. TSMC is not able to estimate the extent or timing of any impairment charge for future years. Any impairment charge required may have a material adverse effect on the Company's net income.

The determination of an impairment charge at any given time is mainly based on the projected results of operations over several years subsequent to that time. Consequently, an impairment charge is more likely to occur during a period when the Company's operating results are otherwise already depressed. See "Note 5. CRITICAL ACCOUNTING JUDGMENTS AND KEY SOURCES OF ESTIMATION AND UNCERTAINTY" in Annual Report section (II), Financial Statements for a discussion of how TSMC assesses if an impairment charge is required and, if so, how the amount is determined.

#### 6.3.5 Hazardous Risks

The frequency and severity of disruptive events, including damaging earthquakes, other natural disasters and extreme weather, have been increasing in part due to climate change or systemic regional geological changes. TSMC has manufacturing and other operations, and is expanding its production capacity, in locations that may experience natural disasters, such as flooding, earthquakes, tsunamis, typhoons, and droughts that may cause interruptions or shortages in the supply of utilities, such as water and electricity, which in turn could disrupt operations. In addition, TSMC's suppliers and customers also have operations in such locations. For example, most of TSMC's production facilities, as well as those of many of its suppliers and customers and upstream providers of complementary semiconductor manufacturing services, are located in Taiwan and Japan, areas susceptible to earthquakes, tsunamis, flooding, typhoons, and droughts from time to time that may cause shortages of electricity or water, or interruptions to TSMC's operations.

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

In 2021, Taiwan faced one of the worst droughts in decades. To cope with such severe weather events, the government placed restrictions on the supply and usage of water by industrial companies such as TSMC, which could also disrupt

TSMC's operations. In response, TSMC implemented its business continuity plans, including water conservation measures, the use of more secured water sources, water supplied by tank cars, stress tests and various exercises. As a result, there was no material impact to TSMC's business or operational performance.

TSMC has occasionally suffered power outages or surges in Taiwan caused by difficulties encountered by its electricity supplier, the Taiwan Power Company, or other power consumers on the same power grid. Some of these have resulted in interruptions to our operations. Such shortages or interruptions in electricity supply could further be exacerbated by changes in the energy policy of the government, which intends to make Taiwan a nuclear-free country by 2025. If the TSMC is unable to secure reliable and uninterrupted supply of electricity to power its manufacturing fabs within Taiwan, its ability to fill customers' orders would be severely jeopardized.

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

TSMC's future capacity expansions in the R.O.C. and elsewhere could be curtailed by shortages in water and electricity.

The ongoing COVID-19 pandemic may materially adversely affect TSMC's business and results of operations in several ways, including but not limited to: (1) interruption of the operations of TSMC's supply chains for equipment, parts and materials in terms of manufacturing, logistics, and manpower arrangements for tool installation; (2) significant fluctuation in TSMC customers' demands for certain products, leading to uncertainties for TSMC's capacity planning and also for meeting customer demand, which may harm TSMC's business with its customers and subject TSMC to the risk of legal disputes; and (3) potential production delays for TSMC's products due to forced factory or office closures or partial operation.

TSMC has formed an "Epidemic Prevention Committee" to identify, implement and monitor actions stemming from the dynamic exigencies of the pandemic, including but not limited to, health management of TSMC's employees, splitting operation and work from home arrangements, identification and control of high risk individuals, rapid investigation of confirmed cases, management of production inventory, supply chain management, and capacity management for demand changes. In 2021 and as of the date of this Annual Report, TSMC's current business and results of operations have not been materially affected by the pandemic. However, there is no certainty that the measures TSMC has taken will be sufficient

to mitigate further risks posed by the COVID-19 pandemic, and TSMC's ability to perform critical functions and to meet customers' needs could be materially adversely affected as a result. In addition, there is also a risk that any post-pandemic downward changes in consumers' demand for electronic products may, in turn, lead to reduced demand for and place downward pressure on the price of our products and services.

TSMC maintains a comprehensive risk management system dedicated to human safety, the conservation of natural resources and the protection of property. In order to cope effectively with emergencies and natural disasters, management at each facility has developed comprehensive plans and procedures that focus on risk prevention, emergency response, crisis management and business continuity. All TSMC manufacturing fabs have been ISO 14001 certified (environmental management) and ISO 45001 certified (occupational health and safety management). All manufacturing fabs in Taiwan have also been TOSHMS (Taiwan Occupational Safety and Health Management System) certified. New fabs will also attain the above certifications within 18 months after acquiring factory registration certification.

TSMC has further strengthened its business continuity management, which includes periodic risk assessment, risk mitigation, and the establishment of emergency taskforces when necessary, combined with the preparation of a thorough analysis of an emergency, its impact, alternative actions, and solutions for each possible scenario together with appropriate precautionary and/or recovery measures. Each taskforce is given the responsibility of ensuring TSMC's ability to minimize personal injury, business disruption and financial impact under the circumstances. TSMC periodically reviews its business continuity plans and revises them according to exercise results and implementation.

In response to the impact of the earthquake that occurred in Taiwan, TSMC continued to improve its earthquake emergency response, tool anchorage and seismic isolation facilities, and readiness for tool salvage and production recovery. These improvements have also been integrated into new fab design. TSMC's business continuity procedures were further enhanced through the compliance with ISO 22301.

TSMC and many of its suppliers use flammable and toxic materials in their manufacturing processes and are therefore subject to risks that cannot be completely eliminated arising from explosion, fire, or environmental influences. Although TSMC maintains multiple layers of risk prevention and protection, as well as fire and casualty insurance, TSMC's

risk management and insurance coverage may not always be sufficient to cover all of its potential losses. If any of TSMC's fabs or vendor facilities were to be damaged or cease operations as a result of an explosion, fire or environmental causes, it could reduce the TSMC's manufacturing capacity leading to the loss of important sales and customers and have a negative impact on TSMC's financial performance. In addition to periodic fire-protection inspections and firefighting drills, TSMC has also carried out a corporate-wide fire risk mitigation project focused on managerial and hardware improvements.

### **6.3.6 Risks Regarding Non-Compliance with Export Control, Environmental and Climate Change Related Laws, Regulations and Accords, and Failure to Timely Obtain Requisite Approvals Necessary for Conducting Business**

Because TSMC engages in manufacturing activities in multiple jurisdictions and conducts business with its customers located worldwide, such activities are subject to a myriad of governmental regulations. For example, the manufacturing, assembling and testing of TSMC's products require the use of metals, chemicals, and materials that are subject to environmental, climate-related, health and safety, and humanitarian conflict-free sourcing laws, regulations and guidelines issued worldwide.

The Company's failure to comply with any such laws or regulations, as amended from time to time, or its failure to comply with any information or document sharing requests from the relevant authorities in a timely manner could result in:

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

Complying with applicable laws and regulations, such as environmental and climate related laws and regulations, could also require TSMC, among other things, to do the following: (1) purchase, use or install remedial equipment; (2) implement remedial programs such as climate change mitigation programs; (3) modify its product designs and manufacturing processes, or incur other significant expenses such as obtaining renewable energy sources, renewable energy certificates or carbon credits, substitute raw materials or chemicals that may cost more or be less available for the Company's operations.

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

TSMC believes that climate change should be regarded as a significant corporate risk that must be managed to improve competitiveness. For TSMC's climate change related risks and control measures, see the "Climate Change and Energy Management" section under "7.2.1 Environmental Protection" on page 146-147 of this Annual Report.

### **6.3.7 Other Risks**

#### **Potential Impact and Risks Associated with Sales of Significant Numbers of Shares by TSMC's Directors, and/or Shareholders Who Own 10% or More of TSMC's Total Outstanding Shares**

The value of TSMC shareholders' investment may be reduced by possible future sales of TSMC shares owned by major shareholders.

As of the date of this Annual Report, no single shareholder owned 10% or more of TSMC's total outstanding shares.

#### **Risks of Trade Policies**

As TSMC's revenue is primarily derived from sales to customers in major global markets (please refer to "2.2.4 TSMC Position, Differentiation and Strategy" on page 14-16 of this annual report), any changes in the trade policies of major economic

regions – such as the increase of tariffs on certain products, the implementation of import and export controls, or the adoption of other trade barriers – could affect TSMC sales or those of its customers and thereby affect the Company's operating results. TSMC continues to monitor the recent shifts in trade policies and measures among the relevant major economies and will take appropriate actions in accordance with subsequent developments.

In May 2020 and again in August 2020, the U.S. tightened its export control measures against Huawei Technology Co. Ltd. and its affiliates (collectively, "Huawei"), including an expanded license requirement for providing Huawei with items subject to the U.S. export control jurisdiction. To comply with relevant laws and regulations, we have discontinued shipment of products to Huawei since September 15, 2020. On the other hand, measures adopted by an affected country to counteract impacts of another country's actions or regulations could lead to significant legal liability to multinational corporations including our own. For example, in January 2021, China adopted a blocking statute that, among other matters, entitles Chinese entities incurring damages from a multinational's compliance with foreign laws to seek civil remedies. Additionally, in February 2022, several countries and regions began to impose various measures, including sanctions and export controls, against Russia, including certain individuals and entities, as a result of the military conflict in Ukraine. Imposition of trade barriers, including protectionist measures, sanctions and import and export controls, could increase our manufacturing costs, limit our access to certain supplies and make our pricing less competitive.

In 2021 and as of the date of this annual report, our current results of operations have not been materially affected. Nevertheless, depending on future developments of global trade tensions, such relevant regulations, rules, or measures may have an adverse impact on our business and operations, and we may incur significant legal liability and financial losses as a result.

TSMC continues to monitor the recent shifts in trade policies and measures among the relevant major economies and will take corresponding responsive actions in accordance with subsequent developments.

#### **Other Material Risks**

In 2021 and as of the date of this Annual Report, TSMC's management was not aware of any other risk that could potentially have a material impact on the financial status of the Company.