

**Taiwan Semiconductor Manufacturing
Company Limited and Subsidiaries**

**Consolidated Financial Statements for the
Three Months Ended March 31, 2019 and 2018 and
Independent Auditors' Review Report**

INDEPENDENT AUDITORS' REVIEW REPORT

The Board of Directors and Shareholders
Taiwan Semiconductor Manufacturing Company Limited

Introduction

We have reviewed the accompanying consolidated balance sheets of Taiwan Semiconductor Manufacturing Company Limited and its subsidiaries (collectively, the "Company") as of March 31, 2019 and 2018 and the consolidated statements of comprehensive income, changes in equity and cash flows for the three-month periods then ended, and the notes to the consolidated financial statements, including a summary of significant accounting policies. Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with the Regulations Governing the Preparation of Financial Reports by Securities Issuers and International Accounting Standard 34 "Interim Financial Reporting" endorsed and issued into effect by the Financial Supervisory Commission of the Republic of China. Our responsibility is to express a conclusion on the consolidated financial statements based on our reviews.

Scope of Review

We conducted our reviews in accordance with Statement of Auditing Standards No. 65 "Review of Financial Information Performed by the Independent Auditor of the Entity". A review of consolidated financial statements consists of making inquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures. A review is substantially less in scope than an audit and consequently does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

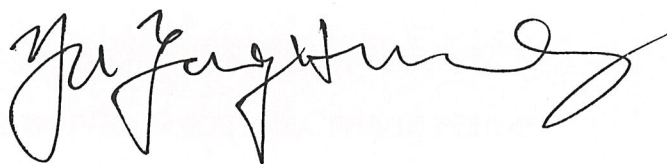
Conclusion

Based on our reviews, nothing has come to our attention that caused us to believe that the accompanying consolidated financial statements do not present fairly, in all material respects the consolidated financial position of the Company as of March 31, 2019 and 2018, and its consolidated financial performance and its consolidated cash flows for the three-month periods then ended in accordance with the Regulations Governing the Preparation of Financial Reports by Securities Issuers and International Accounting Standard 34 "Interim Financial Reporting" endorsed and issued into effect by the Financial Supervisory Commission of the Republic of China.

The engagement partners on the reviews resulting in this independent auditors' review report are Mei Yen Chiang and Yu Feng Huang.



Deloitte & Touche
Taipei, Taiwan
Republic of China



May 14, 2019

Notice to Readers

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

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

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED BALANCE SHEETS (In Thousands of New Taiwan Dollars)

ASSETS	March 31, 2019 (Reviewed)		December 31, 2018 (Audited)		March 31, 2018 (Reviewed)	
	Amount	%	Amount	%	Amount	%
CURRENT ASSETS						
Cash and cash equivalents (Note 6)	\$ 645,670,527	30	\$ 577,814,601	28	\$ 577,782,963	28
Financial assets at fair value through profit or loss (Note 7)	3,084,399	-	3,504,590	-	963,915	-
Financial assets at fair value through other comprehensive income (Note 8)	107,313,205	5	99,561,740	5	95,713,446	4
Financial assets at amortized cost (Note 9)	4,179,386	-	14,277,615	1	9,888,741	1
Hedging financial assets (Note 10)	969	-	23,497	-	26,357	-
Notes and accounts receivable, net (Note 11)	106,431,149	5	128,613,391	6	106,601,372	5
Receivables from related parties (Note 31)	309,821	-	584,412	-	1,179,312	-
Other receivables from related parties (Note 31)	48,674	-	65,028	-	130,070	-
Inventories (Note 12)	108,682,382	5	103,230,976	5	85,215,899	4
Other financial assets (Note 32)	10,521,565	-	18,597,448	1	11,667,264	1
Other current assets (Note 17)	5,082,738	-	5,406,423	-	39,947,321	2
Total current assets	991,324,815	45	951,679,721	46	929,116,660	45
NONCURRENT ASSETS						
Financial assets at fair value through other comprehensive income (Note 8)	3,837,734	-	3,910,681	-	6,035,904	-
Financial assets at amortized cost (Note 9)	7,864,421	-	7,528,277	-	10,033,241	1
Investments accounted for using equity method (Note 13)	18,336,458	1	17,865,838	1	18,307,517	1
Property, plant and equipment (Note 14)	1,107,651,816	51	1,072,050,279	51	1,055,366,207	51
Right-of-use assets (Notes 4 and 15)	19,043,554	1	-	-	-	-
Intangible assets (Note 16)	17,974,017	1	17,002,137	1	13,674,295	1
Deferred income tax assets (Note 4)	16,959,414	1	16,806,387	1	12,987,042	1
Refundable deposits	2,839,161	-	1,700,071	-	2,121,209	-
Other noncurrent assets (Note 17)	1,605,395	-	1,584,647	-	1,513,731	-
Total noncurrent assets	1,196,111,970	55	1,138,448,317	54	1,120,039,146	55
TOTAL	\$ 2,187,436,785	100	\$ 2,090,128,038	100	\$ 2,049,155,806	100
LIABILITIES AND EQUITY						
CURRENT LIABILITIES						
Short-term loans (Notes 18 and 29)	\$ 76,592,550	4	\$ 88,754,640	4	\$ 56,731,350	3
Financial liabilities at fair value through profit or loss (Note 7)	151,079	-	40,825	-	170,673	-
Hedging financial liabilities (Note 10)	111,374	-	155,832	-	79,182	-
Accounts payable	27,100,909	1	32,980,933	2	27,817,670	1
Payables to related parties (Note 31)	560,941	-	1,376,499	-	1,224,307	-
Salary and bonus payable	8,896,829	-	14,471,372	1	10,201,325	1
Accrued profit sharing bonus to employees and compensation to directors and supervisors (Notes 21 and 28)	28,088,332	1	23,981,154	1	29,529,009	1
Payables to contractors and equipment suppliers	76,970,966	4	43,133,659	2	47,828,289	2
Income tax payable (Note 4)	45,719,763	2	38,987,053	2	44,096,800	2
Long-term liabilities - current portion (Notes 19 and 29)	48,100,000	2	34,900,000	2	49,356,740	2
Accrued expenses and other current liabilities (Notes 15, 20, 22 and 29)	65,974,891	3	61,760,619	3	75,199,897	4
Total current liabilities	378,267,634	17	340,542,586	17	342,235,242	16
NONCURRENT LIABILITIES						
Bonds payable (Notes 19 and 29)	35,300,000	2	56,900,000	3	83,400,000	4
Deferred income tax liabilities (Note 4)	204,933	-	233,284	-	285,644	-
Lease liabilities (Notes 4, 15 and 29)	16,907,533	1	-	-	-	-
Net defined benefit liability (Note 4)	9,389,230	-	9,651,405	-	8,818,705	1
Guarantee deposits (Notes 20 and 29)	1,820,748	-	3,353,378	-	5,991,361	-
Others	2,029,105	-	1,950,989	-	1,819,825	-
Total noncurrent liabilities	65,651,549	3	72,089,056	3	100,315,535	5
Total liabilities	443,919,183	20	412,631,642	20	442,550,777	21
EQUITY ATTRIBUTABLE TO SHAREHOLDERS OF THE PARENT						
Capital stock (Note 21)	259,303,805	12	259,303,805	12	259,303,805	13
Capital surplus (Note 21)	56,320,688	2	56,315,932	3	56,305,751	3
Retained earnings (Note 21)						
Appropriated as legal capital reserve	276,033,811	13	276,033,811	13	241,722,663	12
Appropriated as special capital reserve	26,907,527	1	26,907,527	1	-	-
Unappropriated earnings	1,135,004,816	52	1,073,706,503	52	1,082,967,237	53
	1,437,946,154	66	1,376,647,841	66	1,324,689,900	65
Others (Note 21)	(10,725,023)	-	(15,449,913)	(1)	(34,401,067)	(2)
Equity attributable to shareholders of the parent	1,742,845,624	80	1,676,817,665	80	1,605,898,389	79
NON - CONTROLLING INTERESTS	671,978	-	678,731	-	706,640	-
Total equity	1,743,517,602	80	1,677,496,396	80	1,606,605,029	79
TOTAL	\$ 2,187,436,785	100	\$ 2,090,128,038	100	\$ 2,049,155,806	100

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

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(In Thousands of New Taiwan Dollars, Except Earnings Per Share)

(Reviewed, Not Audited)

	Three Months Ended March 31			
	2019		2018	
	Amount	%	Amount	%
NET REVENUE (Notes 22, 31 and 37)	\$ 218,704,469	100	\$ 248,078,671	100
COST OF REVENUE (Notes 12, 28, 31 and 35)	<u>128,352,344</u>	<u>59</u>	<u>123,103,977</u>	<u>50</u>
GROSS PROFIT BEFORE REALIZED (UNREALIZED) GROSS PROFIT ON SALES TO ASSOCIATES	90,352,125	41	124,974,694	50
REALIZED (UNREALIZED) GROSS PROFIT ON SALES TO ASSOCIATES	<u>5,432</u>	<u>-</u>	<u>(117,155)</u>	<u>-</u>
GROSS PROFIT	<u>90,357,557</u>	<u>41</u>	<u>124,857,539</u>	<u>50</u>
OPERATING EXPENSES (Notes 28 and 31)				
Research and development	20,417,311	9	20,428,594	8
General and administrative	4,140,729	2	4,851,708	2
Marketing	<u>1,459,973</u>	<u>1</u>	<u>1,448,092</u>	<u>1</u>
Total operating expenses	<u>26,018,013</u>	<u>12</u>	<u>26,728,394</u>	<u>11</u>
OTHER OPERATING INCOME AND EXPENSES, NET (Notes 14, 15 and 28)	<u>(73,521)</u>	<u>-</u>	<u>(1,302,199)</u>	<u>-</u>
INCOME FROM OPERATIONS (Note 37)	<u>64,266,023</u>	<u>29</u>	<u>96,826,946</u>	<u>39</u>
NON-OPERATING INCOME AND EXPENSES				
Share of profits of associates	433,491	-	681,791	-
Other income (Note 23)	4,408,776	2	3,154,642	1
Foreign exchange gain (loss), net (Note 34)	230,682	-	(676,980)	-
Finance costs (Note 24)	(899,065)	-	(807,966)	-
Other gains and losses, net (Note 25)	<u>(258,255)</u>	<u>-</u>	<u>765,188</u>	<u>-</u>
Total non-operating income and expenses	<u>3,915,629</u>	<u>2</u>	<u>3,116,675</u>	<u>1</u>
INCOME BEFORE INCOME TAX	68,181,652	31	99,943,621	40
INCOME TAX EXPENSE (Notes 4 and 26)	<u>6,794,342</u>	<u>3</u>	<u>10,156,047</u>	<u>4</u>
NET INCOME	<u>61,387,310</u>	<u>28</u>	<u>89,787,574</u>	<u>36</u>

(Continued)

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(In Thousands of New Taiwan Dollars, Except Earnings Per Share)

(Reviewed, Not Audited)

	Three Months Ended March 31			
	2019		2018	
	Amount	%	Amount	%
OTHER COMPREHENSIVE INCOME (LOSS)				
(Notes 21 and 26)				
Items that will not be reclassified subsequently to profit or loss:				
Unrealized gain/(loss) on investments in equity instruments at fair value through other comprehensive income	\$ 53,541	-	\$ (19,507)	-
Gain (loss) on hedging instruments	(94,548)	-	37,282	-
Share of other comprehensive income of associates	248	-	62	-
Income tax benefit (expense) related to items that will not be reclassified subsequently	(18,051)	-	39,206	-
	<u>(58,810)</u>	<u>-</u>	<u>57,043</u>	<u>-</u>
Items that may be reclassified subsequently to profit or loss:				
Exchange differences arising on translation of foreign operations	3,218,078	1	(6,476,486)	(3)
Unrealized gain/(loss) on investments in debt instruments at fair value through other comprehensive income	1,448,390	1	(727,410)	-
Share of other comprehensive income (loss) of associates	8,328	-	(39,352)	-
	<u>4,674,796</u>	<u>2</u>	<u>(7,243,248)</u>	<u>(3)</u>
Other comprehensive income (loss) for the period, net of income tax	<u>4,615,986</u>	<u>2</u>	<u>(7,186,205)</u>	<u>(3)</u>
TOTAL COMPREHENSIVE INCOME FOR THE PERIOD	<u>\$ 66,003,296</u>	<u>30</u>	<u>\$ 82,601,369</u>	<u>33</u>
NET INCOME (LOSS) ATTRIBUTABLE TO:				
Shareholders of the parent	\$ 61,393,851	28	\$ 89,784,622	36
Non-controlling interests	(6,541)	-	2,952	-
	<u>\$ 61,387,310</u>	<u>28</u>	<u>\$ 89,787,574</u>	<u>36</u>
TOTAL COMPREHENSIVE INCOME (LOSS) ATTRIBUTABLE TO:				
Shareholders of the parent	\$ 66,009,819	30	\$ 82,596,052	33
Non-controlling interests	(6,523)	-	5,317	-
	<u>\$ 66,003,296</u>	<u>30</u>	<u>\$ 82,601,369</u>	<u>33</u>

(Continued)

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(In Thousands of New Taiwan Dollars, Except Earnings Per Share)

(Reviewed, Not Audited)

	Three Months Ended March 31	
	2019	2018
	Income Attributable to Shareholders of the Parent	Income Attributable to Shareholders of the Parent
EARNINGS PER SHARE (NT\$, Note 27)		
Basic earnings per share	<u>\$ 2.37</u>	<u>\$ 3.46</u>
Diluted earnings per share	<u>\$ 2.37</u>	<u>\$ 3.46</u>

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

(Concluded)

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(In Thousands of New Taiwan Dollars)
(Reviewed, Not Audited)

	Equity Attributable to Shareholders of the Parent														
	Capital Stock - Common Stock		Capital Surplus	Retained Earnings				Foreign Currency Translation Reserve	Others			Total	Total	Non-controlling Interests	Total Equity
	Shares (In Thousands)	Amount		Legal Capital Reserve	Special Capital Reserve	Unappropriated Earnings	Total		Unrealized Gain (Loss) on Financial Assets at Fair Value Through Other Comprehensive Income	Gain (Loss) on Hedging Instruments	Unearned Stock-Based Employee Compensation				
BALANCE, JANUARY 1, 2019	25,930,380	\$ 259,303,805	\$ 56,315,932	\$ 276,033,811	\$ 26,907,527	\$ 1,073,706,503	\$ 1,376,647,841	\$ (12,042,347)	\$ (3,429,324)	\$ 23,601	\$ (1,843)	\$ (15,449,913)	\$ 1,676,817,665	\$ 678,731	\$ 1,677,496,396
Net income (loss) for the three months ended March 31, 2019	-	-	-	-	-	61,393,851	61,393,851	-	-	-	-	-	61,393,851	(6,541)	61,387,310
Other comprehensive income (loss) for the three months ended March 31, 2019, net of income tax	-	-	-	-	-	-	-	3,226,397	1,484,119	(94,548)	-	4,615,968	4,615,968	18	4,615,986
Total comprehensive income (loss) for the three months ended March 31, 2019	-	-	-	-	-	61,393,851	61,393,851	3,226,397	1,484,119	(94,548)	-	4,615,968	66,009,819	(6,523)	66,003,296
Disposal of investments in equity instruments at fair value through other comprehensive income	-	-	-	-	-	(95,538)	(95,538)	-	95,538	-	-	95,538	-	-	-
Basis adjustment for gain on hedging instruments	-	-	-	-	-	-	-	-	-	12,434	-	12,434	12,434	-	12,434
Adjustments to share of changes in equities of associates	-	-	4,386	-	-	-	-	-	-	-	950	950	5,336	110	5,446
From share of changes in equities of subsidiaries	-	-	370	-	-	-	-	-	-	-	-	-	370	(370)	-
Increase in non-controlling interests	-	-	-	-	-	-	-	-	-	-	-	-	-	30	30
BALANCE, March 31, 2019	25,930,380	\$ 259,303,805	\$ 56,320,688	\$ 276,033,811	\$ 26,907,527	\$ 1,135,004,816	\$ 1,437,946,154	\$ (8,815,950)	\$ (1,849,667)	\$ (58,513)	\$ (893)	\$ (10,725,023)	\$ 1,747,845,624	\$ 671,978	\$ 1,743,517,602
BALANCE, JANUARY 1, 2018	25,930,380	\$ 259,303,805	\$ 56,309,536	\$ 241,722,663	\$ -	\$ 993,195,668	\$ 1,234,918,331	\$ (26,697,680)	\$ (524,915)	\$ 4,226	\$ (10,290)	\$ (27,228,659)	\$ 1,523,303,013	\$ 702,452	\$ 1,524,005,465
Net income for the three months ended March 31, 2018	-	-	-	-	-	89,784,622	89,784,622	-	-	-	-	-	89,784,622	2,952	89,787,574
Other comprehensive income (loss) for the three months ended March 31, 2018, net of income tax	-	-	-	-	-	-	-	(6,515,676)	(705,702)	32,808	-	(7,188,570)	(7,188,570)	2,365	(7,186,205)
Total comprehensive income (loss) for the three months ended March 31, 2018	-	-	-	-	-	89,784,622	89,784,622	(6,515,676)	(705,702)	32,808	-	(7,188,570)	82,596,052	5,317	82,601,369
Disposal of investments in equity instruments at fair value through other comprehensive income	-	-	-	-	-	(13,053)	(13,053)	-	13,053	-	-	13,053	-	-	-
Adjustments to share of changes in equities of associates	-	-	(3,825)	-	-	-	-	-	-	-	3,109	3,109	(716)	-	(716)
Donation from shareholders	-	-	40	-	-	-	-	-	-	-	-	-	40	6	46
Decrease in non-controlling interests	-	-	-	-	-	-	-	-	-	-	-	-	-	(1,135)	(1,135)
BALANCE, March 31, 2018	25,930,380	\$ 259,303,805	\$ 56,305,751	\$ 241,722,663	\$ -	\$ 1,082,967,237	\$ 1,324,689,900	\$ (33,213,356)	\$ (1,217,564)	\$ 37,034	\$ (7,181)	\$ (34,401,067)	\$ 1,605,898,389	\$ 706,640	\$ 1,606,605,029

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

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In Thousands of New Taiwan Dollars)

(Reviewed, Not Audited)

	Three Months Ended March 31	
	2019	2018
CASH FLOWS FROM OPERATING ACTIVITIES		
Income before income tax	\$ 68,181,652	\$ 99,943,621
Adjustments for:		
Depreciation expense	76,192,468	70,462,286
Amortization expense	1,355,336	1,035,591
Reversal of expected credit losses on investments in debt instruments	(4,885)	(1,757)
Finance costs	899,065	807,966
Share of profits of associates	(433,491)	(681,791)
Interest income	(4,408,776)	(3,154,189)
Loss on disposal or retirement of property, plant and equipment, net	421,408	582,384
Gain on disposal of intangible assets, net	-	(436)
Reversal of impairment loss on property, plant and equipment	(301,384)	-
Loss on financial instruments at fair value through profit or loss, net	338,047	28,142
Loss on disposal of investments in debt instruments at fair value through other comprehensive income, net	53,105	252,328
Loss from disposal of subsidiaries	4,598	-
Unrealized (realized) gross profit on sales to associates	(5,432)	117,155
Loss (gain) on foreign exchange, net	22,722	(1,205,272)
Dividend income	-	(453)
Gain arising from fair value hedges, net	(11,758)	(352)
Changes in operating assets and liabilities:		
Financial instruments at fair value through profit or loss	72,734	602,734
Notes and accounts receivable, net	20,639,442	13,296,988
Receivables from related parties	274,591	4,812
Other receivables from related parties	16,354	40,988
Inventories	(5,451,406)	(11,335,152)
Other financial assets	2,545,236	(3,143,144)
Other current assets	193,059	(1,402,930)
Other noncurrent assets	-	25,301
Accounts payable	(6,105,106)	(984,571)
Payables to related parties	(815,558)	(432,049)
Salary and bonus payable	(5,574,543)	(4,053,546)
Accrued profit sharing bonus to employees and compensation to directors and supervisors	4,107,178	6,109,874
Accrued expenses and other current liabilities	965,357	(5,776,314)
Net defined benefit liability	(262,175)	(31,999)
Cash generated from operations	152,907,838	161,106,215
Income taxes paid	(237,560)	(380,297)
Net cash generated by operating activities	<u>152,670,278</u>	<u>160,725,918</u>

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Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In Thousands of New Taiwan Dollars)

(Reviewed, Not Audited)

	Three Months Ended March 31	
	2019	2018
CASH FLOWS FROM INVESTING ACTIVITIES		
Acquisitions of:		
Financial instruments at fair value through profit or loss - debt instruments	\$ -	\$ (183,026)
Financial assets at fair value through other comprehensive income	(34,445,259)	(24,382,829)
Financial assets at amortized cost	(313,958)	-
Property, plant and equipment	(75,942,118)	(71,847,185)
Intangible assets	(2,101,026)	(222,548)
Proceeds from disposal or redemption of:		
Financial instruments at fair value through profit or loss - debt instruments	93,328	49,438
Financial assets at fair value through other comprehensive income	31,684,346	20,123,921
Financial assets at amortized cost	10,138,090	498,542
Property, plant and equipment	75,142	47,376
Intangible assets	-	492
Derecognition of hedging financial instruments	(227,383)	177,209
Interest received	4,575,286	3,139,610
Proceeds from government grants - property, plant and equipment	2,565,338	-
Proceeds from government grants - land use right and others	850,623	-
Other dividends received	-	453
Refundable deposits paid	(1,320,312)	(1,048,245)
Refundable deposits refunded	<u>179,430</u>	<u>187,602</u>
Net cash used in investing activities	<u>(64,188,473)</u>	<u>(73,459,190)</u>
CASH FLOWS FROM FINANCING ACTIVITIES		
Decrease in short-term loans	(12,262,255)	(5,774,830)
Repayment of bonds and interest - prepaid	-	(33,998,915)
Repayment of bonds	(8,400,000)	(16,800,000)
Repayment of the principal portion of lease liabilities	(588,088)	-
Interest paid	(1,188,528)	(998,257)
Guarantee deposits received	28,652	3,095
Guarantee deposits refunded	(2,456)	(57,230)
Donation from shareholders	-	46
Increase (decrease) in non-controlling interests	<u>30</u>	<u>(1,135)</u>
Net cash used in financing activities	<u>(22,412,645)</u>	<u>(57,627,226)</u>

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Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In Thousands of New Taiwan Dollars)

(Reviewed, Not Audited)

	<u>Three Months Ended March 31</u>	
	<u>2019</u>	<u>2018</u>
EFFECT OF EXCHANGE RATE CHANGES ON CASH AND CASH EQUIVALENTS	\$ <u>1,786,766</u>	\$ <u>(5,248,235)</u>
NET INCREASE IN CASH AND CASH EQUIVALENTS	67,855,926	24,391,267
CASH AND CASH EQUIVALENTS, BEGINNING OF PERIOD	<u>577,814,601</u>	<u>553,391,696</u>
CASH AND CASH EQUIVALENTS, END OF PERIOD	<u>\$ 645,670,527</u>	<u>\$ 577,782,963</u>

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

(Concluded)

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

FOR THE THREE MONTHS ENDED MARCH 31, 2019 and 2018

(Amounts in Thousands of New Taiwan Dollars, Unless Specified Otherwise)

(Reviewed, Not Audited)

1. GENERAL

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

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

The address of its registered office and principal place of business is No. 8, Li-Hsin Rd. 6, Hsinchu Science Park, Taiwan. The principal operating activities of TSMC's subsidiaries are described in Note 4.

2. THE AUTHORIZATION OF FINANCIAL STATEMENTS

The accompanying consolidated financial statements were reported to the Board of Directors and issued on May 14, 2019.

3. APPLICATION OF NEW AND REVISED INTERNATIONAL FINANCIAL REPORTING STANDARDS

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

Except for the following, the initial application of the amendments to the Regulations Governing the Preparation of Financial Reports by Securities Issuers and the IFRSs endorsed and issued into effect by the FSC did not have a significant effect on TSMC and its subsidiaries' (collectively as the "Company") accounting policies:

- 1) IFRS 16 "Leases"

IFRS 16 sets out the accounting standards for leases that supersedes IAS 17 "Leases", IFRIC 4 "Determining whether an Arrangement contains a Lease", and a number of related interpretations. Refer to Note 4 for information relating to the relevant accounting policies.

Definition of a lease

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

The Company as lessee

Except for payments for short-term leases which are recognized as expenses on a straight-line basis, the Company recognizes right-of-use assets and lease liabilities for all leases on the consolidated balance sheets. On the consolidated statements of comprehensive income, the Company presents the depreciation expense charged on right-of-use assets separately from the interest expense accrued on lease liabilities and computed using the effective interest method. On the consolidated statements of cash flows, cash payments for both the principal portion and the interest portion of lease liabilities are classified within financing activities.

The Company applies IFRS 16 retrospectively with the cumulative effect of the initial application recognized at the date of initial application but does not restate comparative information.

Leases agreements classified as operating leases under IAS 17, except for short-term leases, are measured at the present value of the remaining lease payments, discounted using the lessee's incremental borrowing rate on January 1, 2019. Right-of-use assets are measured at an amount equal to the lease liabilities, adjusted by the amount of any prepaid or accrued lease payments. Right-of-use assets are subject to impairment testing under IAS 36.

The Company applies the following practical expedients to measure right-of-use assets and lease liabilities on January 1, 2019 :

- a) The Company applies a single discount rate to a portfolio of leases with reasonably similar characteristics to measure lease liabilities.
- b) The Company accounts for those leases for which the lease term ends on or before December 31, 2019 as short-term leases.
- c) Except for lease payments, the Company excludes incremental costs of obtaining the lease from right-of-use assets on January 1, 2019.
- d) The Company determines lease terms (e.g. lease periods) based on the projected status on January 1, 2019, to measure lease liabilities.

The weighted average lessee's incremental borrowing rate used by the Company to calculate lease liabilities recognized on January 1, 2019 is 1.46%. The reconciliation between the lease liabilities recognized and the future minimum lease payments of non-cancellable operating lease on December 31, 2018 is presented as follows:

The future minimum lease payments of non-cancellable operating lease on December 31, 2018	\$ 20,849,585
Less: Recognition exemption for short-term leases	<u>(3,189,821)</u>
Undiscounted gross amounts on January 1, 2019	<u>\$ 17,659,764</u>
Discounted using the incremental borrowing rate on January 1, 2019	\$ 16,465,599
Add: Adjustments as a result of a different treatment of extension and purchase options	<u>3,438,016</u>
Lease liabilities recognized on January 1, 2019	<u>\$ 19,903,615</u>

The Company as lessor

Except for sublease transactions, the Company does not make any adjustments for leases in which it is a lessor, and accounts for those leases under IFRS 16 starting from January 1, 2019. On the basis of the remaining contractual terms and conditions on January 1, 2019, all of the Company's subleases are classified as operating leases.

Impact on assets, liabilities and equity on January 1, 2019

	Carrying Amount as of December 31, 2018	Adjustments Arising from Initial Application	Adjusted Carrying Amount as of January 1, 2019
Other current assets	\$ 5,406,423	\$ (118,242)	\$ 5,288,181
Right-of-use assets	-	20,082,875	20,082,875
Other noncurrent assets	1,584,647	<u>(77,171)</u>	1,507,476
Total effect on assets		<u>\$ 19,887,462</u>	
Accrued expenses and other current liabilities	61,760,619	\$ 2,627,334	64,387,953
Lease liabilities - noncurrent	-	17,269,317	17,269,317
Other noncurrent liabilities	1,950,989	<u>(9,189)</u>	1,941,800
Total effect on liabilities		<u>\$ 19,887,462</u>	
Total effect on equity		<u>\$ _____</u>	

- b. The IFRSs issued by IASB but not yet endorsed and issued into effect by FSC

<u>New, Revised or Amended Standards and Interpretations</u>	<u>Effective Date Issued by IASB</u>
Amendments to IFRS 3 "Definition of a Business"	January 1, 2020 (Note 1)
Amendments to IFRS 10 and IAS 28 "Sale or Contribution of Assets between an Investor and its Associate or Joint Venture"	To be determined by IASB
Amendments to IAS 1 and IAS 8 "Definition of Material"	January 1, 2020 (Note 2)

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

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

As of the date the accompanying consolidated financial statements were issued, the Company continues in evaluating the impact on its financial position and financial performance as a result of the initial adoption of the aforementioned standards or interpretations. The related impact will be disclosed when the Company completes the evaluation.

4. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Except for the following, the accounting policies applied in these consolidated financial statements are consistent with those applied in the consolidated financial statements for the year ended December 31, 2018.

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

Statement of Compliance

The accompanying consolidated financial statements have been prepared in conformity with the Regulations Governing the Preparation of Financial Reports by Securities Issuers and IAS 34, “Interim Financial Reporting,” endorsed and issued into effect by the FSC. The consolidated financial statements do not present all the disclosures required for a complete set of annual consolidated financial statements prepared under the IFRSs endorsed and issued into effect by the FSC (collectively, “Taiwan-IFRSs”).

Basis of Consolidation

The basis of preparation and the basis for the consolidated financial statements

The basis of preparation and the basis for the consolidated financial statements applied in these consolidated financial statements are consistent with those applied in the consolidated financial statements for the year ended December 31, 2018.

The subsidiaries in the consolidated financial statements

The detail information of the subsidiaries at the end of reporting period was as follows:

Name of Investor	Name of Investee	Main Businesses and Products	Establishment and Operating Location	Percentage of Ownership			Note
				March 31, 2019	December 31, 2018	March 31, 2018	
TSMC	TSMC North America	Selling and marketing of integrated circuits and other semiconductor devices	San Jose, California, U.S.A.	100%	100%	100%	-
	TSMC Europe B.V. (TSMC Europe)	Customer service and supporting activities	Amsterdam, the Netherlands	100%	100%	100%	a)
	TSMC Japan Limited (TSMC Japan)	Customer service and supporting activities	Yokohama, Japan	100%	100%	100%	a)
	TSMC Korea Limited (TSMC Korea)	Customer service and supporting activities	Seoul, Korea	100%	100%	100%	a)
	TSMC Partners, Ltd. (TSMC Partners)	Investing in companies involved in the design, manufacture, and other related business in the semiconductor industry and other investment activities	Tortola, British Virgin Islands	100%	100%	100%	a)
	TSMC Global, Ltd. (TSMC Global)	Investment activities	Tortola, British Virgin Islands	100%	100%	100%	-
	TSMC China Company Limited (TSMC China)	Manufacturing, selling, testing and computer-aided design of integrated circuits and other semiconductor devices	Shanghai, China	100%	100%	100%	-
	TSMC Nanjing Company Limited (TSMC Nanjing)	Manufacturing, selling, testing and computer-aided design of integrated circuits and other semiconductor devices	Nanjing, China	100%	100%	100%	b)
	VisEra Technologies Company Ltd. (VisEra Tech)	Engaged in manufacturing electronic spare parts and in researching, developing, designing, manufacturing, selling, packaging and testing of color filter	Hsin-Chu, Taiwan	87%	87%	87%	-
	VentureTech Alliance Fund II, L.P. (VTAF II)	Investing in new start-up technology companies	Cayman Islands	98%	98%	98%	a)
	VentureTech Alliance Fund III, L.P. (VTAF III)	Investing in new start-up technology companies	Cayman Islands	98%	98%	98%	a)
	TSMC Solar Europe GmbH	Selling of solar related products and providing customer service	Hamburg, Germany	-	100%	100%	a), c)

(Continued)

Name of Investor	Name of Investee	Main Businesses and Products	Establishment and Operating Location	Percentage of Ownership			Note
				March 31, 2019	December 31, 2018	March 31, 2018	
TSMC Partners	TSMC Development, Inc. (TSMC Development)	Investing in companies involved in the manufacturing related business in the semiconductor industry	Delaware, U.S.A.	100%	100%	100%	-
	TSMC Technology, Inc. (TSMC Technology)	Engineering support activities	Delaware, U.S.A.	100%	100%	100%	a)
	TSMC Design Technology Canada Inc. (TSMC Canada)	Engineering support activities	Ontario, Canada	100%	100%	100%	a)
	InveStar Semiconductor Development Fund, Inc. (ISDF)	Investing in new start-up technology companies	Cayman Islands	97%	97%	97%	a), d)
	InveStar Semiconductor Development Fund, Inc. (II) LDC. (ISDF II)	Investing in new start-up technology companies	Cayman Islands	97%	97%	97%	a), d)
TSMC Development	WaferTech, LLC (WaferTech)	Manufacturing, selling and testing of integrated circuits and other semiconductor devices	Washington, U.S.A.	100%	100%	100%	-
VTAF III	Growth Fund Limited (Growth Fund)	Investing in new start-up technology companies	Cayman Islands	100%	100%	100%	a)

(Concluded)

Note a: This is an immaterial subsidiary for which the consolidated financial statements are not reviewed by the Company's independent auditors.

Note b: Under the investment agreement entered into with the municipal government of Nanjing, China, the Company will make an investment in Nanjing in the amount of approximately US\$3 billion to establish a subsidiary operating a 300mm wafer fab with the capacity of 20,000 12-inch wafers per month, and a design service center.

Note c: TSMC Solar Europe GmbH has completed the liquidation procedures in March 2019.

Note d: The subsidiary is under liquidation procedures.

Leases

2019

For a contract that contains a lease component and non-lease component, the Company may elect to account for the lease and non-lease components as a single lease component.

The Company as lessor

Rental income from operating lease is recognized on a straight-line basis over the term of the lease.

The Company as lessee

Except for payments for low-value asset leases and short-term leases which are recognized as expenses on a straight-line basis, the Company recognizes right-of-use assets and lease liabilities for all leases at the commencement date of the lease.

Right-of-use assets are measured at cost. The cost of right-of-use assets comprises the initial measurement of lease liabilities adjusted for lease payments made at or before the commencement date, plus an estimate of costs needed to restore the underlying assets. Subsequent measurement is calculated as cost less accumulated depreciation and accumulated impairment loss and adjusted for changes in lease liabilities as a result of lease term modifications or other related factors. Right-of use assets are presented separately in the consolidated balance sheets.

Right-of-use assets are depreciated using the straight-line method from the commencement dates to the earlier of the end of the useful lives of the right-of-use assets or the end of the lease terms. If the lease transfers ownership of the underlying assets to the Company by the end of the lease terms or if the cost of right-of-use assets reflects that the Company will exercise a purchase option, the Company depreciates the right-of-use assets from the commencement dates to the end of the useful lives of the underlying assets.

Lease liabilities are measured at the present value of the lease payments. Lease payments comprise fixed payments, variable lease payments which depend on an index or a rate and the exercise price of a purchase option if the Company is reasonably certain to exercise that option. The lease payments are discounted using the lessee's incremental borrowing rates.

Subsequently, lease liabilities are measured at amortized cost using the effective interest method, with interest expense recognized over the lease terms. When there is a change in a lease term, a change in future lease payments resulting from a change in an index or a rate used to determine those payments, or a change in the assessment of an option to purchase an underlying asset, the Company remeasures the lease liabilities with a corresponding adjustment to the right-of-use assets. Lease liabilities are presented on a separate line in the consolidated balance sheets.

Variable lease payments that do not depend on an index or a rate are recognized as expenses in the periods in which they are incurred.

2018

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

The Company as lessor

Rental income from operating leases is recognized on a straight-line basis over the term of the lease.

The Company as lessee

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

Retirement Benefits

Pension cost for an interim period is calculated on a year-to-date basis by using the actuarially determined pension cost rate at the end of the prior financial year.

Taxation

Income tax expense represents the sum of the tax currently payable and deferred tax. The interim period income tax expense is accrued using the tax rate that would be applicable to expected total annual earnings, that is, the estimated average annual effective income tax rate applied to the pre-tax income of the interim period. When tax rate changes during the interim period, the effect of the change in tax rate relating to transactions recognized outside scope of profit or loss is recognized in full in the period in which the change in tax rate occurs. The effect of the change in tax rate relating to transactions recognized in profit or loss is incorporated into estimation of the average annual income tax rate, with corresponding effect recognized throughout the interim periods.

5. CRITICAL ACCOUNTING JUDGMENTS AND KEY SOURCES OF ESTIMATION AND UNCERTAINTY

Except for the following paragraphs, the same critical accounting judgments and key sources of estimates and uncertainty have been followed in these consolidated financial statements as were applied in the preparation of the Company's consolidated financial statements for the year ended December 31, 2018.

a. Lease terms - 2019

In determining a lease term, the Company considers all facts and circumstances that create an economic incentive to exercise or not to exercise an option, including any expected changes in facts and circumstances from the commencement date until the exercise date of the option. Main factors considered include contractual terms and conditions for the optional periods, the importance of the underlying asset to the lessee's operations, etc. The lease term is reassessed if a significant change in circumstances that are within the control of the Company occurs.

b. Lessees' incremental borrowing rates - 2019

In determining a lessee's incremental borrowing rate used in discounting lease payments, the Company mainly takes into account the market risk-free rates, the estimated lessee's credit spreads and secured status in a similar economic environment.

6. CASH AND CASH EQUIVALENTS

	March 31, 2019	December 31, 2018	March 31, 2018
Cash and deposits in banks	\$ 643,465,797	\$ 575,825,502	\$ 577,028,289
Government bonds	1,585,376	-	-
Commercial paper	496,779	759,499	754,674
Agency bonds	122,575	-	-
Repurchase agreements collateralized by corporate bonds	-	1,229,600	-
	<u>\$ 645,670,527</u>	<u>\$ 577,814,601</u>	<u>\$ 577,782,963</u>

Deposits in banks consisted of highly liquid time deposits that were readily convertible to known amounts of cash and were subject to an insignificant risk of changes in value.

7. FINANCIAL ASSETS AND LIABILITIES AT FAIR VALUE THROUGH PROFIT OR LOSS

	March 31, 2019	December 31, 2018	March 31, 2018
<u>Financial assets</u>			
Mandatorily measured at FVTPL			
Agency mortgage-backed securities	\$ 2,973,659	\$ 3,419,287	\$ 754,545
Forward exchange contracts	110,740	85,303	113,426
Asset-backed securities	-	-	95,944
	<u>\$ 3,084,399</u>	<u>\$ 3,504,590</u>	<u>\$ 963,915</u>
<u>Financial liabilities</u>			
Held for trading			
Forward exchange contracts	\$ 151,079	\$ 40,825	\$ 170,673

The Company entered into derivative contracts to manage exposures due to fluctuations of foreign exchange rates. These derivative contracts did not meet the criteria for hedge accounting. Therefore, the Company did not apply hedge accounting treatment for these derivative contracts.

Outstanding forward exchange contracts consisted of the following:

	Maturity Date	Contract Amount (In Thousands)
<u>March 31, 2019</u>		
Sell NT\$/Buy EUR	April 2019	NT\$17,360,304/EUR496,000
Sell NT\$/Buy JPY	April 2019 to May 2019	NT\$22,192,001/JPY79,650,134
Sell US\$/Buy JPY	April 2019	US\$19,577/JPY2,155,000
Sell US\$/Buy RMB	April 2019	US\$322,000/RMB2,160,945
Sell US\$/Buy NT\$	April 2019 to May 2019	US\$11,000/NT\$338,078
Sell RMB/Buy US\$	April 2019	RMB651,023/US\$97,000
<u>December 31, 2018</u>		
Sell NT\$/Buy EUR	January 2019 to March 2019	NT\$18,545,854/EUR527,000
Sell NT\$/Buy JPY	January 2019 to March 2019	NT\$4,757,858/JPY17,200,000
Sell US\$/Buy EUR	January 2019	US\$495/EUR434
Sell US\$/Buy JPY	January 2019	US\$175,591/JPY19,389,014
Sell US\$/Buy RMB	January 2019	US\$318,000/RMB2,188,747
Sell US\$/Buy NT\$	January 2019 to February 2019	US\$127,000/NT\$3,908,635
Sell RMB/Buy US\$	January 2019	RMB667,539/US\$97,000
<u>March 31, 2018</u>		
Sell NT\$/Buy EUR	April 2018 to May 2018	NT\$3,561,313/EUR99,000
Sell NT\$/Buy JPY	April 2018	NT\$9,009,251/JPY32,550,000
Sell US\$/Buy RMB	April 2018 to May 2018	US\$629,000/RMB3,965,590
Sell US\$/Buy NT\$	April 2018 to June 2018	US\$1,002,500/NT\$29,129,055
Sell US\$/Buy JPY	April 2018	US\$4,923/JPY523,000
Sell RMB /Buy EUR	April 2018	RMB11,165/EUR1,432
Sell RMB/Buy JPY	April 2018 to May 2018	RMB215,531/JPY3,614,848
Sell RMB/Buy GBP	April 2018	RMB1,669/GBP187
Sell RMB/Buy US\$	April 2018 to May 2018	RMB1,245,344/US\$197,000

8. FINANCIAL ASSETS AT FAIR VALUE THROUGH OTHER COMPREHENSIVE INCOME

	March 31, 2019	December 31, 2018	March 31, 2018
Investments in debt instruments at FVTOCI			
Corporate bonds	\$ 42,703,270	\$ 40,753,582	\$ 37,980,277
Agency bonds/Agency mortgage-backed securities	34,371,268	31,288,762	32,189,767
Asset-backed securities	15,764,847	15,670,295	13,671,612
Government bonds	13,815,264	11,151,359	9,494,204
Commercial paper	-	107,590	57,877
	<u>106,654,649</u>	<u>98,971,588</u>	<u>93,393,737</u>
			(Continued)

	March 31, 2019	December 31, 2018	March 31, 2018
Investments in equity instruments at FVTOCI			
Non-publicly traded equity investments	\$ 3,837,734	\$ 3,910,681	\$ 6,035,904
Publicly traded stocks	<u>658,556</u>	<u>590,152</u>	<u>2,319,709</u>
	<u>4,496,290</u>	<u>4,500,833</u>	<u>8,355,613</u>
	<u>\$ 111,150,939</u>	<u>\$ 103,472,421</u>	<u>\$ 101,749,350</u>
Current	\$ 107,313,205	\$ 99,561,740	\$ 95,713,446
Noncurrent	<u>3,837,734</u>	<u>3,910,681</u>	<u>6,035,904</u>
	<u>\$ 111,150,939</u>	<u>\$ 103,472,421</u>	<u>\$ 101,749,350</u>

(Concluded)

These investments in equity instruments are held for medium to long-term purposes and therefore are accounted for as FVTOCI.

For the three months ended March 31, 2019 and 2018, as the Company adjusted its investment portfolio or the non-publicly traded investee was merged, equity investments designated at FVTOCI were divested for NT\$98,188 thousand and NT\$45,210 thousand, respectively. The related other equity-unrealized gain/loss on financial assets at FVTOCI of NT\$95,538 thousand and NT\$13,053 thousand were transferred to decrease retained earnings.

For dividends from equity investments designated as at FVTOCI recognized during the three months ended March 31, 2019 and 2018, please refer to Note 23. All the dividends are from investments held at the end of the reporting period.

As of March 31, 2019 and 2018, the cumulative loss allowance for expected credit loss of NT\$29,299 thousand and NT\$29,792 thousand are recognized under investments in debt instruments at FVTOCI, respectively. Refer to Note 30 for information relating to their credit risk management and expected credit loss.

9. FINANCIAL ASSETS AT AMORTIZED COST

	March 31, 2019	December 31, 2018	March 31, 2018
Investments in debt instruments at FVTOCI			
Corporate bonds	\$ 10,950,408	\$ 19,519,941	\$ 18,473,964
Commercial paper	1,097,194	2,294,098	-
Structured product	-	-	1,454,650
Less: Allowance for impairment loss	<u>(3,795)</u>	<u>(8,147)</u>	<u>(6,632)</u>
	<u>\$ 12,043,807</u>	<u>\$ 21,805,892</u>	<u>\$ 19,921,982</u>
Current	\$ 4,179,386	\$ 14,277,615	\$ 9,888,741
Noncurrent	<u>7,864,421</u>	<u>7,528,277</u>	<u>10,033,241</u>
	<u>\$ 12,043,807</u>	<u>\$ 21,805,892</u>	<u>\$ 19,921,982</u>

Refer to Note 30 for information relating to credit risk management and expected credit loss for financial assets at amortized cost.

10. HEDGING FINANCIAL INSTRUMENTS

	March 31, 2019	December 31, 2018	March 31, 2018
<u>Financial assets- current</u>			
Cash flow hedges			
Forward exchange contracts	\$ <u>969</u>	\$ <u>23,497</u>	\$ <u>26,357</u>
<u>Financial liabilities- current</u>			
Fair value hedges			
Interest rate futures contracts	\$ 57,247	\$ 153,891	\$ 74,811
Cash flow hedges			
Forward exchange contracts	<u>54,127</u>	<u>1,941</u>	<u>4,371</u>
	<u>\$ 111,374</u>	<u>\$ 155,832</u>	<u>\$ 79,182</u>

Fair value hedge

The Company entered into interest rate futures contracts, which are used to partially hedge against the price risk caused by changes in interest rates in the Company's investments in fixed income securities. The hedge ratio is adjusted in response to the changes in the financial market and capped at 100%.

On the basis of economic relationships, the Company expects that the value of the interest rate futures contracts and the value of the hedged financial assets will change in opposite directions in response to movements in interest rates.

The main source of hedge ineffectiveness in these hedging relationships is the credit risk of the hedged financial assets, which is not reflected in the fair value of the interest rate futures contracts. No other sources of ineffectiveness emerged from these hedging relationships. Amount of hedge ineffectiveness recognized in profit or loss is classified under other gains and losses.

The following tables summarize the information relating to the hedges of interest rate risk.

March 31, 2019

Hedging Instruments	Contract Amount (US\$ in Thousands)	Maturity
US treasury bonds interest rate futures contracts	US\$ 140,600	June 2019
Hedged Items	Asset Carrying Amount as of March 31, 2019	Asset Accumulated Amount of Fair Value Hedge Adjustments
Financial assets at FVTOCI	\$ 18,404,220	\$ 128,179

December 31, 2018

Hedging Instruments	Contract Amount (US\$ in Thousands)	Maturity
US treasury bonds interest rate futures contracts	US\$ 330,300	March 2019
Hedged Items	Asset Carrying Amount as of December 31, 2018	Asset Accumulated Amount of Fair Value Hedge Adjustments
Financial assets at FVTOCI	\$ 23,229,530	\$ (13,508)

March 31, 2018

Hedging Instruments	Contract Amount (US\$ in Thousands)	Maturity
US treasury bonds interest rate futures contracts	US\$ 264,400	June 2018
Hedged Items	Asset Carrying Amount as of March 31, 2018	Asset Accumulated Amount of Fair Value Hedge Adjustments
Financial assets at FVTOCI	\$ 13,990,841	\$ (86,646)

The effect on comprehensive income for the three months ended March 31, 2019 and 2018 are detailed below:

Hedging Instruments/Hedged Items	Increase (Decrease) in Value Used for Calculating Hedge Ineffectiveness Three Months Ended March 31	
	2019	2018
Hedging Instruments		
US treasury bonds interest rate futures contracts	\$ (125,581)	\$ 53,811
Hedged Items		
Financial assets at FVTOCI	<u>137,339</u>	<u>(53,459)</u>
	<u>\$ 11,758</u>	<u>\$ 352</u>

Cash flow hedge

The Company entered into forward exchange contracts to partially hedge foreign exchange rate risks associated with certain highly probable forecast transactions (capital expenditures). The hedge ratio is adjusted in response to the changes in the financial market and capped at 100%. The forward exchange contracts have maturities of 12 months or less.

On the basis of economic relationships, the Company expects that the value of forward exchange contracts and the value of hedged transactions will change in opposite directions in response to movements in foreign exchange rates.

The main source of hedge ineffectiveness in these hedging relationships is driven by the effect of the counterparty's own credit risk on the fair value of forward exchange contracts. No other sources of ineffectiveness emerged from these hedging relationships. For the three months ended March 31, 2019 and 2018, refer to Note 21(d) for gain or loss arising from changes in the fair value of hedging instruments and the amount transferred to initial carrying amount of hedged items.

The following tables summarize the information relating to the hedges for foreign currency risk.

March 31, 2019

Hedging Instruments	Contract Amount (in Thousands)	Maturity	Balance in Other Equity (Continuing Hedges)
Forward exchange contracts	NT\$ 8,081,167 /EUR 231,000	April 2019 to May 2019	\$ (58,513)

December 31, 2018

Hedging Instruments	Contract Amount (in Thousands)	Maturity	Balance in Other Equity (Continuing Hedges)
Forward exchange contracts	NT\$ 3,917,657 /EUR 112,000	February 2019 to April 2019	\$ 23,601

March 31, 2018

Hedging Instruments	Contract Amount (in Thousands)	Maturity	Balance in Other Equity (Continuing Hedges)
Forward exchange contracts	NT\$3,239,853 /EUR91,000	April 2018 to August 2018	\$37,034

The effect on comprehensive income for the three months ended March 31, 2019 and 2018 are detailed below:

Hedging Instruments/Hedged Items	Increase (Decrease) in Value Used for Calculating Hedge Ineffectiveness	
	Three Months Ended March 31	
	2019	2018
Hedging Instruments		
Forward exchange contracts	<u>\$ (94,548)</u>	<u>\$ 37,282</u>
Hedged Items		
Forecast transaction (capital expenditures)	<u>\$ 94,548</u>	<u>\$ (37,282)</u>

11. NOTES AND ACCOUNTS RECEIVABLE, NET

	March 31, 2019	December 31, 2018	March 31, 2018
At amortized cost			
Notes and accounts receivable	\$ 103,904,657	\$ 125,025,575	\$ 106,771,905
Less: Loss allowance	<u>(11,457)</u>	<u>(7,253)</u>	<u>(170,533)</u>
	103,893,200	125,018,322	106,601,372
At FVTOCI	<u>2,537,949</u>	<u>3,595,069</u>	<u>-</u>
	<u>\$ 106,431,149</u>	<u>\$ 128,613,391</u>	<u>\$ 106,601,372</u>

The Company signed a contract with the bank to sell certain accounts receivable without recourse and transaction cost required. These accounts receivable are classified as at FVTOCI because they are held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets.

In principle, the payment term granted to customers is due 30 days from the invoice date or 30 days from the end of the month when the invoice is issued. Aside from recognizing impairment loss for credit-impaired accounts receivable, the Company recognizes loss allowance based on the expected credit loss ratio of customers by different risk levels. Such risk levels are determined with factors of historical loss ratios and customers' financial conditions, competitiveness and business outlook. For accounts receivable past due over 90 days without collaterals or guarantees, the Company recognizes loss allowance at full amount.

Aging analysis of notes and accounts receivable, net

	March 31, 2019	December 31, 2018	March 31, 2018
Not past due	\$ 95,582,954	\$ 113,126,484	\$ 95,872,716
Past due			
Past due within 30 days	10,500,221	15,006,461	8,723,608
Past due 31-60 days	205,899	472,833	295,558
Past due 61-120 days	110,202	4,654	891,464
Past due over 121 days	<u>31,873</u>	<u>2,959</u>	<u>818,026</u>
	<u>\$ 106,431,149</u>	<u>\$ 128,613,391</u>	<u>\$ 106,601,372</u>

Movements of the loss allowance for accounts receivable

	Three Months Ended March 31	
	2019	2018
Balance, beginning of period	\$ 7,253	\$ 226,968
Provision (Reversal)	4,204	(56,398)
Effect of exchange rate changes	-	(37)
Balance, end of period	<u>\$ 11,457</u>	<u>\$ 170,533</u>

For the three months ended March 31, 2019 and 2018, the changes in loss allowance were mainly due to the variations from accounts receivable balance of different risk levels and the decrease in the balance of accounts receivable, respectively.

12. INVENTORIES

	March 31, 2019	December 31, 2018	March 31, 2018
Finished goods	\$ 12,243,089	\$ 11,329,802	\$ 15,165,977
Work in process	75,641,271	72,071,861	57,012,785
Raw materials	16,060,259	15,233,877	8,940,795
Supplies and spare parts	<u>4,737,763</u>	<u>4,595,436</u>	<u>4,096,342</u>
	<u>\$ 108,682,382</u>	<u>\$ 103,230,976</u>	<u>\$ 85,215,899</u>

Reversal of write-down of inventories resulting from the increase in net realizable value (excluding wafer contamination losses) and write-down of inventories to net realizable value in the amount of NT\$519,868 thousand and NT\$700,440 thousand, respectively, were included in the cost of revenue for the three months ended March 31, 2019 and 2018. Please refer to wafer contamination losses in Note 35.

13. INVESTMENTS ACCOUNTED FOR USING EQUITY METHOD

Associates consisted of the following:

Name of Associate	Principal Activities	Place of Incorporation and Operation	Carrying Amount			% of Ownership and Voting Rights Held by the Company		
			March 31, 2019	December 31, 2018	March 31, 2018	March 31, 2019	December 31, 2018	March 31, 2018
Vanguard International Semiconductor Corporation (VIS)	Manufacturing, selling, packaging, testing and computer-aided design of integrated circuits and other semiconductor devices and the manufacturing and design service of masks	Hsinchu, Taiwan	\$ 9,402,933	\$ 9,006,126	\$ 8,860,765	28%	28%	28%
Systems on Silicon Manufacturing Company Pte Ltd. (SSMC)	Manufacturing and selling of integrated circuits and other semiconductor devices	Singapore	5,912,533	5,772,815	5,923,979	39%	39%	39%
Xintec Inc. (Xintec)	Wafer level chip size packaging and wafer level post passivation interconnection service	Taoyuan, Taiwan	1,633,475	1,764,607	2,246,049	41%	41%	41%
Global Unichip Corporation (GUC)	Researching, developing, manufacturing, testing and marketing of integrated circuits	Hsinchu, Taiwan	1,359,341	1,299,423	1,255,013	35%	35%	35%
Mutual-Pak	Manufacturing of electronic parts, wholesaling and retailing of electronic materials, and researching, developing and testing of RFID	New Taipei, Taiwan	28,176	22,867	21,711	30%	39%	39%
			<u>\$ 18,336,458</u>	<u>\$ 17,865,838</u>	<u>\$ 18,307,517</u>			

The market prices of the investments accounted for using the equity method in publicly traded stocks calculated by the closing price at the end of the reporting period are summarized as follows. The closing price represents the quoted price in active markets, the level 1 fair value measurement.

Name of Associate	March 31, 2019	December 31, 2018	March 31, 2018
VIS	<u>\$ 30,870,862</u>	<u>\$ 27,621,298</u>	<u>\$ 31,102,974</u>
GUC	<u>\$ 9,594,355</u>	<u>\$ 9,617,699</u>	<u>\$ 14,846,739</u>
Xintec	<u>\$ 4,451,277</u>	<u>\$ 3,783,585</u>	<u>\$ 7,366,863</u>

14. PROPERTY, PLANT AND EQUIPMENT

2019

	March 31, 2019
Assets used by the Company	\$1,107,570,228
Assets subject to operating leases	<u>81,588</u>
	<u>\$1,107,651,816</u>

a. Assets used by the Company

	Land and Land Improvements	Buildings	Machinery and Equipment	Office Equipment	Equipment under Installation and Construction in Progress	Total
<u>Cost</u>						
Balance at January 1, 2019	\$ 4,011,353	\$ 418,151,675	\$ 2,728,760,127	\$ 48,382,279	\$ 172,910,989	\$ 3,372,216,423
Additions	-	11,387,156	27,140,490	2,227,282	68,891,426	109,646,354
Disposals or retirements	-	-	(2,041,731)	(164,929)	-	(2,206,660)
Transfers from right-of-use assets	-	-	619,779	-	-	619,779
Effect of disposal of subsidiary	-	-	-	(508)	-	(508)
Effect of exchange rate changes	<u>2,340</u>	<u>746,366</u>	<u>2,770,566</u>	<u>61,095</u>	<u>(82,251)</u>	<u>3,498,116</u>
Balance at March 31, 2019	<u>\$ 4,013,693</u>	<u>\$ 430,285,197</u>	<u>\$ 2,757,249,231</u>	<u>\$ 50,505,219</u>	<u>\$ 241,720,164</u>	<u>\$ 3,483,773,504</u>
<u>Accumulated depreciation and impairment</u>						
Balance at January 1, 2019	\$ 550,575	\$ 217,899,243	\$ 2,049,278,908	\$ 32,525,129	\$ -	\$ 2,300,253,855
Additions	408	6,415,223	67,586,999	1,517,848	-	75,520,478
Disposals or retirements	-	-	(1,552,273)	(164,782)	-	(1,717,055)
Transfers from right-of-use assets	-	-	20,659	-	-	20,659
Reversal of impairment	-	-	(301,384)	-	-	(301,384)
Effect of disposal of subsidiary	-	-	-	(508)	-	(508)
Effect of exchange rate changes	<u>1,611</u>	<u>327,550</u>	<u>2,075,968</u>	<u>22,102</u>	<u>-</u>	<u>2,427,231</u>
Balance at March 31, 2019	<u>\$ 552,594</u>	<u>\$ 224,642,016</u>	<u>\$ 2,117,108,877</u>	<u>\$ 33,899,789</u>	<u>\$ -</u>	<u>\$ 2,376,203,276</u>
Carrying amounts at January 1, 2019	<u>\$ 3,460,778</u>	<u>\$ 200,252,432</u>	<u>\$ 679,481,219</u>	<u>\$ 15,857,150</u>	<u>\$ 172,910,989</u>	<u>\$ 1,071,962,568</u>
Carrying amounts at March 31, 2019	<u>\$ 3,461,099</u>	<u>\$ 205,643,181</u>	<u>\$ 640,140,354</u>	<u>\$ 16,605,430</u>	<u>\$ 241,720,164</u>	<u>\$ 1,107,570,228</u>

The significant part of the Company's buildings includes main plants, mechanical and electrical power equipment and clean rooms, and the related depreciation is calculated using the estimated useful lives of 20 years, 10 years and 10 years, respectively.

In the first quarter of 2019, the Company recognized a reversal of impairment loss of NT\$301,384 thousand due to redeployment of certain idle machinery and equipment. Such reversal of impairment loss was recognized in other operating income and expenses.

b. Assets subject to operating leases

	Buildings
<u>Cost</u>	
Balance at January 1, 2019	\$ <u>562,610</u>
Balance at March 31, 2019	\$ <u>562,610</u>
<u>Accumulated depreciation and impairment</u>	
Balance at January 1, 2019	\$ 474,899
Additions	<u>6,123</u>
Balance at March 31, 2019	<u>\$ 481,022</u>
Carrying amounts at January 1, 2019	<u>\$ 87,711</u>
Carrying amounts at March 31, 2019	<u>\$ 81,588</u>

Operating leases relate to leases of buildings with lease terms between 1 to 5 years. The lessees do not have purchase options to acquire the assets at the expiry of the lease periods.

The maturity analysis of operating lease payments receivable for the buildings is as follows:

	March 31, 2019
Year 1	\$ 29,155
Year 2	16,992
Year 3	16,992
Year 4	<u>12,744</u>
	<u>\$ 75,883</u>

The buildings subject to operating leases are depreciated using the estimated useful lives of 20 years.

2018

	Land and Land Improvements	Buildings	Machinery and Equipment	Office Equipment	Equipment under Installation and Construction in Progress	Total
<u>Cost</u>						
Balance at January 1, 2018	\$ 3,983,243	\$ 379,134,613	\$ 2,487,752,265	\$ 42,391,516	\$ 167,353,490	\$ 3,080,615,127
Additions	-	18,168,937	36,110,432	1,904,943	6,903,141	63,087,453
Disposals or retirements	-	(12,295)	(1,727,577)	(50,750)	-	(1,790,622)
Effect of exchange rate changes	(14,718)	259,417	1,292,667	(15,246)	(88,994)	1,433,126
Balance at March 31, 2018	<u>\$ 3,968,525</u>	<u>\$ 397,550,672</u>	<u>\$ 2,523,427,787</u>	<u>\$ 44,230,463</u>	<u>\$ 174,167,637</u>	<u>\$ 3,143,345,084</u>
<u>Accumulated depreciation and impairment</u>						
Balance at January 1, 2018	\$ 510,498	\$ 194,446,521	\$ 1,795,448,842	\$ 27,666,944	\$ -	\$ 2,018,072,805
Additions	6,688	5,841,659	63,281,950	1,331,989	-	70,462,286
Disposals or retirements	-	(2,922)	(1,107,367)	(50,573)	-	(1,160,862)
Effect of exchange rate changes	(9,795)	93,243	537,380	(16,180)	-	604,648
Balance at March 31, 2018	<u>\$ 507,391</u>	<u>\$ 200,378,501</u>	<u>\$ 1,858,160,805</u>	<u>\$ 28,932,180</u>	<u>\$ -</u>	<u>\$ 2,087,978,877</u>
Carrying amounts at January 1, 2018	<u>\$ 3,472,745</u>	<u>\$ 184,688,092</u>	<u>\$ 692,303,423</u>	<u>\$ 14,724,572</u>	<u>\$ 167,353,490</u>	<u>\$ 1,062,542,322</u>
Carrying amounts at March 31, 2018	<u>\$ 3,461,134</u>	<u>\$ 197,172,171</u>	<u>\$ 665,266,982</u>	<u>\$ 15,298,283</u>	<u>\$ 174,167,637</u>	<u>\$ 1,055,366,207</u>

The significant part of the Company's buildings includes main plants, mechanical and electrical power equipment and clean rooms, and the related depreciation is calculated using the estimated useful lives of 20 years, 10 years and 10 years, respectively.

15. LEASE ARRANGEMENTS

2019

a. Right-of-use assets

Carrying amounts

Land	\$ 14,838,235
Buildings	2,505,993
Machinery and equipment	1,648,596
Office equipment	<u>50,730</u>

March 31, 2019

\$ 19,043,554

For the Three Months Ended March 31, 2019

Additions to right-of-use assets	<u>\$ 211,300</u>
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Depreciation of right-of-use assets	
Land	\$ 242,645
Buildings	106,108
Machinery and equipment	311,587
Office equipment	<u>5,527</u>

\$ 665,867

Income from subleasing right-of-use assets (classified under other operating income and expenses, net)	<u>\$ 13,472</u>
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b. Lease liabilities

March 31, 2019

Carrying amounts

Current portion (classified under accrued expenses and other current liabilities)	\$ 2,699,608
Noncurrent portion	<u>16,907,533</u>
	<u>\$ 19,607,141</u>

Ranges of discount rates for lease liabilities are as follows:

March 31, 2019

Land	0.71%-2.14%
Buildings	0.71%-3.88%
Machinery and equipment	3.24%
Office equipment	0.71%-3.88%

c. Material terms of right-of-use assets

The Company leases land and buildings mainly for the use of plants and offices with lease terms of 1 to 36 years. The lease contracts for land located in R.O.C. specify that lease payments will be adjusted every 2 years on the basis of changes in announced land value prices. The Company does not have purchase options to acquire the leasehold land and buildings at the end of the lease terms.

The Company leases machinery and equipment for operation use with lease terms of 2 years. The Company has purchase options to acquire leasehold machine and equipment at the end of the lease terms.

d. Subleases of right-of-use assets

The Company subleases its right-of-use assets for buildings under operating leases with lease terms of 1 to 5 years.

The maturity analysis of lease payments receivable under operating subleases is as follows:

March 31, 2019

Year 1	\$ 48,895
Year 2	<u>37</u>
	<u>\$ 48,932</u>

e. Other lease information

**For the Three
Months Ended
March 31, 2019**

Expenses relating to short-term leases	<u>\$ 1,447,573</u>
Expenses relating to low-value asset leases	<u>\$ 204</u>
Expenses relating to variable lease payments not included in the measurement of lease liabilities	<u>\$ 50,658</u>
Total cash outflow for leases	<u>\$ 1,583,732</u>

The Company applies the recognition exemption to leases of machinery and equipment and others qualifying as short-term leases and low-value asset leases and does not recognize right-of-use assets and lease liabilities for these leases.

2018

Future minimum lease payments under non-cancellable operating leases are as follows:

	December 31, 2018	March 31, 2018
Not later than 1 year	\$ 5,824,119	\$ 4,853,387
Later than 1 year and not later than 5 years	5,834,884	5,088,935
Later than 5 years	<u>9,190,582</u>	<u>9,318,985</u>
	<u>\$ 20,849,585</u>	<u>\$ 19,261,307</u>

16. INTANGIBLE ASSETS

	Goodwill	Technology License Fees	Software and System Design Costs	Patent and Others	Total
<u>Cost</u>					
Balance at January 1, 2019	\$ 5,795,488	\$ 10,974,458	\$ 29,594,483	\$ 7,656,524	\$ 54,020,953
Additions	-	899,935	1,398,798	7,802	2,306,535
Disposals or retirements	-	-	(11,122)	-	(11,122)
Effect of exchange rate changes	<u>12,221</u>	<u>861</u>	<u>11,246</u>	<u>1,318</u>	<u>25,646</u>
Balance at March 31, 2019	<u>\$ 5,807,709</u>	<u>\$ 11,875,254</u>	<u>\$ 30,993,405</u>	<u>\$ 7,665,644</u>	<u>\$ 56,342,012</u>
<u>Accumulated amortization and impairment</u>					
Balance at January 1, 2019	\$ -	\$ 8,756,005	\$ 23,023,498	\$ 5,239,313	\$ 37,018,816
Additions	-	260,444	921,248	173,644	1,355,336
Disposals or retirements	-	-	(11,122)	-	(11,122)
Effect of exchange rate changes	<u>-</u>	<u>861</u>	<u>3,549</u>	<u>555</u>	<u>4,965</u>
Balance at March 31, 2019	<u>\$ -</u>	<u>\$ 9,017,310</u>	<u>\$ 23,937,173</u>	<u>\$ 5,413,512</u>	<u>\$ 38,367,995</u>
Carrying amounts at January 1, 2019	<u>\$ 5,795,488</u>	<u>\$ 2,218,453</u>	<u>\$ 6,570,985</u>	<u>\$ 2,417,211</u>	<u>\$ 17,002,137</u>
Carrying amounts at March 31, 2019	<u>\$ 5,807,709</u>	<u>\$ 2,857,944</u>	<u>\$ 7,056,232</u>	<u>\$ 2,252,132</u>	<u>\$ 17,974,017</u>

(Continued)

	Goodwill	Technology License Fees	Software and System Design Costs	Patent and Others	Total
<u>Cost</u>					
Balance at January 1, 2018	\$ 5,648,702	\$ 10,443,257	\$ 25,186,218	\$ 5,716,146	\$ 46,994,323
Additions	-	2,806	271,067	332,608	606,481
Disposals or retirements	-	-	(1,193)	-	(1,193)
Effect of exchange rate changes	<u>(76,856)</u>	<u>(2,328)</u>	<u>4,795</u>	<u>3,020</u>	<u>(71,369)</u>
Balance at March 31, 2018	<u>\$ 5,571,846</u>	<u>\$ 10,443,735</u>	<u>\$ 25,460,887</u>	<u>\$ 6,051,774</u>	<u>\$ 47,528,242</u>
<u>Accumulated amortization and impairment</u>					
Balance at January 1, 2018	\$ -	\$ 7,694,857	\$ 20,376,693	\$ 4,747,633	\$ 32,819,183
Additions	-	281,528	626,140	127,923	1,035,591
Disposals or retirements	-	-	(1,137)	-	(1,137)
Effect of exchange rate changes	<u>-</u>	<u>(2,328)</u>	<u>1,729</u>	<u>909</u>	<u>310</u>
Balance at March 31, 2018	<u>\$ -</u>	<u>\$ 7,974,057</u>	<u>\$ 21,003,425</u>	<u>\$ 4,876,465</u>	<u>\$ 33,853,947</u>
Carrying amounts at January 1, 2018	<u>\$ 5,648,702</u>	<u>\$ 2,748,400</u>	<u>\$ 4,809,525</u>	<u>\$ 968,513</u>	<u>\$ 14,175,140</u>
Carrying amounts at March 31, 2018	<u>\$ 5,571,846</u>	<u>\$ 2,469,678</u>	<u>\$ 4,457,462</u>	<u>\$ 1,175,309</u>	<u>\$ 13,674,295</u>

(Concluded)

The Company's goodwill has been tested for impairment at the end of the annual reporting period and the recoverable amount is determined based on the value in use. The value in use was calculated based on the cash flow forecast from the financial budgets covering the future five-year period, and the Company used annual discount rates of 9.0% in its test of impairment as of December 31, 2018 to reflect the relevant specific risk in the cash-generating unit.

17. OTHER ASSETS

	March 31, 2019	December 31, 2018	March 31, 2018
Tax receivable	\$ 2,874,513	\$ 3,780,293	\$ 4,471,031
Prepaid expenses	1,851,850	1,298,710	1,467,439
Repayment of bonds and interest - prepaid	-	-	33,728,788
Others	<u>1,961,770</u>	<u>1,912,067</u>	<u>1,793,794</u>
	<u>\$ 6,688,133</u>	<u>\$ 6,991,070</u>	<u>\$ 41,461,052</u>
Current portion	\$ 5,082,738	\$ 5,406,423	\$ 39,947,321
Noncurrent portion	<u>1,605,395</u>	<u>1,584,647</u>	<u>1,513,731</u>
	<u>\$ 6,688,133</u>	<u>\$ 6,991,070</u>	<u>\$ 41,461,052</u>

Based on the contract terms of corporate bonds issued, prior to the date on which the principal or interests become due, the Company needs to transfer such amount in advance to a designated agent for repayment of principal and interest. The agent will repay the funds to the bond holders at maturity date.

18. SHORT-TERM LOANS

	March 31, 2019	December 31, 2018	March 31, 2018
Unsecured loans			
Amount	<u>\$ 76,592,550</u>	<u>\$ 88,754,640</u>	<u>\$ 56,731,350</u>
Original loan content			
US\$ (in thousands)	\$ 2,265,000	\$ 2,610,000	\$ 1,950,000
EUR (in thousands)	195,000	242,000	-
Annual interest rate	0.01%-2.87%	0.01%-3.22%	1.92%-2.22%
Maturity date	Due by April 2019	Due by January 2019	Due by May 2018

19. BONDS PAYABLE

	March 31, 2019	December 31, 2018	March 31, 2018
Domestic unsecured bonds	\$ 83,400,000	\$ 91,800,000	\$ 99,300,000
Overseas unsecured bonds	<u>-</u>	<u>-</u>	<u>33,456,950</u>
	83,400,000	91,800,000	132,756,950
Less: Discounts on bonds payable	-	-	(210)
Less: Current portion	<u>(48,100,000)</u>	<u>(34,900,000)</u>	<u>(49,356,740)</u>
	<u>\$ 35,300,000</u>	<u>\$ 56,900,000</u>	<u>\$ 83,400,000</u>

The major terms of overseas unsecured bonds are as follows:

Issuance Period	Total Amount (US\$ in Thousands)	Coupon Rate	Repayment and Interest Payment
April 2013 to April 2018	US\$1,150,000	1.625%	Bullet repayment; interest payable semi-annually

20. GUARANTEE DEPOSITS

	March 31, 2018	December 31, 2018	March 31, 2018
Capacity guarantee	\$ 7,775,326	\$ 9,289,628	\$ 11,637,200
Receivables guarantee	669,804	653,686	2,475,412
Others	<u>273,308</u>	<u>245,731</u>	<u>251,267</u>
	<u>\$ 8,718,438</u>	<u>\$ 10,189,045</u>	<u>\$ 14,363,879</u>
Current portion (classified under accrued expenses and other current liabilities)	\$ 6,897,690	\$ 6,835,667	\$ 8,372,518
Noncurrent portion	<u>1,820,748</u>	<u>3,353,378</u>	<u>5,991,361</u>
	<u>\$ 8,718,438</u>	<u>\$ 10,189,045</u>	<u>\$ 14,363,879</u>

Some of guarantee deposits were refunded to customers by offsetting related accounts receivable.

21. EQUITY

a. Capital stock

	March 31, 2019	December 31, 2018	March 31, 2018
Authorized shares (in thousands)	<u>28,050,000</u>	<u>28,050,000</u>	<u>28,050,000</u>
Authorized capital	<u>\$ 280,500,000</u>	<u>\$ 280,500,000</u>	<u>\$ 280,500,000</u>
Issued and paid shares (in thousands)	<u>25,930,380</u>	<u>25,930,380</u>	<u>25,930,380</u>
Issued capital	<u>\$ 259,303,805</u>	<u>\$ 259,303,805</u>	<u>\$ 259,303,805</u>

A holder of issued common shares with par value of NT\$10 per share is entitled to vote and to receive dividends.

The authorized shares include 500,000 thousand shares allocated for the exercise of employee stock options.

As of March 31, 2019, 1,068,051 thousand ADSs of TSMC were traded on the NYSE. The number of common shares represented by the ADSs was 5,340,257 thousand shares (one ADS represents five common shares).

b. Capital surplus

	March 31, 2019	December 31, 2018	March 31, 2018
Additional paid-in capital	\$ 24,184,939	\$ 24,184,939	\$ 24,184,939
From merger	22,804,510	22,804,510	22,804,510
From convertible bonds	8,892,847	8,892,847	8,892,847
From share of changes in equities of subsidiaries	121,843	121,473	118,792
From share of changes in equities of associates	287,206	282,820	285,415
Donations	<u>29,343</u>	<u>29,343</u>	<u>19,248</u>
	<u>\$ 56,320,688</u>	<u>\$ 56,315,932</u>	<u>\$ 56,305,751</u>

Under the relevant laws, the capital surplus generated from donations and the excess of the issuance price over the par value of capital stock (including the stock issued for new capital, mergers and convertible bonds) may be used to offset a deficit; in addition, when the Company has no deficit, such capital surplus may be distributed as cash dividends or stock dividends up to a certain percentage of TSMC's paid-in capital. The capital surplus from share of changes in equities of subsidiaries and associates and dividend of a claim extinguished by a prescription may be used to offset a deficit; however, when generated from issuance of restricted shares for employees, such capital surplus may not be used for any purpose.

c. Retained earnings and dividend policy

TSMC's Articles of Incorporation provide that, when allocating the net profits for each fiscal year, TSMC shall first offset its losses in previous years and then set aside the following items accordingly:

- 1) Legal capital reserve at 10% of the profits left over, until the accumulated legal capital reserve equals TSMC's paid-in capital;
- 2) Special capital reserve in accordance with relevant laws or regulations or as requested by the authorities in charge;
- 3) Any balance left over shall be allocated according to the resolution of the shareholders' meeting.

TSMC's Articles of Incorporation provide the policy about the profit sharing bonus to employees, please refer to Note 28.

TSMC's Articles of Incorporation also provide that profits of TSMC may be distributed by way of cash dividend and/or stock dividend. However, distribution of earnings shall be made preferably by way of cash dividend. Distribution of earnings may also be made by way of stock dividend, provided that the ratio for stock dividend shall not exceed 50% of the total distribution.

Any appropriations of the profits are subject to shareholders' approval in the following year.

The appropriation for legal capital reserve shall be made until the reserve equals the Company's paid-in capital. The reserve may be used to offset a deficit, or be distributed as dividends in cash or stocks for the portion in excess of 25% of the paid-in capital if the Company incurs no loss.

Pursuant to existing regulations, the Company is required to set aside additional special capital reserve equivalent to the net debit balance of the other components of stockholders' equity, such as the accumulated balance of foreign currency translation reserve, unrealized valuation gain or loss from fair value through other comprehensive income financial assets, unrealized valuation gain or loss from available-for-sale financial assets, gain or loss from changes in fair value of hedging instruments in cash flow hedges, etc. For the subsequent decrease in the deduction amount to stockholders' equity, any special reserve appropriated may be reversed to the extent that the net debit balance reverses.

The appropriations of 2018 and 2017 earnings have been approved by TSMC's Board of Directors in its meeting held on February 19, 2019 and by TSMC's shareholders in its meeting held on June 5, 2018, respectively. The appropriations and dividends per share were as follows:

	Appropriation of Earnings		Dividends Per Share (NT\$)	
	For Fiscal Year 2018	For Fiscal Year 2017	For Fiscal Year 2018	For Fiscal Year 2017
Legal capital reserve	\$ 35,113,088	\$ 34,311,148		
Special capital reserve	(11,459,458)	26,907,527		
Cash dividends to shareholders	<u>207,443,044</u>	<u>207,443,044</u>	\$8	\$8
	<u>\$ 231,096,674</u>	<u>\$ 268,661,719</u>		

The appropriations of earnings for 2018 are to be presented for approval in the TSMC's shareholders' meeting to be held on June 5, 2019 (expected).

d. Others

Changes in others were as follows:

	Three Months Ended March 31, 2019				
	Foreign Currency Translation Reserve	Unrealized Gain (Loss) on Financial Assets at FVTOCI	Gain (Loss) on Hedging Instruments	Unearned Stock-Based Compensation	Total
Balance, beginning of period	\$ (12,042,347)	\$ (3,429,324)	\$ 23,601	\$ (1,843)	\$ (15,449,913)
Exchange differences arising on translation of foreign operations	3,213,471	-	-	-	3,213,471
Unrealized gain (loss) on financial assets at FVTOCI					
Equity instruments	-	53,532	-	-	53,532
Debt instruments	-	1,395,796	-	-	1,395,796
Cumulative unrealized gain (loss) of equity instruments transferred to retained earnings due to disposal	-	95,538	-	-	95,538
Cumulative unrealized gain (loss) of debt instruments transferred to profit or loss due to disposal	-	53,105	-	-	53,105
Loss allowance adjustments from debt instruments	-	(511)	-	-	(511)
Other comprehensive income transferred to profit or loss due to disposal of subsidiary	4,598	-	-	-	4,598
Gain (loss) arising on changes in the fair value of hedging instruments	-	-	(94,548)	-	(94,548)
Transferred to initial carrying amount of hedged items	-	-	12,434	-	12,434
Share of other comprehensive income (loss) of associates	8,328	248	-	-	8,576
Share of unearned stock-based employee compensation of associates	-	-	-	950	950
Income tax effect	-	(18,051)	-	-	(18,051)
Balance, end of period	<u>\$ (8,815,950)</u>	<u>\$ (1,849,667)</u>	<u>\$ (58,513)</u>	<u>\$ (893)</u>	<u>\$ (10,725,023)</u>

	Three Months Ended March 31, 2018				
	Foreign Currency Translation Reserve	Unrealized Gain (Loss) on Financial Assets at FVTOCI	Gain (Loss) on Hedging Instruments	Unearned Stock-Based Compensation	Total
Balance, beginning of period	\$ (26,697,680)	\$ (524,915)	\$ 4,226	\$ (10,290)	\$ (27,228,659)
Exchange differences arising on translation of foreign operations	(6,476,324)	-	-	-	(6,476,324)
Unrealized gain (loss) on financial assets at FVTOCI					
Equity instruments	-	(22,034)	-	-	(22,034)
Debt instruments	-	(979,455)	-	-	(979,455)
Cumulative unrealized gain (loss) of equity instruments transferred to retained earnings due to disposal	-	13,053	-	-	13,053
Cumulative unrealized gain (loss) of debt instruments transferred to profit or loss due to disposal	-	252,328	-	-	252,328
Loss allowance adjustments from debt instruments	-	(283)	-	-	(283)
Gain (loss) arising on changes in the fair value of hedging instruments	-	-	37,282	-	37,282
Share of other comprehensive income (loss) of associates	(39,352)	62	-	-	(39,290)
Share of unearned stock-based employee compensation of associates	-	-	-	3,109	3,109
Income tax effect	-	43,680	(4,474)	-	39,206
Balance, end of period	<u>\$ (33,213,356)</u>	<u>\$ (1,217,564)</u>	<u>\$ 37,034</u>	<u>\$ (7,181)</u>	<u>\$ (34,401,067)</u>

The aforementioned other equity includes the changes in other equities of TSMC and TSMC's share of its subsidiaries and associates.

22. NET REVENUE

a. Disaggregation of revenue from contracts with customers

Product	Three Months Ended March 31	
	2019	2018
Wafer	\$ 190,100,011	\$ 219,179,396
Others	<u>28,604,458</u>	<u>28,899,275</u>
	<u>\$ 218,704,469</u>	<u>\$ 248,078,671</u>

Geography	Three Months Ended March 31	
	2019	2018
Taiwan	\$ 17,358,562	\$ 18,829,835
United States	129,023,339	148,828,202
China	39,551,859	44,969,564
Europe, the Middle East and Africa	16,279,553	17,691,973
Japan	13,187,925	14,685,352
Others	<u>3,303,231</u>	<u>3,073,745</u>
	<u>\$ 218,704,469</u>	<u>\$ 248,078,671</u>

The Company categorized the net revenue mainly based on the countries where the customers are headquartered.

Platform	Three Months Ended March 31	
	2019	2018
Smartphone	\$ 103,210,269	\$ 113,267,915
High Performance Computing	62,824,973	78,988,359
Internet of Things	16,717,625	15,379,027
Automotive	10,626,515	12,907,788
Digital Consumer Electronics	14,627,749	15,723,792
Others	<u>10,697,338</u>	<u>11,811,790</u>
	<u>\$ 218,704,469</u>	<u>\$ 248,078,671</u>

Resolution	Three Months Ended March 31	
	2019	2018
7-nanometer	\$ 42,208,718	\$ -
10-nanometer	6,981,206	40,758,293
16-nanometer	30,049,700	39,678,483
20-nanometer	2,763,835	7,534,063
28-nanometer	37,142,360	44,053,726
40/45-nanometer	23,286,880	25,290,974
65-nanometer	15,828,535	20,397,546
90-nanometer	6,300,002	10,014,738
0.11/0.13 micron	5,048,576	5,436,097
0.15/0.18 micron	15,672,766	19,248,357
0.25 micron and above	<u>4,817,433</u>	<u>6,767,119</u>
Wafer revenue	<u>\$ 190,100,011</u>	<u>\$ 219,179,396</u>

Starting the first quarter of 2019, the Company will report its net revenue breakdown by platform, instead of by application. The Company believes this change will better represent the Company's results.

Commencing in the fourth quarter of 2018, the Company began to break down the net revenue by product, by geography and by resolution based on a new method which associates most estimated sales returns and allowances with individual sales transactions, as opposed to the previous method which allocated sales returns and allowances based on the aforementioned gross revenue. The Company believes the new method provides a more relevant breakdown than the previous one. On a comparable basis, the classifications of three months ended March 31, 2018 have been revised accordingly.

b. Contract balances

	March 31, 2019	December 31, 2018	March 31, 2018	January 1, 2018
Contract liabilities (classified under accrued expenses and other current liabilities)	<u>\$ 6,027,843</u>	<u>\$ 4,684,024</u>	<u>\$ 27,076,312</u>	<u>\$ 32,434,829</u>

The changes in the contract liability balances primarily result from the timing difference between the satisfaction of performance obligation and the customer's payment.

For the three months ended March 31, 2019 and 2018, the Company recognized NT\$2,568,026 thousand and NT\$26,965,981 thousand as revenue from the beginning balance of contract liability, respectively.

23. OTHER INCOME

	Three Months Ended March 31	
	2019	2018
Interest income		
Bank deposits	\$ 3,150,272	\$ 2,173,827
Financial assets at FVTPL	186,317	30,736
Financial assets at FVTOCI	785,216	711,807
Financial assets at amortized cost	<u>286,971</u>	<u>237,819</u>
	4,408,776	3,154,189
Dividend income	<u>-</u>	<u>453</u>
	<u>\$ 4,408,776</u>	<u>\$ 3,154,642</u>

24. FINANCE COSTS

	Three Months Ended March 31	
	2019	2018
Interest expense		
Bank loans	\$ 506,581	\$ 283,410
Corporate bonds	325,002	524,521
Lease liabilities	67,325	-
Others	<u>157</u>	<u>35</u>
	<u>\$ 899,065</u>	<u>\$ 807,966</u>

25. OTHER GAINS AND LOSSES, NET

	Three Months Ended March 31	
	2019	2018
Loss on disposal of financial assets, net		
Investments in debt instruments at FVTOCI	\$ (53,105)	\$ (252,328)
Loss on disposal of subsidiaries	(4,598)	-
Net gain (loss) on financial instruments at FVTPL		
Mandatorily measured at FVTPL	(496,763)	1,108,710
Gain arising from fair value hedges, net	11,758	352
The reversal of expected credit loss of financial assets		
Investments in debt instruments at FVTOCI	511	283
Financial assets at amortized cost	4,374	1,474
Other gains (losses), net	<u>279,568</u>	<u>(93,303)</u>
	<u>\$ (258,255)</u>	<u>\$ 765,188</u>

26. INCOME TAX

a. Income tax expense recognized in profit or loss

Income tax expense consisted of the following:

	Three Months Ended March 31	
	2019	2018
Current income tax expense		
Current tax expense recognized in the current period	\$ 6,986,063	\$ 10,984,946
Income tax adjustments on prior years	(1,666)	-
Other income tax adjustments	<u>(1,743)</u>	<u>39,385</u>
	<u>6,982,654</u>	<u>11,024,331</u>
Deferred income tax benefit		
Effect of tax rate changes	-	(376,065)
The origination and reversal of temporary differences	<u>(188,312)</u>	<u>(492,219)</u>
	<u>(188,312)</u>	<u>(868,284)</u>
Income tax expense recognized in profit or loss	<u>\$ 6,794,342</u>	<u>\$ 10,156,047</u>

In 2018, the Income Tax Law in the R.O.C. was amended and, starting from 2018, the corporate income tax rate was adjusted from 17% to 20%. For the year ended December 31, 2018, the effect of the change in tax rate on deferred tax income to be recognized in profit or loss was NT\$1,474,808 thousand, of which NT\$1,098,743 thousand had not been recognized as of March 31, 2018, with corresponding effect recognized throughout the interim periods of 2018. In addition, the tax rate for 2018 unappropriated earnings was reduced from 10% to 5%.

For other jurisdictions, taxes are calculated using the applicable tax rate for each individual jurisdiction.

b. Income tax expense recognized in other comprehensive income

	<u>Three Months Ended March 31</u>	
	<u>2019</u>	<u>2018</u>
Deferred income tax benefit (expense)		
Related to unrealized gain/loss on investments in equity instruments at FVTOCI	\$ (18,051)	\$ 43,680
Related to gain/loss on cash flow hedges	<u>-</u>	<u>(4,474)</u>
	<u>\$ (18,051)</u>	<u>\$ 39,206</u>

c. Income tax examination

The tax authorities have examined income tax returns of TSMC through 2016. All investment tax credit adjustments assessed by the tax authorities have been recognized accordingly.

27. EARNINGS PER SHARE

	<u>Three Months Ended March 31</u>	
	<u>2019</u>	<u>2018</u>
Basic EPS	<u>\$2.37</u>	<u>\$3.46</u>
Diluted EPS	<u>\$2.37</u>	<u>\$3.46</u>

EPS is computed as follows:

	Amounts (Numerator)	Number of Shares (Denominator) (In Thousands)	EPS (NT\$)
<u>Three months ended March 31, 2019</u>			
Basic/Diluted EPS			
Net income available to common shareholders of the parent	<u>\$ 61,393,851</u>	<u>25,930,380</u>	<u>\$2.37</u>
<u>Three months ended March 31, 2018</u>			
Basic/Diluted EPS			
Net income available to common shareholders of the parent	<u>\$ 89,784,622</u>	<u>25,930,380</u>	<u>\$3.46</u>

28. ADDITIONAL INFORMATION OF EXPENSES BY NATURE

	<u>Three Months Ended March 31</u>	
	<u>2019</u>	<u>2018</u>
a. Depreciation of property, plant and equipment and right-of-use assets		
Recognized in cost of revenue	\$ 69,934,176	\$ 64,798,902
Recognized in operating expenses	6,252,169	5,652,531
Recognized in other operating income and expenses	<u>6,123</u>	<u>10,853</u>
	<u>\$ 76,192,468</u>	<u>\$ 70,462,286</u>
b. Amortization of intangible assets		
Recognized in cost of revenue	\$ 713,093	\$ 484,597
Recognized in operating expenses	<u>642,243</u>	<u>550,994</u>
	<u>\$ 1,355,336</u>	<u>\$ 1,035,591</u>
c. Research and development costs expensed as incurred	<u>\$ 20,417,311</u>	<u>\$ 20,428,594</u>
d. Employee benefits expenses		
Post-employment benefits		
Defined contribution plans	\$ 653,319	\$ 619,490
Defined benefit plans	<u>64,880</u>	<u>70,436</u>
	718,199	689,926
Other employee benefits	<u>22,953,464</u>	<u>26,391,042</u>
	<u>\$ 23,671,663</u>	<u>\$ 27,080,968</u>
Employee benefits expense summarized by function		
Recognized in cost of revenue	\$ 14,074,980	\$ 15,878,407
Recognized in operating expenses	<u>9,596,683</u>	<u>11,202,561</u>
	<u>\$ 23,671,663</u>	<u>\$ 27,080,968</u>

According to TSMC's Articles of Incorporation, TSMC shall allocate compensation to directors and profit sharing bonus to employees of TSMC not more than 0.3% and not less than 1% of annual profits during the period, respectively.

TSMC accrued profit sharing bonus to employees based on a percentage of net income before income tax, profit sharing bonus to employees and compensation to directors during the period, which amounted to NT\$4,119,681 thousand and NT\$6,023,994 thousand for the three months ended March 31, 2019 and 2018, respectively; compensation to directors was expensed based on estimated amount payable. If there is a change in the proposed amounts after the annual consolidated financial statements are authorized for issue, the differences are recorded as a change in accounting estimate.

TSMC's profit sharing bonus to employees and compensation to directors in the amounts of NT\$23,570,040 thousand and NT\$349,272 thousand in cash for 2018, respectively, and profit sharing bonus to employees and compensation to directors in the amounts of NT\$23,019,082 thousand and NT\$368,919 thousand in cash for 2017, respectively, had been approved by the Board of Directors of TSMC held on February 19, 2019 and February 13, 2018, respectively. There is no significant difference

between the aforementioned approved amounts and the amounts charged against earnings of 2018 and 2017, respectively.

The information about the appropriations of TSMC's profit sharing bonus to employees and compensation to directors is available at the Market Observation Post System website.

29. CASH FLOW INFORMATION

Reconciliation of liabilities arising from financing activities

	Balance as of January 1, 2019	Financing Cash Flow	Non-cash changes			Balance as of March 31, 2019
			Foreign Exchange Movement	New Leases	Other Changes (Note 1)	
Short-term loans	\$ 88,754,640	\$ (12,262,255)	\$ 100,165	\$ -	\$ -	\$ 76,592,550
Guarantee deposits	10,189,045	26,196	45,997	-	(1,542,800)	8,718,438
Lease liabilities	19,903,615	(589,592)	17,141	208,652	67,325	19,607,141
Bonds payable	<u>91,800,000</u>	<u>(8,400,000)</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>83,400,000</u>
Total	<u>\$ 210,647,300</u>	<u>\$ (21,225,651)</u>	<u>\$ 163,303</u>	<u>\$ 208,652</u>	<u>\$ (1,475,475)</u>	<u>\$ 188,318,129</u>

	Balance as of January 1, 2018	Financing Cash Flow	Non-cash changes		Balance as of March 31, 2018
			Foreign Exchange Movement	Other Changes (Note 2)	
Short-term loans	\$ 63,766,850	\$ (5,774,830)	\$ (1,260,670)	\$ -	\$ 56,731,350
Guarantee deposits	16,080,619	(54,135)	(182,905)	(1,479,700)	14,363,879
Bonds payable	<u>150,201,122</u>	<u>(16,800,000)</u>	<u>(650,823)</u>	<u>6,441</u>	<u>132,756,740</u>
Total	<u>\$ 230,048,591</u>	<u>\$ (22,628,965)</u>	<u>\$ (2,094,398)</u>	<u>\$ (1,473,259)</u>	<u>\$ 203,851,969</u>

Note 1: Other changes include financial cost of lease liabilities and guarantee deposits refunded to customers by offsetting related accounts receivable.

Note 2: Other changes include amortization of bonds payable and guarantee deposits refunded to customers by offsetting related accounts receivable.

30. FINANCIAL INSTRUMENTS

a. Categories of financial instruments

	March 31, 2019	December 31, 2018	March 31, 2018
Financial assets			
FVTPL (Note 1)	\$ 3,084,399	\$ 3,504,590	\$ 963,915
FVTOCI (Note 2)	113,688,888	107,067,490	101,749,350
Hedging financial assets	969	23,497	26,357
Amortized cost (Note 3)	<u>775,326,755</u>	<u>745,585,774</u>	<u>719,404,172</u>
	<u>\$ 892,101,011</u>	<u>\$ 856,181,351</u>	<u>\$ 822,143,794</u>
Financial liabilities			
FVTPL (Note 4)	\$ 151,079	\$ 40,825	\$ 170,673
Hedging financial liabilities	111,374	155,832	79,182
Amortized cost (Note 5)	<u>323,693,554</u>	<u>318,475,704</u>	<u>320,473,302</u>
	<u>\$ 323,956,007</u>	<u>\$ 318,672,361</u>	<u>\$ 320,723,157</u>

Note 1: Financial assets mandatorily measured at FVTPL.

Note 2: Including notes and accounts receivable (net), debt and equity investments.

Note 3: Including cash and cash equivalents, financial assets at amortized cost, notes and accounts receivable (including related parties), other receivables and refundable deposits.

Note 4: Held for trading.

Note 5: Including short-term loans, accounts payable (including related parties), payables to contractors and equipment suppliers, accrued expenses and other current liabilities, bonds payable, and guarantee deposits.

b. Financial risk management objectives

The Company seeks to ensure sufficient cost-efficient funding readily available when needed. The Company manages its exposure to foreign currency risk, interest rate risk, equity price risk, credit risk and liquidity risk with the objective to reduce the potentially adverse effects the market uncertainties may have on its financial performance.

The plans for material treasury activities are reviewed by Audit Committees and/or Board of Directors in accordance with procedures required by relevant regulations or internal controls. During the implementation of such plans, Corporate Treasury function must comply with certain treasury procedures that provide guiding principles for overall financial risk management and segregation of duties.

c. Market risk

The Company is exposed to the financial market risks, primarily changes in foreign currency exchange rates, interest rates and equity investment prices. A portion of these risks is hedged.

Foreign currency risk

More than 90% of the Company's revenue is denominated in U.S. dollar and over one-half of its capital expenditures are denominated in currencies other than NT dollar, primarily in U.S. dollar, Japanese yen and Euro. As a result, any significant fluctuations to its disadvantage in exchanges rate of NT dollar against such currencies, in particular a weakening of U.S. dollar against NT dollar, would have an adverse impact on the revenue and operating profit as expressed in NT dollar. The Company uses foreign currency derivative contracts, such as currency forwards or currency swaps, to protect against currency exchange rate risks associated with non-NT dollar-denominated assets and liabilities and certain forecasted transactions. The Company utilizes U.S. dollar denominated debt to partially offset currency risk arising from U.S. dollar denominated receivables for balance sheet hedges. These hedges reduce, but do not entirely eliminate, the financial impact on the Company caused by the effect of foreign currency exchange rate movements on the assets and liabilities.

Based on a sensitivity analysis performed on the Company's total monetary assets and liabilities for the three months ended March 31, 2019 and 2018, a hypothetical adverse foreign currency exchange rate change of 10% would have decreased its net income by NT\$1,069,244 thousand and NT\$1,060,765 thousand, respectively, and decreased its other comprehensive income by NT\$613,142 thousand and NT\$326,872 thousand, respectively, after taking into account hedges and offsetting positions.

Interest rate risk

The Company is exposed to interest rate risk primarily related to its investments in fixed income securities and outstanding debt.

Financial assets at amortized costs are measured at amortized cost, and therefore changes in interest rates would not affect the fair value. On the other hand, financial assets at FVTPL and financial assets at FVTOCI are exposed to fair value fluctuations caused by changes in interest rates. The Company entered into interest rate futures to partially hedge the interest rate risk on its financial assets at FVTPL and financial assets at FVTOCI. These hedges can offset only a small portion of the financial impact from movements in interest rates.

Based on a sensitivity analysis performed on fixed income investments at the end of the reporting period, interest rate increase of 100 basis points (1.00%) across all maturities would have decreased the fair value by NT\$2,515,345 thousand and NT\$2,317,212 thousand for the three months ended March 31, 2019 and 2018, respectively. The decreases were composed of NT\$3,000,289 thousand decrease and NT\$2,243,927 thousand decrease in other comprehensive income, and NT\$484,944 thousand increase and NT\$73,285 thousand decrease in net income for the three months ended March 31, 2019 and 2018, respectively.

All of the Company's long-term debts are fixed-rate, NT dollar denominated bonds and measured at amortized cost. As such, changes in interest rates would not affect the future cash flows and fair value.

Other price risk

The Company is exposed to equity price risk for 2019 and 2018 arising from financial assets at FVTOCI.

Assuming a hypothetical decrease of 10% in prices of the equity investments at the end of the reporting period for the three months ended March 31, 2019 and 2018, the other comprehensive income would have decreased by NT\$424,983 thousand and NT\$791,372 thousand, respectively.

d. Credit risk management

Credit risk refers to the risk that a counterparty will default on its contractual obligations resulting in financial losses to the Company. The Company is exposed to credit risks from operating activities, primarily trade receivables, and from investing activities, primarily deposits, fixed-income investments and other financial instruments with banks. Credit risk is managed separately for business related and financial related exposures. As of the end of the reporting period, the Company's maximum credit risk exposure is equal to the carrying amount of financial assets.

Business related credit risk

The Company's trade receivables are from its customers worldwide. The majority of the Company's outstanding trade receivables are not covered by collaterals or guarantees. While the Company has procedures to monitor and manage credit risk exposure on trade receivables, there is no assurance such procedures will effectively eliminate losses resulting from its credit risk. This risk is heightened during periods when economic conditions worsen.

As of March 31, 2019, December 31, 2018 and March 31, 2018, the Company's ten largest customers accounted for 74%, 79% and 76% of accounts receivable, respectively. The Company believes the concentration of credit risk is not material for the remaining accounts receivable.

Financial credit risk

The Company mitigates its financial credit risk by selecting counterparties with investment-grade credit ratings and by limiting the exposure to any individual counterparty. The Company regularly monitors and reviews the limit applied to counterparties and adjusts the limit according to market conditions and the credit standing of the counterparties.

The risk management of expected credit loss for financial assets at amortized cost and investments in debt instruments at FVTOCI is as follows:

The Company only invests in debt instruments that are rated as investment grade or higher. The credit rating information is supplied by external rating agencies. The Company assesses whether there has been a significant increase in credit risk since initial recognition by reviewing changes in external credit ratings, financial market conditions and material information of the bond-issuers.

The Company assesses the 12-month expected credit loss and lifetime expected credit loss based on the probability of default and loss given default provided by external credit rating agencies. The current credit risk assessment policies are as follows:

Category	Description	Basis for Recognizing Expected Credit Loss	Expected Credit Loss Ratio
Performing	Credit rating on trade date and valuation date: (1) Within investment grade (2) Between BB+ and BB-	12 months expected credit loss	0-0.1%
Doubtful	Credit rating on trade date and valuation date: (1) From investment grade to non-investment grade (2) From BB+~BB- to B+~CCC-	Lifetime expected credit loss-not credit impaired	-
In default	Credit rating CC or below	Lifetime expected credit loss-credit impaired	-
Write-off	There is evidence indicating that the debtor is in severe financial difficulty and the Company has no realistic prospect of recovery	Amount is written off	-

For the three months ended March 31, 2019 and 2018, the expected credit loss decreases NT\$4,776 thousand and NT\$2,486 thousand, respectively, mainly attributed to asset allocation adjustment to debt investments of higher credit rating.

e. Liquidity risk management

The objective of liquidity risk management is to ensure the Company has sufficient liquidity to fund its business operations over the next 12 months. The Company manages its liquidity risk by maintaining adequate cash and cash equivalent, debt investment at FVTPL, financial assets at FVTOCI-current, and financial assets amortized at cost-current.

The table below summarizes the maturity profile of the Company's financial liabilities based on contractual undiscounted payments, including principal and interest.

	Less Than 1 Year	2-3 Years	4-5 Years	5+ Years	Total
<u>March 31, 2019</u>					
<u>Non-derivative financial liabilities</u>					
Short-term loans	\$ 76,638,209	\$ -	\$ -	\$ -	\$ 76,638,209
Accounts payable (including related parties)	27,661,850	-	-	-	27,661,850
Payables to contractors and equipment suppliers	76,970,966	-	-	-	76,970,966
Accrued expenses and other current liabilities	50,349,750	-	-	-	50,349,750
Bonds payable	49,080,086	13,673,294	22,881,721	-	85,635,101
Lease liabilities (including those classified under accrued expenses and other current liabilities)	2,704,611	3,411,829	2,498,203	11,897,443	20,512,086
Guarantee deposits (including those classified under accrued expenses and other current liabilities)	6,897,690	1,357,681	463,067	-	8,718,438
	<u>290,303,162</u>	<u>18,442,804</u>	<u>25,842,991</u>	<u>11,897,443</u>	<u>346,486,400</u>
<u>Derivative financial instruments</u>					
Forward exchange contracts					
Outflows	59,765,345	-	-	-	59,765,345
Inflows	<u>(59,580,087)</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>(59,580,087)</u>
	<u>185,258</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>185,258</u>
	<u>\$ 290,488,420</u>	<u>\$ 18,442,804</u>	<u>\$ 25,842,991</u>	<u>\$ 11,897,443</u>	<u>\$ 346,671,658</u>

Additional information about the maturity analysis for lease liabilities:

	Less than 5 Years	6-10 Years	11-15 Years	16-20 Years	20+ Years
Lease liabilities	<u>\$ 8,614,643</u>	<u>\$ 5,776,436</u>	<u>\$ 4,001,755</u>	<u>\$ 1,928,816</u>	<u>\$ 190,436</u>
	Less Than 1 Year	2-3 Years	4-5 Years	5+ Years	Total
<u>December 31, 2018</u>					
<u>Non-derivative financial liabilities</u>					
Short-term loans	\$ 88,810,737	\$ -	\$ -	\$ -	\$ 88,810,737
Accounts payable (including related parties)	34,357,432	-	-	-	34,357,432
Payables to contractors and equipment suppliers	43,133,659	-	-	-	43,133,659
Accrued expenses and other current liabilities	50,240,928	-	-	-	50,240,928
Bonds payable	36,039,935	35,340,742	22,979,426	-	94,360,103
Guarantee deposits (including those classified under accrued expenses and other current liabilities)	6,835,667	2,891,663	461,715	-	10,189,045
	<u>259,418,358</u>	<u>38,232,405</u>	<u>23,441,141</u>	<u>-</u>	<u>321,091,904</u>
<u>Derivative financial instruments</u>					
Forward exchange contracts					
Outflows	49,302,325	-	-	-	49,302,325
Inflows	<u>(49,393,679)</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>(49,393,679)</u>
	<u>(91,354)</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>(91,354)</u>
	<u>\$ 259,327,004</u>	<u>\$ 38,232,405</u>	<u>\$ 23,441,141</u>	<u>\$ -</u>	<u>\$ 321,000,550</u>

(Continued)

	Less Than 1 Year	2-3 Years	4-5 Years	5+ Years	Total
<u>March 31, 2018</u>					
<u>Non-derivative financial liabilities</u>					
Short-term loans	\$ 56,787,188	\$ -	\$ -	\$ -	\$ 56,787,188
Accounts payable (including related parties)	29,041,977	-	-	-	29,041,977
Payables to contractors and equipment suppliers	47,828,289	-	-	-	47,828,289
Accrued expenses and other current liabilities	39,751,067	-	-	-	39,751,067
Bonds payable	51,058,202	62,362,560	17,128,725	6,143,816	136,693,303
Guarantee deposits (including those classified under accrued expenses and other current liabilities)	8,372,518	5,908,158	83,203	-	14,363,879
	<u>232,839,241</u>	<u>68,270,718</u>	<u>17,211,928</u>	<u>6,143,816</u>	<u>324,465,703</u>
<u>Derivative financial instruments</u>					
Forward exchange contracts					
Outflows	69,663,091	-	-	-	69,663,091
Inflows	<u>(69,633,869)</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>(69,633,869)</u>
	29,222	-	-	-	29,222
	<u>\$ 232,868,463</u>	<u>\$ 68,270,718</u>	<u>\$ 17,211,928</u>	<u>\$ 6,143,816</u>	<u>\$ 324,494,925</u>
					(Concluded)

f. Fair value of financial instruments

1) Fair value measurements recognized in the consolidated balance sheets

Fair value measurements are grouped into Levels 1 to 3 based on the degree to which the fair value is observable:

- Level 1 fair value measurements are those derived from quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2 fair value measurements are those derived from inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices); and
- Level 3 fair value measurements are those derived from valuation techniques that include inputs for the asset or liability that are not based on observable market data (unobservable inputs).

2) Fair value of financial instruments that are measured at fair value on a recurring basis

Fair value hierarchy

The following table presents the Company's financial assets and liabilities measured at fair value on a recurring basis:

	<u>March 31, 2019</u>			
	Level 1	Level 2	Level 3	Total
<u>Financial assets at FVTPL</u>				
Mandatorily measured at FVTPL				
Agency mortgage-backed securities	\$ -	\$ 2,973,659	\$ -	\$ 2,973,659
Forward exchange contracts	<u>-</u>	<u>110,740</u>	<u>-</u>	<u>110,740</u>
	<u>\$ -</u>	<u>\$ 3,084,399</u>	<u>\$ -</u>	<u>\$ 3,084,399</u>
				(Continued)

March 31, 2019

	Level 1	Level 2	Level 3	Total
<u>Financial assets at FVTOCI</u>				
Investments in debt instruments				
Corporate bonds	\$ -	\$ 42,703,270	\$ -	\$ 42,703,270
Agency bonds/Agency mortgage-backed securities	-	34,371,268	-	34,371,268
Asset-backed securities	-	15,764,847	-	15,764,847
Government bonds	13,667,515	147,749	-	13,815,264
Investments in equity instruments				
Non-publicly traded equity investments	-	-	3,837,734	3,837,734
Publicly traded stocks	658,556	-	-	658,556
Notes and accounts receivable, net	-	2,537,949	-	2,537,949
	<u>\$ 14,326,071</u>	<u>\$ 95,525,083</u>	<u>\$ 3,837,734</u>	<u>\$ 113,688,888</u>
<u>Hedging financial assets</u>				
Cash flow hedges				
Forward exchange contracts	<u>\$ -</u>	<u>\$ 969</u>	<u>\$ -</u>	<u>\$ 969</u>
<u>Financial liabilities at FVTPL</u>				
Held for trading				
Forward exchange contracts	<u>\$ -</u>	<u>\$ 151,079</u>	<u>\$ -</u>	<u>\$ 151,079</u>
<u>Hedging financial liabilities</u>				
Fair value hedges				
Interest rate futures contracts	\$ 57,247	\$ -	\$ -	\$ 57,247
Cash flow hedges				
Forward exchange contracts	-	54,127	-	54,127
	<u>\$ 57,247</u>	<u>\$ 54,127</u>	<u>\$ -</u>	<u>\$ 111,374</u>

(Concluded)

December 31, 2018

	Level 1	Level 2	Level 3	Total
<u>Financial assets at FVTPL</u>				
Mandatorily measured at FVTPL				
Agency mortgage-backed securities	\$ -	\$ 3,419,287	\$ -	\$ 3,419,287
Forward exchange contracts	-	85,303	-	85,303
	<u>\$ -</u>	<u>\$ 3,504,590</u>	<u>\$ -</u>	<u>\$ 3,504,590</u>
<u>Financial assets at FVTOCI</u>				
Investments in debt instruments				
Corporate bonds	\$ -	\$ 40,753,582	\$ -	\$ 40,753,582
Agency bonds/Agency mortgage-backed securities	-	31,288,762	-	31,288,762
Asset-backed securities	-	15,670,295	-	15,670,295
Government bonds	11,006,167	145,192	-	11,151,359
Commercial paper	-	107,590	-	107,590

(Continued)

	December 31, 2018			
	Level 1	Level 2	Level 3	Total
Investments in equity instruments				
Non-publicly traded equity investments	\$ -	\$ -	\$ 3,910,681	\$ 3,910,681
Publicly traded stocks	590,152	-	-	590,152
Notes and accounts receivable, net	-	3,595,069	-	3,595,069
	<u>\$ 11,596,319</u>	<u>\$ 91,560,490</u>	<u>\$ 3,910,681</u>	<u>\$ 107,067,490</u>
<u>Hedging financial assets</u>				
Cash flow hedges				
Forward exchange contracts	\$ -	\$ 23,497	\$ -	\$ 23,497
<u>Financial liabilities at FVTPL</u>				
Held for trading				
Forward exchange contracts	\$ -	\$ 40,825	\$ -	\$ 40,825
<u>Hedging financial liabilities</u>				
Fair value hedges				
Interest rate futures contracts	\$ 153,891	\$ -	\$ -	\$ 153,891
Cash flow hedges				
Forward exchange contracts	-	1,941	-	1,941
	<u>\$ 153,891</u>	<u>\$ 1,941</u>	<u>\$ -</u>	<u>\$ 155,832</u>

(Concluded)

	March 31, 2018			
	Level 1	Level 2	Level 3	Total
<u>Financial assets at FVTPL</u>				
Mandatorily measured at FVTPL				
Agency mortgage-backed securities	\$ -	\$ 754,545	\$ -	\$ 754,545
Forward exchange contracts	-	113,426	-	113,426
Asset-backed securities	-	95,944	-	95,944
	<u>\$ -</u>	<u>\$ 963,915</u>	<u>\$ -</u>	<u>\$ 963,915</u>
<u>Financial assets at FVTOCI</u>				
Investments in debt instruments				
Corporate bonds	\$ -	\$ 37,980,277	\$ -	\$ 37,980,277
Agency bonds/Agency mortgage-backed securities	-	32,189,767	-	32,189,767
Asset-backed securities	-	13,671,612	-	13,671,612
Government bonds	9,395,235	98,969	-	9,494,204
Commercial paper	-	57,877	-	57,877
Investments in equity instruments				
Non-publicly traded equity investments	-	-	6,035,904	6,035,904
Publicly traded stocks	2,319,709	-	-	2,319,709
	<u>\$ 11,714,944</u>	<u>\$ 83,998,502</u>	<u>\$ 6,035,904</u>	<u>\$ 101,749,350</u>

(Continued)

	March 31, 2018			
	Level 1	Level 2	Level 3	Total
<u>Hedging financial assets</u>				
Cash flow hedges				
Forward exchange contracts	\$ <u> -</u>	\$ <u> 26,357</u>	\$ <u> -</u>	\$ <u> 26,357</u>
<u>Financial liabilities at FVTPL</u>				
Held for trading				
Forward exchange contracts	\$ <u> -</u>	\$ <u> 170,673</u>	\$ <u> -</u>	\$ <u> 170,673</u>
<u>Hedging financial liabilities</u>				
Fair value hedges				
Interest rate futures contracts	\$ 74,811	\$ -	\$ -	\$ 74,811
Cash flow hedges				
Forward exchange contracts	<u> -</u>	<u> 4,371</u>	<u> -</u>	<u> 4,371</u>
	<u>\$ 74,811</u>	<u>\$ 4,371</u>	<u>\$ -</u>	<u>\$ 79,182</u>
				(Concluded)

Reconciliation of Level 3 fair value measurements of financial assets

The financial assets measured at Level 3 fair value were equity investments classified as financial assets at FVTOCI. Reconciliations for the three months ended March 31, 2019 and 2018 were as follows:

	Three Months Ended March 31	
	2019	2018
Balance, beginning of period	\$ 3,910,681	\$ 5,841,384
Additions	31,437	128,951
Recognized in other comprehensive income	(37,567)	205,421
Disposals and proceeds from return of capital of investments	(75,425)	(45,210)
Effect of exchange rate changes	<u>8,608</u>	<u>(94,642)</u>
Balance, end of period	<u>\$ 3,837,734</u>	<u>\$ 6,035,904</u>

Valuation techniques and assumptions used in Level 2 fair value measurement

The fair values of financial assets and financial liabilities are determined as follows:

- The fair values of corporate bonds, agency bonds, agency mortgage-backed securities, asset-backed securities, government bonds and commercial papers are determined by quoted market prices provided by third party pricing services.
- Forward exchange contracts are measured using forward exchange rates and the discounted yield curves that are derived from quoted market prices.
- The fair value of accounts receivables classified as at FVTOCI are determined by the present value of future cash flows based on the discount rate that reflects the credit risk of counterparties.

Valuation techniques and assumptions used in Level 3 fair value measurement

The fair values of non-publicly traded equity investments are mainly determined by using the asset approach, income approach and market approach.

The asset approach takes into account the net asset value measured at the fair value by independent parties. On March 31, 2019, December 31, 2018 and March 31, 2018, the Company uses unobservable inputs derived from discount for lack of marketability by 10%. When other inputs remain equal, the fair value will decrease by NT\$30,782 thousand, NT\$31,420 thousand and NT\$31,078 thousand if discounts for lack of marketability increase by 1%.

The income approach utilizes discounted cash flows to determine the present value of the expected future economic benefits that will be derived from the investment. On March 31, 2019, December 31, 2018 and March 31, 2018, the Company uses significant unobservable inputs, which include expected returns, discount rate of 10%, 10% and 8.5%, respectively, discount for lack of marketability of 10%, and discounts for lack of control of 10%. On March 31, 2018, when other inputs remain equal, if discount rate increases by 1%, the fair value will decrease by NT\$75,000 thousand; if discount for lack of marketability increases by 1%, the fair value will decrease by NT\$21,520 thousand; if discount for lack of control increases by 1%, the fair value will decrease by NT\$21,520 thousand.

For the remaining few investments, the market approach is used to arrive at their fair value, for which the recent financing activities of investees, the market transaction prices of the similar companies and market conditions are considered.

3) Fair value of financial instruments that are not measured at fair value

Except as detailed in the following table, the Company considers that the carrying amounts of financial instruments in the consolidated financial statements that are not measured at fair value approximate their fair values.

Fair value hierarchy

The table below sets out the fair value hierarchy for the Company's assets and liabilities which are not required to measure at fair value:

	March 31, 2019	
	Carrying Amount	Fair Value Level 2
<u>Financial assets</u>		
Financial assets at amortized costs		
Corporate bonds	\$ 10,946,613	\$ 11,031,635
Commercial paper	<u>1,097,194</u>	<u>1,099,932</u>
	<u>\$ 12,043,807</u>	<u>\$ 12,131,567</u>
<u>Financial liabilities</u>		
Financial liabilities at amortized costs		
Bonds payable	<u>\$ 83,400,000</u>	<u>\$ 84,633,252</u>

	December 31, 2018	
	Carrying Amount	Fair Value Level 2
<u>Financial assets</u>		
Financial assets at amortized costs		
Corporate bonds	\$ 19,511,794	\$ 19,554,553
Commercial paper	<u>2,294,098</u>	<u>2,296,188</u>
	<u>\$ 21,805,892</u>	<u>\$ 21,850,741</u>

Financial liabilities

Financial liabilities at amortized costs		
Bonds payable	<u>\$ 91,800,000</u>	<u>\$ 93,171,255</u>

	March 31, 2018	
	Carrying Amount	Fair Value Level 2
<u>Financial assets</u>		
Financial assets at amortized costs		
Corporate bonds	\$ 18,467,935	\$ 18,618,060
Structured product	<u>1,454,047</u>	<u>1,447,779</u>
	<u>\$ 19,921,982</u>	<u>\$ 20,065,839</u>

Financial liabilities

Financial liabilities at amortized costs		
Bonds payable	<u>\$ 132,756,740</u>	<u>\$ 134,616,063</u>

Valuation techniques and assumptions used in Level 2 fair value measurement

The fair value of corporate bonds is determined by quoted market prices provided by third party pricing services. The fair value of structured product is determined by quoted market prices provided by the counterparty.

The fair value of commercial paper is determined by the present value of future cash flows based on the discounted curves that are derived from the quoted market prices.

The fair value of the Company's bonds payable is determined by quoted market prices provided by third party pricing services.

31. RELATED PARTY TRANSACTIONS

Intercompany balances and transactions between TSMC and its subsidiaries, which are related parties of TSMC, have been eliminated upon consolidation; therefore those items are not disclosed in this note. The following is a summary of significant transactions between the Company and other related parties:

a. Related party name and categories

<u>Related Party Name</u>	<u>Related Party Categories</u>
GUC	Associates
VIS	Associates
SSMC	Associates
Xintec	Associates
Mutual-Pak	Associates
TSMC Education and Culture Foundation	Other related parties
TSMC Charity Foundation	Other related parties

b. Net revenue

		<u>Three Months Ended March 31</u>	
		<u>2019</u>	<u>2018</u>
<u>Item</u>	<u>Related Party Categories</u>		
Net revenue from sale of goods	Associates	<u>\$ 1,469,598</u>	<u>\$ 2,174,536</u>
Net revenue from royalties	Associates	<u>\$ 43,919</u>	<u>\$ 126,102</u>

c. Purchases

		<u>Three Months Ended March 31</u>	
		<u>2019</u>	<u>2018</u>
<u>Related Party Categories</u>			
Associates		<u>\$ 1,550,402</u>	<u>\$ 2,223,350</u>

d. Receivables from related parties

		<u>March 31,</u>	<u>December 31,</u>	<u>March 31,</u>
		<u>2019</u>	<u>2018</u>	<u>2018</u>
<u>Item</u>	<u>Related Party Name/Categories</u>			
Receivables from related parties	GUC	\$ 303,556	\$ 481,934	\$ 1,119,260
	Xintec	<u>6,265</u>	<u>102,478</u>	<u>60,052</u>
		<u>\$ 309,821</u>	<u>\$ 584,412</u>	<u>\$ 1,179,312</u>
Other receivables from related parties	SSMC	\$ 44,397	\$ 53,780	\$ 49,604
	VIS	3,506	10,423	77,843
	Other associates	<u>771</u>	<u>825</u>	<u>2,623</u>
		<u>\$ 48,674</u>	<u>\$ 65,028</u>	<u>\$ 130,070</u>

e. Payables to related parties

		March 31, 2019	December 31, 2018	March 31, 2018
<u>Item</u>	<u>Related Party Name/Categories</u>			
Payables to related parties	VIS	\$ 273,032	\$ 357,080	\$ 452,091
	SSMC	164,403	362,564	359,001
	Xintec	101,703	649,812	406,234
	Others	<u>21,803</u>	<u>7,043</u>	<u>6,981</u>
		<u>\$ 560,941</u>	<u>\$ 1,376,499</u>	<u>\$ 1,224,307</u>

f. Others

		Three Months Ended March 31	
		2019	2018
<u>Item</u>	<u>Related Party Categories</u>		
Manufacturing expenses	Associates	<u>\$ 196,686</u>	<u>\$ 672,932</u>
General and administrative expenses	Other related parties	<u>\$ 30,000</u>	<u>\$ 45,074</u>

The sales prices and payment terms to related parties were not significantly different from those of sales to third parties. For other related party transactions, price and terms were determined in accordance with mutual agreements.

The Company leased factory and office from associates. The lease terms and prices were both determined in accordance with mutual agreements. The rental expenses were paid to associates monthly; the related expenses were both classified under manufacturing expenses.

g. Compensation of key management personnel

The compensation to directors and other key management personnel for the three months ended March 31, 2019 and 2018 were as follows:

	Three Months Ended March 31	
	2019	2018
Short-term employee benefits	\$ 334,198	\$ 534,943
Post-employment benefits	<u>761</u>	<u>987</u>
	<u>\$ 334,959</u>	<u>\$ 535,930</u>

The compensation to directors and other key management personnel were determined by the Compensation Committee of TSMC in accordance with the individual performance and the market trends.

32. PLEDGED ASSETS

The Company provided certificate of deposits recorded in other financial assets as collateral mainly for building lease agreements. As of March 31, 2019, December 31, 2018 and March 31, 2018, the aforementioned other financial assets amounted to NT\$115,443 thousand, NT\$124,244 thousand and NT\$117,677 thousand, respectively.

33. SIGNIFICANT CONTINGENT LIABILITIES AND UNRECOGNIZED COMMITMENTS

Significant contingent liabilities and unrecognized commitments of the Company as of the end of the reporting period, excluding those disclosed in other notes, were as follows:

- a. Under a technical cooperation agreement with Industrial Technology Research Institute, the R.O.C. Government or its designee approved by TSMC can use up to 35% of TSMC's capacity provided TSMC's outstanding commitments to its customers are not prejudiced. The term of this agreement is for five years beginning from January 1, 1987 and is automatically renewed for successive periods of five years unless otherwise terminated by either party with one year prior notice. As of March 31, 2019, the R.O.C. Government did not invoke such right.
- b. Under a Shareholders Agreement entered into with Philips and EDB Investments Pte Ltd. on March 30, 1999, the parties formed a joint venture company, SSMC, which is an integrated circuit foundry in Singapore. TSMC's equity interest in SSMC was 32%. Nevertheless, in September 2006, Philips spun-off its semiconductor subsidiary which was renamed as NXP B.V. Further, TSMC and NXP B.V. purchased all the SSMC shares owned by EDB Investments Pte Ltd. pro rata according to the Shareholders Agreement on November 15, 2006. After the purchase, TSMC and NXP B.V. currently own approximately 39% and 61% of the SSMC shares, respectively. TSMC and NXP B.V. are required, in the aggregate, to purchase at least 70% of SSMC's capacity, but TSMC alone is not required to purchase more than 28% of the capacity. If any party defaults on the commitment and the capacity utilization of SSMC falls below a specific percentage of its capacity, the defaulting party is required to compensate SSMC for all related unavoidable costs. There was no default from the aforementioned commitment as of March 31, 2019.
- c. In February 2019, Innovative Foundry Technologies LLC ("IFT") filed a complaint in the U.S. District Court for the District of Delaware alleging that TSMC and TSMC Technology Inc. infringe five U.S. patents. IFT also filed a complaint in the U.S. International Trade Commission (the "ITC") alleging that TSMC, TSMC North America, TSMC Technology Inc., and other companies infringe the same patents. The ITC instituted an investigation in March 2019. The outcome cannot be determined and we cannot make a reliable estimate of the contingent liability at this time.
- d. On September 28, 2017, TSMC was contacted by the European Commission (the "Commission"), which has asked us for information and documents concerning alleged anti-competitive practices in relation to semiconductor sales. We are cooperating with the Commission to provide the requested information and documents. In light of the fact that this proceeding is still in its preliminary stage, it is premature to predict how the case will proceed, the outcome of the proceeding or its impact.
- e. TSMC entered into long-term purchase agreements of material with multiple suppliers. The relative minimum purchase quantity and price are specified in the agreements.
- f. TSMC entered into a long-term purchase agreement of equipment. The relative purchase quantity and price are specified in the agreement.
- g. TSMC entered into long-term energy purchase agreements with multiple suppliers. The relative purchase period, quantity and price are specified in the agreements.

- h. Amounts available under unused letters of credit as of March 31, 2019, December 31, 2018 and March 31, 2018 were NT\$61,660 thousand, NT\$70,702 thousand and NT\$66,914 thousand, respectively.

34. EXCHANGE RATE INFORMATION OF FOREIGN-CURRENCY FINANCIAL ASSETS AND LIABILITIES

The following information was summarized according to the foreign currencies other than the functional currency of the Company. The exchange rates disclosed were used to translate the foreign currencies into the functional currency. The significant financial assets and liabilities denominated in foreign currencies were as follows:

	Foreign Currencies (In Thousands)	Exchange Rate (Note 1)	Carrying Amount (In Thousands)
<u>March 31, 2019</u>			
<u>Financial assets</u>			
Monetary items			
USD	\$ 3,885,072	30.830	\$ 119,776,760
USD	348,046	6.720 (Note 2)	10,730,247
EUR	7,963	34.68	276,149
JPY	961,694	0.2796	268,890
Non-monetary items			
HKD	167,571	3.93	658,556
<u>Financial liabilities</u>			
Monetary items			
USD	4,368,580	30.830	134,683,321
EUR	517,367	34.68	17,942,289
JPY	79,536,948	0.2796	22,238,531
<u>December 31, 2018</u>			
<u>Financial assets</u>			
Monetary items			
USD	4,618,566	30.740	141,974,734
USD	343,132	6.866 (Note 2)	10,547,875
EUR	7,561	35.22	266,307
JPY	490,635	0.2783	136,544
Non-monetary items			
HKD	144,567	3.93	568,150
<u>Financial liabilities</u>			
Monetary items			
USD	4,323,763	30.740	132,912,486
EUR	477,776	35.22	16,827,260
JPY	35,084,436	0.2783	9,763,999

(Continued)

	Foreign Currencies (In Thousands)	Exchange Rate (Note 1)	Carrying Amount (In Thousands)
<u>March 31, 2018</u>			
<u>Financial assets</u>			
Monetary items			
USD	\$ 4,428,364	29.093	\$ 128,834,383
USD	651,633	6.264 (Note 2)	18,957,968
EUR	74,176	35.92	2,664,388
JPY	711,970	0.2746	195,507
Non-monetary items			
HKD	216,534	3.71	803,343
<u>Financial liabilities</u>			
Monetary items			
USD	4,040,810	29.093	117,559,276
EUR	184,925	35.92	6,642,497
JPY	38,476,708	0.2746	10,565,704 (Concluded)

Note 1: Except as otherwise noted, exchange rate represents the number of NT dollar for which one foreign currency could be exchanged.

Note 2: The exchange rate represents the number of RMB for which one U.S. dollar could be exchanged.

Please refer to the consolidated statements of comprehensive income for the total of realized and unrealized foreign exchange gain and loss for the three months ended March 31, 2019 and 2018, respectively. Since there were varieties of foreign currency transactions and functional currencies within the subsidiaries of the Company, the Company was unable to disclose foreign exchange gain (loss) towards each foreign currency with significant impact.

35. SIGNIFICANT OPERATION LOSSES

On January 19, 2019, the Company discovered a wafer contamination issue in a fab in Taiwan caused by a batch of unqualified photoresist materials. After investigation, the Company immediately stopped using the unqualified materials. An estimated loss of NT\$3,400,000 thousand related to this event was recognized in cost of revenue for the three months ended March 31, 2019.

The Company experienced a computer virus outbreak on August 3, 2018, which affected a number of computer systems and fab tools, and consequently impacted wafer production in Taiwan. All the impacted tools have been recovered by August 6, 2018. The Company recognized a loss of NT\$2,596,046 thousand related to this incident for the three months ended September 30, 2018, which was included in cost of revenue.

36. ADDITIONAL DISCLOSURES

Following are the additional disclosures required by the Securities and Futures Bureau for TSMC:

- a. Financings provided: Please see Table 1 attached;
- b. Endorsement/guarantee provided: Please see Table 2 attached;
- c. Marketable securities held (excluding investments in subsidiaries and associates): Please see Table 3 attached;
- d. Marketable securities acquired and disposed of at costs or prices of at least NT\$300 million or 20% of the paid-in capital: Please see Table 4 attached;
- e. Acquisition of individual real estate properties at costs of at least NT\$300 million or 20% of the paid-in capital: Please see Table 5 attached;
- f. Disposal of individual real estate properties at prices of at least NT\$300 million or 20% of the paid-in capital: None;
- g. Total purchases from or sales to related parties of at least NT\$100 million or 20% of the paid-in capital: Please see Table 6 attached;
- h. Receivables from related parties amounting to at least NT\$100 million or 20% of the paid-in capital: Please see Table 7 attached;
- i. Information about the derivative financial instruments transaction: Please see Notes 7 and 10;
- j. Others: The business relationship between the parent and the subsidiaries and significant transactions between them: Please see Table 8 attached;
- k. Names, locations, and related information of investees over which TSMC exercises significant influence (excluding information on investment in mainland China): Please see Table 9 attached;
- l. Information on investment in mainland China
 - 1) The name of the investee in mainland China, the main businesses and products, its issued capital, method of investment, information on inflow or outflow of capital, percentage of ownership, income (losses) of the investee, share of profits/losses of investee, ending balance, amount received as dividends from the investee, and the limitation on investee: Please see Table 10 attached.
 - 2) Significant direct or indirect transactions with the investee, its prices and terms of payment, unrealized gain or loss, and other related information which is helpful to understand the impact of investment in mainland China on financial reports: Please see Table 8 attached.

37. OPERATING SEGMENTS INFORMATION

The foundry segment engages mainly in the manufacturing, selling, packaging, testing and computer-aided design of integrated circuits and other semiconductor devices and the manufacturing of masks.

The Company uses the income from operations as the measurement for the basis of performance assessment. The basis for such measurement is the same as that for the preparation of financial statements. Please refer to the consolidated statements of comprehensive income for the related segment revenue and operating results.

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

FINANCINGS PROVIDED
FOR THE THREE MONTHS ENDED MARCH 31, 2019
(Amounts in Thousands of New Taiwan Dollars, Unless Specified Otherwise)

No.	Financing Company	Counter-party	Financial Statement Account	Related Party	Maximum Balance for the Period (Foreign Currencies in Thousands) (Note 3)	Ending Balance (Foreign Currencies in Thousands) (Note 3)	Amount Actually Drawn (Foreign Currencies in Thousands)	Interest Rate	Nature for Financing (Note 4)	Transaction Amounts	Reason for Financing (Note 4)	Allowance for Bad Debt	Collateral		Financing Limits for Each Borrowing Company (Notes 1 and 2)	Financing Company's Total Financing Amount Limits (Notes 1 and 2)
													Item	Value		
1	TSMC China	TSMC Nanjing	Other receivables from related parties	Yes	\$ 46,881,470 (RMB 7,000,000)& (USD 479,000)	\$ 46,881,470 (RMB 7,000,000)& (USD 479,000)	\$ 31,503,270 (RMB 6,000,000)& (USD 129,000)	1.50%-1.96%	The need for long-term financing	\$ -	Operating capital	\$ -	-	\$ -	\$ 57,421,327	\$ 57,421,327
2	TSMC Global	TSMC	Other receivables from related parties	Yes	46,245,000 (US\$ 1,500,000)	46,245,000 (US\$ 1,500,000)	-	2.53%	The need for short-term financing	-	Operating capital	-	-	-	398,937,616	398,937,616

Note 1: The total amount available for lending purpose shall not exceed the net worth of TSMC China. The total amount for lending to a company for funding for a short-term period shall not exceed ten percent (10%) of the net worth of TSMC China. In addition, the total amount lendable to any one borrower shall be no more than thirty percent (30%) of the borrower's net worth. The above restriction does not apply to the subsidiaries whose voting shares are 100% owned, directly or indirectly, by TSMC. However, the total amount lendable to any such subsidiary of TSMC shall not exceed forty percent (40%) of the net worth of TSMC China. When there is a lending for funding needs by TSMC China to TSMC, or to the subsidiaries whose voting shares are 100% owned, directly or indirectly, by TSMC, which are not located in Taiwan, the lending will not be subject to the restriction set forth in the above paragraph of this Article. Notwithstanding the foregoing, the aggregate amount available for lending to such borrowers and the total amount lendable to each of such borrowers still shall not exceed the net worth of TSMC China.

Note 2: The total amount available for lending purpose shall not exceed the net worth of TSMC Global. The total amount for lending to a company for funding for a short-term period shall not exceed ten percent (10%) of the net worth of TSMC Global. In addition, the total amount lendable to any one borrower shall be no more than thirty percent (30%) of the borrower's net worth. While TSMC, or foreign subsidiaries whose voting shares are 100% owned, directly or indirectly, by TSMC will not be subject to this restriction, their total borrowing amount still shall not exceed the net worth of TSMC Global. Notwithstanding the foregoing, the aggregate amount for lending to Taiwan companies other than TSMC shall not exceed forty percent (40%) of the net worth of TSMC Global.

Note 3: The maximum balance for the period and ending balance represent the amounts approved by the Board of Directors.

Note 4: The restriction of the term of each loan for funding not exceeding one year shall not apply to inter-company loans for funding between offshore subsidiaries in which the Company holds, directly or indirectly, 100% of the voting shares.

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

**ENDORSEMENTS/GUARANTEES PROVIDED
FOR THE THREE MONTHS ENDED MARCH 31, 2019**

(Amounts in Thousands of New Taiwan Dollars, Unless Specified Otherwise)

No.	Endorsement/ Guarantee Provider	Guaranteed Party		Limits on Endorsement/ Guarantee Amount Provided to Each Guaranteed Party (Notes 1 and 2)	Maximum Balance for the Period (US\$ in Thousands) (Note 3)	Ending Balance (US\$ in Thousands) (Note 3)	Amount Actually Drawn (US\$ in Thousands)	Amount of Endorsement/ Guarantee Collateralized by Properties	Ratio of Accumulated Endorsement/ Guarantee to Net Equity per Latest Financial Statements	Maximum Endorsement/ Guarantee Amount Allowable (Note 2)	Guarantee Provided by Parent Company	Guarantee Provided by A Subsidiary	Guarantee Provided to Subsidiaries in Mainland China
		Name	Nature of Relationship										
0	TSMC	TSMC North America	Subsidiary	\$ 435,711,406	\$ 2,565,466 (US\$ 83,213)	\$ 2,565,466 (US\$ 83,213)	\$ 2,565,466 (US\$ 83,213)	\$ -	0.15%	\$ 435,711,406	Yes	No	No

Note 1: The total amount of the guarantee provided by TSMC to any individual entity shall not exceed ten percent (10%) of TSMC's net worth, or the net worth of such entity. However, subsidiaries whose voting shares are 100% owned, directly or indirectly, by TSMC are not subject to the above restrictions after the approval of the Board of Directors.

Note 2: The total amount of guarantee shall not exceed twenty-five percent (25%) of TSMC's net worth.

Note 3: The maximum balance for the period and ending balance represent the amounts approved by the Board of Directors.

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

MARKETABLE SECURITIES HELD

MARCH 31, 2019

(Amounts in Thousands of New Taiwan Dollars, Unless Specified Otherwise)

Held Company Name	Marketable Securities Type and Name	Relationship with the Company	Financial Statement Account	March 31, 2019				Note
				Shares/Units (In Thousands)	Carrying Value (Foreign Currencies in Thousands)	Percentage of Ownership (%)	Fair Value (Foreign Currencies in Thousands)	
TSMC	<u>Commercial paper</u>							
	Taiwan Power Company	-	Financial assets at amortized cost	60	\$ 598,357	N/A	\$ 599,978	
	CPC Corporation, Taiwan	-	"	50	498,837	N/A	499,954	
	<u>Non-publicly traded equity investments</u>							
	United Industrial Gases Co., Ltd.	-	Financial assets at fair value through other comprehensive income	21,230	520,909	10	520,909	
	Shin-Etsu Handotai Taiwan Co., Ltd.	-	"	10,500	335,580	7	335,580	
	Global Investment Holding Inc.	-	"	11,124	83,672	6	83,672	
	W.K. Technology Fund IV	-	"	806	4,639	2	4,639	
	Crimson Asia Capital	-	"	-	4,568	1	4,568	
	Horizon Ventures Fund	-	"	-	2,310	12	2,310	
<u>Publicly traded stocks</u>								
Semiconductor Manufacturing International Corporation	-	Financial assets at fair value through other comprehensive income	21,105	658,556	-	658,556		
TSMC Partners	<u>Non-publicly traded equity investments</u>							
	Shanghai Walden Venture Capital Enterprise	-	Financial assets at fair value through other comprehensive income	-	US\$ 9,590	6	US\$ 9,590	
	China Walden Venture Investments II, L.P.	-	"	-	US\$ 8,175	9	US\$ 8,175	
	China Walden Venture Investments III, L.P.	-	"	-	US\$ 2,755	4	US\$ 2,755	
	Tela Innovations	-	"	10,440	-	25	-	
Mcube Inc.	-	"	6,333	-	12	-		
TSMC Global	<u>Corporate bond</u>							
	Bank of America Corp	-	Financial assets at fair value through other comprehensive income	-	US\$ 50,408	N/A	US\$ 50,408	
	JPMorgan Chase & Co	-	"	-	US\$ 46,319	N/A	US\$ 46,319	
	Morgan Stanley	-	"	-	US\$ 42,719	N/A	US\$ 42,719	
	Goldman Sachs Group Inc/The	-	"	-	US\$ 35,185	N/A	US\$ 35,185	
	Citigroup Inc	-	"	-	US\$ 33,708	N/A	US\$ 33,708	
	CVS Health Corp	-	"	-	US\$ 23,995	N/A	US\$ 23,995	
	AT&T Inc	-	"	-	US\$ 20,910	N/A	US\$ 20,910	
	Comcast Corp	-	"	-	US\$ 20,076	N/A	US\$ 20,076	
	HSBC Holdings PLC	-	"	-	US\$ 17,545	N/A	US\$ 17,545	
	Verizon Communications Inc	-	"	-	US\$ 17,515	N/A	US\$ 17,515	
	Mitsubishi UFJ Financial Group Inc	-	"	-	US\$ 14,238	N/A	US\$ 14,238	
	Apple Inc	-	"	-	US\$ 12,912	N/A	US\$ 12,912	
	Wells Fargo & Co	-	"	-	US\$ 12,311	N/A	US\$ 12,311	
	Daimler Finance North America LLC	-	"	-	US\$ 12,082	N/A	US\$ 12,082	
BAT Capital Corp	-	"	-	US\$ 11,988	N/A	US\$ 11,988		
Nordea Bank Abp	-	"	-	US\$ 11,903	N/A	US\$ 11,903		
Sumitomo Mitsui Financial Group Inc	-	"	-	US\$ 11,669	N/A	US\$ 11,669		

(Continued)

Held Company Name	Marketable Securities Type and Name	Relationship with the Company	Financial Statement Account	March 31, 2019				Note
				Shares/Units (In Thousands)	Carrying Value (Foreign Currencies in Thousands)	Percentage of Ownership (%)	Fair Value (Foreign Currencies in Thousands)	
TSMC Global	AbbVie Inc	-	Financial assets at fair value through other comprehensive income	-	US\$ 11,499	N/A	US\$ 11,499	
	Anheuser-Busch InBev Worldwide Inc	-	"	-	US\$ 11,134	N/A	US\$ 11,134	
	European Investment Bank	-	"	-	US\$ 11,122	N/A	US\$ 11,122	
	American International Group Inc	-	"	-	US\$ 10,959	N/A	US\$ 10,959	
	Credit Suisse AG/New York NY	-	"	-	US\$ 10,946	N/A	US\$ 10,946	
	United Technologies Corp	-	"	-	US\$ 9,865	N/A	US\$ 9,865	
	Duke Energy Corp	-	"	-	US\$ 9,437	N/A	US\$ 9,437	
	UBS Group Funding Switzerland AG	-	"	-	US\$ 9,384	N/A	US\$ 9,384	
	Citizens Bank NA/Providence RI	-	"	-	US\$ 9,303	N/A	US\$ 9,303	
	Macquarie Group Ltd	-	"	-	US\$ 9,049	N/A	US\$ 9,049	
	Celgene Corp	-	"	-	US\$ 9,003	N/A	US\$ 9,003	
	ERAC USA Finance LLC	-	"	-	US\$ 8,681	N/A	US\$ 8,681	
	Wells Fargo Bank NA	-	"	-	US\$ 8,368	N/A	US\$ 8,368	
	Ryder System Inc	-	"	-	US\$ 8,359	N/A	US\$ 8,359	
	Tencent Holdings Ltd	-	"	-	US\$ 8,278	N/A	US\$ 8,278	
	Intercontinental Exchange Inc	-	"	-	US\$ 8,051	N/A	US\$ 8,051	
	ANZ New Zealand Int'l Ltd/London	-	"	-	US\$ 7,959	N/A	US\$ 7,959	
	Huntington National Bank/The	-	"	-	US\$ 7,921	N/A	US\$ 7,921	
	American Express Credit Corp	-	"	-	US\$ 7,848	N/A	US\$ 7,848	
	PNC Bank NA	-	"	-	US\$ 7,740	N/A	US\$ 7,740	
	SunTrust Bank/Atlanta GA	-	"	-	US\$ 7,544	N/A	US\$ 7,544	
	Cooperatieve Rabobank UA/NY	-	"	-	US\$ 7,537	N/A	US\$ 7,537	
	Cardinal Health Inc	-	"	-	US\$ 7,530	N/A	US\$ 7,530	
	BB&T Corp	-	"	-	US\$ 7,524	N/A	US\$ 7,524	
	Toronto-Dominion Bank/The	-	"	-	US\$ 7,482	N/A	US\$ 7,482	
	Banco Santander SA	-	"	-	US\$ 7,467	N/A	US\$ 7,467	
	Reliance Standard Life Global Funding II	-	"	-	US\$ 7,441	N/A	US\$ 7,441	
	Hewlett Packard Enterprise Co	-	"	-	US\$ 7,391	N/A	US\$ 7,391	
	Microsoft Corp	-	"	-	US\$ 7,294	N/A	US\$ 7,294	
	Council Of Europe Development Bank	-	"	-	US\$ 7,245	N/A	US\$ 7,245	
	ABN AMRO Bank NV	-	"	-	US\$ 7,207	N/A	US\$ 7,207	
	African Development Bank	-	"	-	US\$ 7,166	N/A	US\$ 7,166	
	American Express Co	-	"	-	US\$ 7,060	N/A	US\$ 7,060	
	Tyson Foods Inc	-	"	-	US\$ 6,941	N/A	US\$ 6,941	
	Mizuho Financial Group Inc	-	"	-	US\$ 6,892	N/A	US\$ 6,892	
	Welltower Inc	-	"	-	US\$ 6,804	N/A	US\$ 6,804	
	Cox Communications Inc	-	"	-	US\$ 6,771	N/A	US\$ 6,771	
	DowDuPont Inc	-	"	-	US\$ 6,753	N/A	US\$ 6,753	
	Toyota Motor Credit Corp	-	"	-	US\$ 6,729	N/A	US\$ 6,729	
	Fifth Third Bancorp	-	"	-	US\$ 6,684	N/A	US\$ 6,684	
	Westpac Banking Corp	-	"	-	US\$ 6,511	N/A	US\$ 6,511	
	General Dynamics Corp	-	"	-	US\$ 6,479	N/A	US\$ 6,479	
	QUALCOMM Inc	-	"	-	US\$ 6,373	N/A	US\$ 6,373	
	Walt Disney Co/The	-	"	-	US\$ 6,214	N/A	US\$ 6,214	
	KeyBank NA/Cleveland OH	-	"	-	US\$ 6,042	N/A	US\$ 6,042	
	Fox Corp	-	"	-	US\$ 5,986	N/A	US\$ 5,986	
	Santander UK Group Holdings PLC	-	"	-	US\$ 5,964	N/A	US\$ 5,964	
	SMBC Aviation Capital Finance DAC	-	"	-	US\$ 5,935	N/A	US\$ 5,935	
	NextEra Energy Capital Holdings Inc	-	"	-	US\$ 5,915	N/A	US\$ 5,915	
	AXA Equitable Holdings Inc	-	"	-	US\$ 5,896	N/A	US\$ 5,896	

(Continued)

Held Company Name	Marketable Securities Type and Name	Relationship with the Company	Financial Statement Account	March 31, 2019				Note
				Shares/Units (In Thousands)	Carrying Value (Foreign Currencies in Thousands)	Percentage of Ownership (%)	Fair Value (Foreign Currencies in Thousands)	
TSMC Global	KeyCorp	-	Financial assets at fair value through other comprehensive income	-	US\$ 5,867	N/A	US\$ 5,867	
	BP Capital Markets America Inc	-	"	-	US\$ 5,747	N/A	US\$ 5,747	
	Aviation Capital Group LLC	-	"	-	US\$ 5,745	N/A	US\$ 5,745	
	BNP Paribas SA	-	"	-	US\$ 5,651	N/A	US\$ 5,651	
	Oracle Corp	-	"	-	US\$ 5,612	N/A	US\$ 5,612	
	Air Lease Corp	-	"	-	US\$ 5,611	N/A	US\$ 5,611	
	Analog Devices Inc	-	"	-	US\$ 5,461	N/A	US\$ 5,461	
	Penske Truck Leasing Co Lp / PTL Finance Corp	-	"	-	US\$ 5,459	N/A	US\$ 5,459	
	ITC Holdings Corp	-	"	-	US\$ 5,458	N/A	US\$ 5,458	
	Vodafone Group PLC	-	"	-	US\$ 5,452	N/A	US\$ 5,452	
	Capital One NA	-	"	-	US\$ 5,419	N/A	US\$ 5,419	
	Western Union Co/The	-	"	-	US\$ 5,358	N/A	US\$ 5,358	
	Lloyds Banking Group PLC	-	"	-	US\$ 5,349	N/A	US\$ 5,349	
	BPCE SA	-	"	-	US\$ 5,273	N/A	US\$ 5,273	
	Manufacturers & Traders Trust Co	-	"	-	US\$ 5,178	N/A	US\$ 5,178	
	SunTrust Banks Inc	-	"	-	US\$ 5,142	N/A	US\$ 5,142	
	Sompo International Holdings Ltd	-	"	-	US\$ 5,141	N/A	US\$ 5,141	
	Macquarie Bank Ltd	-	"	-	US\$ 5,061	N/A	US\$ 5,061	
	Jackson National Life Global Funding	-	"	-	US\$ 5,025	N/A	US\$ 5,025	
	UBS AG/Stamford CT	-	"	-	US\$ 4,991	N/A	US\$ 4,991	
	Skandinaviska Enskilda Banken AB	-	"	-	US\$ 4,947	N/A	US\$ 4,947	
	Bayer US Finance II LLC	-	"	-	US\$ 4,940	N/A	US\$ 4,940	
	Reckitt Benckiser Treasury Services PLC	-	"	-	US\$ 4,913	N/A	US\$ 4,913	
	Marriott International Inc/MD	-	"	-	US\$ 4,894	N/A	US\$ 4,894	
	Canadian Imperial Bank of Commerce	-	"	-	US\$ 4,852	N/A	US\$ 4,852	
	Svenska Handelsbanken AB	-	"	-	US\$ 4,821	N/A	US\$ 4,821	
	Five Corners Funding Trust	-	"	-	US\$ 4,759	N/A	US\$ 4,759	
	US Bank NA/Cincinnati OH	-	"	-	US\$ 4,707	N/A	US\$ 4,707	
	Altria Group Inc	-	"	-	US\$ 4,636	N/A	US\$ 4,636	
	Credit Suisse Group Funding Guernsey Ltd	-	"	-	US\$ 4,623	N/A	US\$ 4,623	
	BP Capital Markets PLC	-	"	-	US\$ 4,596	N/A	US\$ 4,596	
	AEP Texas Inc	-	"	-	US\$ 4,596	N/A	US\$ 4,596	
	Enterprise Products Operating LLC	-	"	-	US\$ 4,510	N/A	US\$ 4,510	
	New York Life Global Funding	-	"	-	US\$ 4,472	N/A	US\$ 4,472	
	Hyundai Capital America	-	"	-	US\$ 4,381	N/A	US\$ 4,381	
	Bank of Nova Scotia/The	-	"	-	US\$ 4,376	N/A	US\$ 4,376	
	Credit Agricole SA/London	-	"	-	US\$ 4,202	N/A	US\$ 4,202	
	Banque Federative du Credit Mutuel SA	-	"	-	US\$ 4,067	N/A	US\$ 4,067	
	Anthem Inc	-	"	-	US\$ 4,028	N/A	US\$ 4,028	
	Exelon Generation Co LLC	-	"	-	US\$ 4,000	N/A	US\$ 4,000	
	Duke Realty LP	-	"	-	US\$ 3,960	N/A	US\$ 3,960	
	Keurig Dr Pepper Inc	-	"	-	US\$ 3,956	N/A	US\$ 3,956	
	PNC Financial Services Group Inc/The	-	"	-	US\$ 3,855	N/A	US\$ 3,855	
	Barclays PLC	-	"	-	US\$ 3,817	N/A	US\$ 3,817	
	Amgen Inc	-	"	-	US\$ 3,743	N/A	US\$ 3,743	
	Capital One Financial Corp	-	"	-	US\$ 3,705	N/A	US\$ 3,705	
	Enel Finance International NV	-	"	-	US\$ 3,693	N/A	US\$ 3,693	
	Barclays Bank PLC	-	"	-	US\$ 3,681	N/A	US\$ 3,681	
	Asian Development Bank	-	"	-	US\$ 3,611	N/A	US\$ 3,611	
	International Bank for Reconstruction & Development	-	"	-	US\$ 3,593	N/A	US\$ 3,593	

(Continued)

Held Company Name	Marketable Securities Type and Name	Relationship with the Company	Financial Statement Account	March 31, 2019				Note
				Shares/Units (In Thousands)	Carrying Value (Foreign Currencies in Thousands)	Percentage of Ownership (%)	Fair Value (Foreign Currencies in Thousands)	
TSMC Global	Alimentation Couche-Tard Inc	-	Financial assets at fair value through other comprehensive income	-	US\$ 3,529	N/A	US\$ 3,529	
	Branch Banking & Trust Co	-	"	-	US\$ 3,525	N/A	US\$ 3,525	
	BMW US Capital LLC	-	"	-	US\$ 3,486	N/A	US\$ 3,486	
	Mondelez International Holdings Netherlands BV	-	"	-	US\$ 3,412	N/A	US\$ 3,412	
	John Deere Capital Corp	-	"	-	US\$ 3,408	N/A	US\$ 3,408	
	Southern Co/The	-	"	-	US\$ 3,296	N/A	US\$ 3,296	
	Inter-American Development Bank	-	"	-	US\$ 3,138	N/A	US\$ 3,138	
	State Street Corp	-	"	-	US\$ 3,121	N/A	US\$ 3,121	
	Takeda Pharmaceutical Co Ltd	-	"	-	US\$ 3,113	N/A	US\$ 3,113	
	Bank of Montreal	-	"	-	US\$ 3,051	N/A	US\$ 3,051	
	Cigna Holding Co	-	"	-	US\$ 3,016	N/A	US\$ 3,016	
	Eversource Energy	-	"	-	US\$ 3,008	N/A	US\$ 3,008	
	Royal Bank of Canada	-	"	-	US\$ 3,008	N/A	US\$ 3,008	
	Danske Bank A/S	-	"	-	US\$ 2,999	N/A	US\$ 2,999	
	GlaxoSmithKline Capital PLC	-	"	-	US\$ 2,964	N/A	US\$ 2,964	
	Anheuser-Busch InBev Finance Inc	-	"	-	US\$ 2,922	N/A	US\$ 2,922	
	Charles Schwab Corp/The	-	"	-	US\$ 2,887	N/A	US\$ 2,887	
	Thermo Fisher Scientific Inc	-	"	-	US\$ 2,821	N/A	US\$ 2,821	
	Societe Generale SA	-	"	-	US\$ 2,802	N/A	US\$ 2,802	
	RELX Capital Inc	-	"	-	US\$ 2,800	N/A	US\$ 2,800	
	Express Scripts Holding Co	-	"	-	US\$ 2,785	N/A	US\$ 2,785	
	Shell International Finance BV	-	"	-	US\$ 2,762	N/A	US\$ 2,762	
	Santander UK PLC	-	"	-	US\$ 2,761	N/A	US\$ 2,761	
	Ventas Realty LP / Ventas Capital Corp	-	"	-	US\$ 2,752	N/A	US\$ 2,752	
	McCormick & Co Inc/MD	-	"	-	US\$ 2,690	N/A	US\$ 2,690	
	US Bancorp	-	"	-	US\$ 2,655	N/A	US\$ 2,655	
	Schlumberger Holdings Corp	-	"	-	US\$ 2,650	N/A	US\$ 2,650	
	Ford Motor Credit Co LLC	-	"	-	US\$ 2,649	N/A	US\$ 2,649	
	Sprint Spectrum Co LLC / Sprint Spectrum Co II LLC / Sprint Spectrum Co III LLC	-	"	-	US\$ 2,615	N/A	US\$ 2,615	
	Kroger Co/The	-	"	-	US\$ 2,605	N/A	US\$ 2,605	
	Berkshire Hathaway Energy Co	-	"	-	US\$ 2,568	N/A	US\$ 2,568	
	PartnerRe Finance B LLC	-	"	-	US\$ 2,567	N/A	US\$ 2,567	
	LyondellBasell Industries NV	-	"	-	US\$ 2,566	N/A	US\$ 2,566	
	Husky Energy Inc	-	"	-	US\$ 2,555	N/A	US\$ 2,555	
	Sempra Energy	-	"	-	US\$ 2,496	N/A	US\$ 2,496	
	ING Groep NV	-	"	-	US\$ 2,490	N/A	US\$ 2,490	
	WR Berkley Corp	-	"	-	US\$ 2,481	N/A	US\$ 2,481	
	Shire Acquisitions Investments Ireland DAC	-	"	-	US\$ 2,470	N/A	US\$ 2,470	
	NiSource Inc	-	"	-	US\$ 2,449	N/A	US\$ 2,449	
	HCP Inc	-	"	-	US\$ 2,442	N/A	US\$ 2,442	
	Delta Air Lines 2007-1 Class A Pass Through Trust	-	"	-	US\$ 2,432	N/A	US\$ 2,432	
	DXC Technology Co	-	"	-	US\$ 2,369	N/A	US\$ 2,369	
	JPMorgan Chase Bank NA	-	"	-	US\$ 2,366	N/A	US\$ 2,366	
	Xylem Inc/NY	-	"	-	US\$ 2,357	N/A	US\$ 2,357	
	EI du Pont de Nemours & Co	-	"	-	US\$ 2,332	N/A	US\$ 2,332	
	NBCUniversal Media LLC	-	"	-	US\$ 2,275	N/A	US\$ 2,275	
	Berkshire Hathaway Inc	-	"	-	US\$ 2,273	N/A	US\$ 2,273	
	Lloyds Bank PLC	-	"	-	US\$ 2,246	N/A	US\$ 2,246	
	Rockwell Collins Inc	-	"	-	US\$ 2,237	N/A	US\$ 2,237	

(Continued)

Held Company Name	Marketable Securities Type and Name	Relationship with the Company	Financial Statement Account	March 31, 2019				Note
				Shares/Units (In Thousands)	Carrying Value (Foreign Currencies in Thousands)	Percentage of Ownership (%)	Fair Value (Foreign Currencies in Thousands)	
TSMC Global	Cintas Corp No 2	-	Financial assets at fair value through other comprehensive income	-	US\$ 2,211	N/A	US\$ 2,211	
	Siemens Financieringsmaatschappij NV	-	"	-	US\$ 2,184	N/A	US\$ 2,184	
	NatWest Markets PLC	-	"	-	US\$ 2,175	N/A	US\$ 2,175	
	ProAssurance Corp	-	"	-	US\$ 2,131	N/A	US\$ 2,131	
	Gilead Sciences Inc	-	"	-	US\$ 2,117	N/A	US\$ 2,117	
	Fifth Third Bank/Cincinnati OH	-	"	-	US\$ 2,077	N/A	US\$ 2,077	
	Exelon Corp	-	"	-	US\$ 2,076	N/A	US\$ 2,076	
	Aetna Inc	-	"	-	US\$ 2,064	N/A	US\$ 2,064	
	Quest Diagnostics Inc	-	"	-	US\$ 2,064	N/A	US\$ 2,064	
	Suncor Energy Inc	-	"	-	US\$ 2,053	N/A	US\$ 2,053	
	Bank of New York Mellon Corp/The	-	"	-	US\$ 2,052	N/A	US\$ 2,052	
	EOG Resources Inc	-	"	-	US\$ 2,021	N/A	US\$ 2,021	
	Regions Financial Corp	-	"	-	US\$ 2,013	N/A	US\$ 2,013	
	Realty Income Corp	-	"	-	US\$ 2,008	N/A	US\$ 2,008	
	AstraZeneca PLC	-	"	-	US\$ 1,992	N/A	US\$ 1,992	
	Deutsche Telekom International Finance BV	-	"	-	US\$ 1,976	N/A	US\$ 1,976	
	Caterpillar Financial Services Corp	-	"	-	US\$ 1,968	N/A	US\$ 1,968	
	Huntington Bancshares Inc/OH	-	"	-	US\$ 1,948	N/A	US\$ 1,948	
	Simon Property Group LP	-	"	-	US\$ 1,944	N/A	US\$ 1,944	
	Volkswagen Group of America Finance LLC	-	"	-	US\$ 1,934	N/A	US\$ 1,934	
	Walgreens Boots Alliance Inc	-	"	-	US\$ 1,923	N/A	US\$ 1,923	
	Northrop Grumman Corp	-	"	-	US\$ 1,910	N/A	US\$ 1,910	
	Dow Chemical Co/The	-	"	-	US\$ 1,895	N/A	US\$ 1,895	
	UBS AG/London	-	"	-	US\$ 1,868	N/A	US\$ 1,868	
	WestRock RKT LLC	-	"	-	US\$ 1,779	N/A	US\$ 1,779	
	National Australia Bank Ltd/New York	-	"	-	US\$ 1,778	N/A	US\$ 1,778	
	UnitedHealth Group Inc	-	"	-	US\$ 1,771	N/A	US\$ 1,771	
	PSEG Power LLC	-	"	-	US\$ 1,767	N/A	US\$ 1,767	
	Dominion Energy Inc	-	"	-	US\$ 1,759	N/A	US\$ 1,759	
	CenterPoint Energy Inc	-	"	-	US\$ 1,757	N/A	US\$ 1,757	
	Dominion Energy Gas Holdings LLC	-	"	-	US\$ 1,751	N/A	US\$ 1,751	
	Brambles USA Inc	-	"	-	US\$ 1,739	N/A	US\$ 1,739	
	General Mills Inc	-	"	-	US\$ 1,729	N/A	US\$ 1,729	
	McKesson Corp	-	"	-	US\$ 1,723	N/A	US\$ 1,723	
	Standard Chartered PLC	-	"	-	US\$ 1,719	N/A	US\$ 1,719	
	Wisconsin Public Service Corp	-	"	-	US\$ 1,693	N/A	US\$ 1,693	
	Marathon Petroleum Corp	-	"	-	US\$ 1,677	N/A	US\$ 1,677	
	Digital Realty Trust LP	-	"	-	US\$ 1,618	N/A	US\$ 1,618	
	Amazon.com Inc	-	"	-	US\$ 1,614	N/A	US\$ 1,614	
	General Electric Co	-	"	-	US\$ 1,608	N/A	US\$ 1,608	
	Nutrien Ltd	-	"	-	US\$ 1,598	N/A	US\$ 1,598	
	Principal Life Global Funding II	-	"	-	US\$ 1,588	N/A	US\$ 1,588	
	American Electric Power Co Inc	-	"	-	US\$ 1,567	N/A	US\$ 1,567	
	DTE Energy Co	-	"	-	US\$ 1,559	N/A	US\$ 1,559	
	Lincoln National Corp	-	"	-	US\$ 1,553	N/A	US\$ 1,553	
	Nestle Holdings Inc	-	"	-	US\$ 1,543	N/A	US\$ 1,543	
	Marsh & McLennan Cos Inc	-	"	-	US\$ 1,530	N/A	US\$ 1,530	
	Lam Research Corp	-	"	-	US\$ 1,518	N/A	US\$ 1,518	
	Compass Bank	-	"	-	US\$ 1,510	N/A	US\$ 1,510	
	AIG Global Funding	-	"	-	US\$ 1,508	N/A	US\$ 1,508	

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Held Company Name	Marketable Securities Type and Name	Relationship with the Company	Financial Statement Account	March 31, 2019				Note
				Shares/Units (In Thousands)	Carrying Value (Foreign Currencies in Thousands)	Percentage of Ownership (%)	Fair Value (Foreign Currencies in Thousands)	
TSMC Global	American Airlines 2013-2 Class A Pass Through Trust	-	Financial assets at fair value through other comprehensive income	-	US\$ 1,504	N/A	US\$ 1,504	
	Healthcare Trust of America Holdings LP	-	"	-	US\$ 1,493	N/A	US\$ 1,493	
	Public Service Electric & Gas Co	-	"	-	US\$ 1,492	N/A	US\$ 1,492	
	Nissan Motor Acceptance Corp	-	"	-	US\$ 1,483	N/A	US\$ 1,483	
	Fiserv Inc	-	"	-	US\$ 1,481	N/A	US\$ 1,481	
	Guardian Life Global Funding	-	"	-	US\$ 1,478	N/A	US\$ 1,478	
	CBS Corp	-	"	-	US\$ 1,463	N/A	US\$ 1,463	
	TransCanada PipeLines Ltd	-	"	-	US\$ 1,461	N/A	US\$ 1,461	
	Eastman Chemical Co	-	"	-	US\$ 1,458	N/A	US\$ 1,458	
	HSBC Bank PLC	-	"	-	US\$ 1,444	N/A	US\$ 1,444	
	Sumitomo Mitsui Banking Corp	-	"	-	US\$ 1,434	N/A	US\$ 1,434	
	WEC Energy Group Inc	-	"	-	US\$ 1,431	N/A	US\$ 1,431	
	Monongahela Power Co	-	"	-	US\$ 1,405	N/A	US\$ 1,405	
	Texas Eastern Transmission LP	-	"	-	US\$ 1,393	N/A	US\$ 1,393	
	Metropolitan Life Global Funding I	-	"	-	US\$ 1,381	N/A	US\$ 1,381	
	Cboe Global Markets Inc	-	"	-	US\$ 1,372	N/A	US\$ 1,372	
	Georgia-Pacific LLC	-	"	-	US\$ 1,352	N/A	US\$ 1,352	
	Canadian Natural Resources Ltd	-	"	-	US\$ 1,301	N/A	US\$ 1,301	
	Entergy Arkansas LLC	-	"	-	US\$ 1,283	N/A	US\$ 1,283	
	GATX Corp	-	"	-	US\$ 1,275	N/A	US\$ 1,275	
	Visa Inc	-	"	-	US\$ 1,270	N/A	US\$ 1,270	
	CNA Financial Corp	-	"	-	US\$ 1,261	N/A	US\$ 1,261	
	Entergy Corp	-	"	-	US\$ 1,255	N/A	US\$ 1,255	
	Consolidated Edison Inc	-	"	-	US\$ 1,210	N/A	US\$ 1,210	
	Regions Bank/Birmingham AL	-	"	-	US\$ 1,171	N/A	US\$ 1,171	
	CK Hutchison International 16 Ltd	-	"	-	US\$ 1,166	N/A	US\$ 1,166	
	Magellan Midstream Partners LP	-	"	-	US\$ 1,162	N/A	US\$ 1,162	
	MUFG Union Bank NA	-	"	-	US\$ 1,155	N/A	US\$ 1,155	
	Woolworths Group Ltd	-	"	-	US\$ 1,100	N/A	US\$ 1,100	
	Interpublic Group of Cos Inc/The	-	"	-	US\$ 1,097	N/A	US\$ 1,097	
	Swedbank AB	-	"	-	US\$ 1,065	N/A	US\$ 1,065	
	Reinsurance Group of America Inc	-	"	-	US\$ 1,042	N/A	US\$ 1,042	
	Glencore Finance Canada Ltd	-	"	-	US\$ 1,040	N/A	US\$ 1,040	
	Prudential Financial Inc	-	"	-	US\$ 1,038	N/A	US\$ 1,038	
	Athene Global Funding	-	"	-	US\$ 1,034	N/A	US\$ 1,034	
	Weyerhaeuser Co	-	"	-	US\$ 1,030	N/A	US\$ 1,030	
	O'Reilly Automotive Inc	-	"	-	US\$ 1,027	N/A	US\$ 1,027	
	DNB Bank ASA	-	"	-	US\$ 1,026	N/A	US\$ 1,026	
	Commonwealth Bank of Australia	-	"	-	US\$ 1,024	N/A	US\$ 1,024	
	ONE Gas Inc	-	"	-	US\$ 1,024	N/A	US\$ 1,024	
	Scentre Group Trust 1 / Scentre Group Trust 2	-	"	-	US\$ 1,023	N/A	US\$ 1,023	
	Mitsubishi UFJ Trust & Banking Corp	-	"	-	US\$ 1,023	N/A	US\$ 1,023	
	Halliburton Co	-	"	-	US\$ 1,022	N/A	US\$ 1,022	
	Union Pacific Corp	-	"	-	US\$ 1,016	N/A	US\$ 1,016	
	Commonwealth Edison Co	-	"	-	US\$ 1,016	N/A	US\$ 1,016	
	Equinor ASA	-	"	-	US\$ 1,006	N/A	US\$ 1,006	
	Reynolds American Inc	-	"	-	US\$ 1,005	N/A	US\$ 1,005	
	BOC Aviation Ltd	-	"	-	US\$ 1,003	N/A	US\$ 1,003	
	Unum Group	-	"	-	US\$ 1,001	N/A	US\$ 1,001	
	Sysco Corp	-	"	-	US\$ 999	N/A	US\$ 999	

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Held Company Name	Marketable Securities Type and Name	Relationship with the Company	Financial Statement Account	March 31, 2019				Note
				Shares/Units (In Thousands)	Carrying Value (Foreign Currencies in Thousands)	Percentage of Ownership (%)	Fair Value (Foreign Currencies in Thousands)	
TSMC Global	Biogen Inc	-	Financial assets at fair value through other comprehensive income	-	US\$ 999	N/A	US\$ 999	
	Laboratory Corp of America Holdings	-	"	-	US\$ 998	N/A	US\$ 998	
	Priscoa Global Funding I	-	"	-	US\$ 997	N/A	US\$ 997	
	Southern California Edison Co	-	"	-	US\$ 995	N/A	US\$ 995	
	Orange SA	-	"	-	US\$ 994	N/A	US\$ 994	
	Protective Life Global Funding	-	"	-	US\$ 994	N/A	US\$ 994	
	Loews Corp	-	"	-	US\$ 993	N/A	US\$ 993	
	Entergy Texas Inc	-	"	-	US\$ 988	N/A	US\$ 988	
	Ameriprise Financial Inc	-	"	-	US\$ 988	N/A	US\$ 988	
	Bunge Ltd Finance Corp	-	"	-	US\$ 987	N/A	US\$ 987	
	State Grid Overseas Investment 2016 Ltd	-	"	-	US\$ 979	N/A	US\$ 979	
	Holcim US Finance Sarl & Cie SCS	-	"	-	US\$ 969	N/A	US\$ 969	
	Citibank NA	-	"	-	US\$ 967	N/A	US\$ 967	
	Lockheed Martin Corp	-	"	-	US\$ 898	N/A	US\$ 898	
	Coca-Cola Femsa SAB de CV	-	"	-	US\$ 890	N/A	US\$ 890	
	CA Inc	-	"	-	US\$ 886	N/A	US\$ 886	
	CNOOC Finance 2011 Ltd	-	"	-	US\$ 868	N/A	US\$ 868	
	Baker Hughes a GE Co LLC / Baker Hughes Co-Obligor Inc	-	"	-	US\$ 857	N/A	US\$ 857	
	Viterra Inc	-	"	-	US\$ 854	N/A	US\$ 854	
	Spectra Energy Partners LP	-	"	-	US\$ 852	N/A	US\$ 852	
	Intesa Sanpaolo SpA	-	"	-	US\$ 850	N/A	US\$ 850	
	Aon PLC	-	"	-	US\$ 809	N/A	US\$ 809	
	ONEOK Partners LP	-	"	-	US\$ 808	N/A	US\$ 808	
	Church & Dwight Co Inc	-	"	-	US\$ 798	N/A	US\$ 798	
	Activision Blizzard Inc	-	"	-	US\$ 796	N/A	US\$ 796	
	Suncorp-Metway Ltd	-	"	-	US\$ 796	N/A	US\$ 796	
	Sinopec Capital 2013 Ltd	-	"	-	US\$ 796	N/A	US\$ 796	
	Alterra Finance LLC	-	"	-	US\$ 790	N/A	US\$ 790	
	AXIS Specialty Finance LLC	-	"	-	US\$ 773	N/A	US\$ 773	
	Warner Media LLC	-	"	-	US\$ 772	N/A	US\$ 772	
	Manulife Financial Corp	-	"	-	US\$ 771	N/A	US\$ 771	
	AutoZone Inc	-	"	-	US\$ 766	N/A	US\$ 766	
	Incitec Pivot Finance LLC	-	"	-	US\$ 764	N/A	US\$ 764	
	Brookfield Finance Inc	-	"	-	US\$ 757	N/A	US\$ 757	
	Baidu Inc	-	"	-	US\$ 750	N/A	US\$ 750	
	Pinnacle West Capital Corp	-	"	-	US\$ 743	N/A	US\$ 743	
	British Airways 2013-1 Class A Pass Through Trust	-	"	-	US\$ 738	N/A	US\$ 738	
	APT Pipelines Ltd	-	"	-	US\$ 713	N/A	US\$ 713	
	Baker Hughes a GE Co LLC	-	"	-	US\$ 707	N/A	US\$ 707	
	Phillips 66	-	"	-	US\$ 705	N/A	US\$ 705	
	Australia & New Zealand Banking Group Ltd/New York NY	-	"	-	US\$ 698	N/A	US\$ 698	
	Merck & Co Inc	-	"	-	US\$ 695	N/A	US\$ 695	
	National Oilwell Varco Inc	-	"	-	US\$ 688	N/A	US\$ 688	
	Textron Inc	-	"	-	US\$ 688	N/A	US\$ 688	
	Three Gorges Finance I Cayman Islands Ltd	-	"	-	US\$ 687	N/A	US\$ 687	
	Vornado Realty LP	-	"	-	US\$ 687	N/A	US\$ 687	
	Rochester Gas & Electric Corp	-	"	-	US\$ 656	N/A	US\$ 656	
	Norfolk Southern Railway Co	-	"	-	US\$ 651	N/A	US\$ 651	
	Ohio Power Co	-	"	-	US\$ 640	N/A	US\$ 640	
	Alexandria Real Estate Equities Inc	-	"	-	US\$ 627	N/A	US\$ 627	

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Held Company Name	Marketable Securities Type and Name	Relationship with the Company	Financial Statement Account	March 31, 2019				Note
				Shares/Units (In Thousands)	Carrying Value (Foreign Currencies in Thousands)	Percentage of Ownership (%)	Fair Value (Foreign Currencies in Thousands)	
TSMC Global	Toledo Edison Co/The	-	Financial assets at fair value through other comprehensive income	-	US\$ 625	N/A	US\$ 625	
	ERP Operating LP	-	"	-	US\$ 624	N/A	US\$ 624	
	Wm Wrigley Jr Co	-	"	-	US\$ 624	N/A	US\$ 624	
	Citizens Financial Group Inc	-	"	-	US\$ 622	N/A	US\$ 622	
	RBC USA Holdco Corp	-	"	-	US\$ 620	N/A	US\$ 620	
	Liberty Property LP	-	"	-	US\$ 613	N/A	US\$ 613	
	Grupo Bimbo SAB de CV	-	"	-	US\$ 612	N/A	US\$ 612	
	OneBeacon US Holdings Inc	-	"	-	US\$ 609	N/A	US\$ 609	
	Daiwa Securities Group Inc	-	"	-	US\$ 608	N/A	US\$ 608	
	Kimco Realty Corp	-	"	-	US\$ 606	N/A	US\$ 606	
	Continental Airlines 2007-1 Class A Pass Through Trust	-	"	-	US\$ 604	N/A	US\$ 604	
	Ontario Teachers' Cadillac Fairview Properties Trust	-	"	-	US\$ 604	N/A	US\$ 604	
	Continental Airlines 2000-1 Class A-1 Pass Through Trust	-	"	-	US\$ 601	N/A	US\$ 601	
	BAT International Finance PLC	-	"	-	US\$ 598	N/A	US\$ 598	
	Life Technologies Corp	-	"	-	US\$ 586	N/A	US\$ 586	
	AXIS Specialty Finance PLC	-	"	-	US\$ 575	N/A	US\$ 575	
	Host Hotels & Resorts LP	-	"	-	US\$ 572	N/A	US\$ 572	
	Nationwide Financial Services Inc	-	"	-	US\$ 572	N/A	US\$ 572	
	ABC Inc	-	"	-	US\$ 567	N/A	US\$ 567	
	AvalonBay Communities Inc	-	"	-	US\$ 567	N/A	US\$ 567	
	Duke Energy Progress LLC	-	"	-	US\$ 566	N/A	US\$ 566	
	Ingersoll-Rand Global Holding Co Ltd	-	"	-	US\$ 526	N/A	US\$ 526	
	Nomura Holdings Inc	-	"	-	US\$ 518	N/A	US\$ 518	
	Fulton Financial Corp	-	"	-	US\$ 516	N/A	US\$ 516	
	ASB Bank Ltd	-	"	-	US\$ 512	N/A	US\$ 512	
	Regency Centers Corp	-	"	-	US\$ 510	N/A	US\$ 510	
	ORIX Corp	-	"	-	US\$ 503	N/A	US\$ 503	
	Highwoods Realty LP	-	"	-	US\$ 499	N/A	US\$ 499	
	Sumitomo Mitsui Trust Bank Ltd	-	"	-	US\$ 498	N/A	US\$ 498	
	TD Ameritrade Holding Corp	-	"	-	US\$ 496	N/A	US\$ 496	
	Eni SpA	-	"	-	US\$ 491	N/A	US\$ 491	
	MassMutual Global Funding II	-	"	-	US\$ 488	N/A	US\$ 488	
	International Paper Co	-	"	-	US\$ 481	N/A	US\$ 481	
	Diageo Capital PLC	-	"	-	US\$ 477	N/A	US\$ 477	
	Comerica Inc	-	"	-	US\$ 475	N/A	US\$ 475	
	Duke Energy Carolinas LLC	-	"	-	US\$ 464	N/A	US\$ 464	
	Spire Inc	-	"	-	US\$ 461	N/A	US\$ 461	
	United Overseas Bank Ltd	-	"	-	US\$ 459	N/A	US\$ 459	
	Narragansett Electric Co/The	-	"	-	US\$ 457	N/A	US\$ 457	
	Total Capital International SA	-	"	-	US\$ 452	N/A	US\$ 452	
	Public Service Enterprise Group Inc	-	"	-	US\$ 452	N/A	US\$ 452	
	Moody's Corp	-	"	-	US\$ 450	N/A	US\$ 450	
	Burlington Northern Santa Fe LLC	-	"	-	US\$ 433	N/A	US\$ 433	
	Columbia Pipeline Group Inc	-	"	-	US\$ 427	N/A	US\$ 427	
	Canadian Pacific Railway Co	-	"	-	US\$ 412	N/A	US\$ 412	
	Valero Energy Corp	-	"	-	US\$ 411	N/A	US\$ 411	
	Eaton Electric Holdings LLC	-	"	-	US\$ 407	N/A	US\$ 407	
	Markel Corp	-	"	-	US\$ 402	N/A	US\$ 402	
	Texas-New Mexico Power Co	-	"	-	US\$ 400	N/A	US\$ 400	
	Southern Power Co	-	"	-	US\$ 396	N/A	US\$ 396	

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Held Company Name	Marketable Securities Type and Name	Relationship with the Company	Financial Statement Account	March 31, 2019				Note
				Shares/Units (In Thousands)	Carrying Value (Foreign Currencies in Thousands)	Percentage of Ownership (%)	Fair Value (Foreign Currencies in Thousands)	
TSMC Global	Continental Airlines 2012-1 Class A Pass Through Trust	-	Financial assets at fair value through other comprehensive income	-	US\$ 395	N/A	US\$ 395	
	IBM Credit LLC	-	"	-	US\$ 394	N/A	US\$ 394	
	StanCorp Financial Group Inc	-	"	-	US\$ 385	N/A	US\$ 385	
	Aon Corp	-	"	-	US\$ 376	N/A	US\$ 376	
	First Niagara Financial Group Inc	-	"	-	US\$ 363	N/A	US\$ 363	
	CenterPoint Energy Resources Corp	-	"	-	US\$ 357	N/A	US\$ 357	
	American Honda Finance Corp	-	"	-	US\$ 356	N/A	US\$ 356	
	Principal Financial Group Inc	-	"	-	US\$ 352	N/A	US\$ 352	
	Cooperatieve Rabobank UA	-	"	-	US\$ 351	N/A	US\$ 351	
	Deutsche Bank AG	-	"	-	US\$ 350	N/A	US\$ 350	
	Commonwealth Bank of Australia/New York NY	-	"	-	US\$ 348	N/A	US\$ 348	
	Schlumberger Finance Canada Ltd	-	"	-	US\$ 298	N/A	US\$ 298	
	Eli Lilly & Co	-	"	-	US\$ 294	N/A	US\$ 294	
	Amphenol Corp	-	"	-	US\$ 288	N/A	US\$ 288	
	BAE Systems Holdings Inc	-	"	-	US\$ 284	N/A	US\$ 284	
	Home Depot Inc/The	-	"	-	US\$ 281	N/A	US\$ 281	
	EMD Finance LLC	-	"	-	US\$ 279	N/A	US\$ 279	
	Archer-Daniels-Midland Co	-	"	-	US\$ 256	N/A	US\$ 256	
	Bank of America NA	-	"	-	US\$ 253	N/A	US\$ 253	
	Hartford Financial Services Group Inc/The	-	"	-	US\$ 228	N/A	US\$ 228	
	Rolls-Royce PLC	-	"	-	US\$ 223	N/A	US\$ 223	
	Protective Life Corp	-	"	-	US\$ 215	N/A	US\$ 215	
	WestRock MWV LLC	-	"	-	US\$ 211	N/A	US\$ 211	
	ING Bank NV	-	"	-	US\$ 209	N/A	US\$ 209	
	Fidelity National Information Services Inc	-	"	-	US\$ 206	N/A	US\$ 206	
	Glencore Funding LLC	-	"	-	US\$ 198	N/A	US\$ 198	
	GE Capital International Funding Co Unlimited Co	-	"	-	US\$ 198	N/A	US\$ 198	
	Equifax Inc	-	"	-	US\$ 177	N/A	US\$ 177	
	Schneider Electric SE	-	"	-	US\$ 161	N/A	US\$ 161	
	Packaging Corp of America	-	"	-	US\$ 159	N/A	US\$ 159	
	Wells Fargo & Co	-	Financial assets at amortized cost	-	US\$ 160,126	N/A	US\$ 161,567	
	JPMorgan Chase & Co.	-	"	-	US\$ 84,967	N/A	US\$ 86,186	
	Westpac Banking Corp.	-	"	-	US\$ 49,994	N/A	US\$ 50,015	
	Bank of Nova Scotia	-	"	-	US\$ 49,980	N/A	US\$ 50,028	
	Industrial and Commercial Bank of China	-	"	-	US\$ 9,996	N/A	US\$ 10,026	
	<u>Government bond</u>							
	United States Treasury Note/Bond	-	Financial assets at fair value through other comprehensive income	-	US\$ 417,315	N/A	US\$ 417,315	
	United States Treasury Floating Rate Note	-	"	-	US\$ 26,004	N/A	US\$ 26,004	
	Abu Dhabi Government International Bond	-	"	-	US\$ 3,456	N/A	US\$ 3,456	
	Qatar Government International Bond	-	"	-	US\$ 1,336	N/A	US\$ 1,336	
	<u>Agency mortgage-backed securities</u>							
	Freddie Mac REMICS	-	Financial assets at fair value through Profit or Loss	-	US\$ 42,327	N/A	US\$ 42,327	
	Fannie Mae REMICS	-	"	-	US\$ 29,100	N/A	US\$ 29,100	
	Government National Mortgage Association	-	"	-	US\$ 20,470	N/A	US\$ 20,470	
	Freddie Mac Multifamily Structured Pass Through Certificates	-	"	-	US\$ 1,631	N/A	US\$ 1,631	
	Fannie Mae Interest Strip	-	"	-	US\$ 1,623	N/A	US\$ 1,623	
	Freddie Mac Strips	-	"	-	US\$ 1,302	N/A	US\$ 1,302	

(Continued)

Held Company Name	Marketable Securities Type and Name	Relationship with the Company	Financial Statement Account	March 31, 2019				Note
				Shares/Units (In Thousands)	Carrying Value (Foreign Currencies in Thousands)	Percentage of Ownership (%)	Fair Value (Foreign Currencies in Thousands)	
TSMC Global	Fannie Mae Pool	-	Financial assets at fair value through other comprehensive income	-	US\$ 383,290	N/A	US\$ 383,290	
	Fannie Mae REMICS	-	"	-	US\$ 156,933	N/A	US\$ 156,933	
	Government National Mortgage Association	-	"	-	US\$ 132,853	N/A	US\$ 132,853	
	Freddie Mac REMICS	-	"	-	US\$ 127,618	N/A	US\$ 127,618	
	Freddie Mac Gold Pool	-	"	-	US\$ 104,290	N/A	US\$ 104,290	
	Ginnie Mae II Pool	-	"	-	US\$ 77,728	N/A	US\$ 77,728	
	Fannie Mae	-	"	-	US\$ 69,499	N/A	US\$ 69,499	
	Freddie Mac	-	"	-	US\$ 22,049	N/A	US\$ 22,049	
	Fannie Mae-Aces	-	"	-	US\$ 13,837	N/A	US\$ 13,837	
	Ginnie Mae	-	"	-	US\$ 13,112	N/A	US\$ 13,112	
	Freddie Mac Multifamily Structured Pass Through Certificates	-	"	-	US\$ 5,001	N/A	US\$ 5,001	
	Freddie Mac Non Gold Pool	-	"	-	US\$ 2,602	N/A	US\$ 2,602	
	FHLMC-GNMA	-	"	-	US\$ 1,352	N/A	US\$ 1,352	
	Province of Quebec Canada	-	"	-	US\$ 999	N/A	US\$ 999	
	Federal Farm Credit Banks	-	"	-	US\$ 899	N/A	US\$ 899	
	NCUA Guaranteed Notes Trust 2010-R2	-	"	-	US\$ 800	N/A	US\$ 800	
	Ginnie Mae I Pool	-	"	-	US\$ 605	N/A	US\$ 605	
	Kowloon-Canton Railway Corp	-	"	-	US\$ 552	N/A	US\$ 552	
	FRESB 2019-SB60 Mortgage Trust	-	"	-	US\$ 410	N/A	US\$ 410	
	NCUA Guaranteed Notes Trust 2010-R1	-	"	-	US\$ 307	N/A	US\$ 307	
	Fannie Mae Benchmark REMIC	-	"	-	US\$ 129	N/A	US\$ 129	
	<u>Asset-backed securities</u>							
	Citibank Credit Card Issuance Trust	-	Financial assets at fair value through other comprehensive income	-	US\$ 59,170	N/A	US\$ 59,170	
	American Express Credit Account Master Trust	-	"	-	US\$ 47,244	N/A	US\$ 47,244	
	Chase Issuance Trust	-	"	-	US\$ 41,726	N/A	US\$ 41,726	
	Discover Card Execution Note Trust	-	"	-	US\$ 37,620	N/A	US\$ 37,620	
	Ford Credit Floorplan Master Owner Trust A	-	"	-	US\$ 24,712	N/A	US\$ 24,712	
	Capital One Multi-Asset Execution Trust	-	"	-	US\$ 8,797	N/A	US\$ 8,797	
	Hyundai Auto Receivables Trust 2018-B	-	"	-	US\$ 8,149	N/A	US\$ 8,149	
	CGDBB Commercial Mortgage Trust 2017-BIOC	-	"	-	US\$ 7,500	N/A	US\$ 7,500	
	BA Credit Card Trust	-	"	-	US\$ 6,600	N/A	US\$ 6,600	
	UBS-Barclays Commercial Mortgage Trust 2012-C2	-	"	-	US\$ 6,297	N/A	US\$ 6,297	
	Mercedes-Benz Master Owner Trust 2016-B	-	"	-	US\$ 6,004	N/A	US\$ 6,004	
	Ford Credit Auto Owner Trust 2016-REV1	-	"	-	US\$ 5,956	N/A	US\$ 5,956	
	BX Commercial Mortgage Trust 2018-IND	-	"	-	US\$ 5,710	N/A	US\$ 5,710	
	BBCMS 2018-TALL Mortgage Trust	-	"	-	US\$ 5,448	N/A	US\$ 5,448	
	Morgan Stanley Bank of America Merrill Lynch Trust 2013-C10	-	"	-	US\$ 4,988	N/A	US\$ 4,988	
	Ford Credit Auto Owner Trust 2015-REV1	-	"	-	US\$ 4,897	N/A	US\$ 4,897	
	Morgan Stanley Bank of America Merrill Lynch Trust 2013-C7	-	"	-	US\$ 4,742	N/A	US\$ 4,742	
	Chesapeake Funding II LLC	-	"	-	US\$ 4,605	N/A	US\$ 4,605	
	Volvo Financial Equipment Master Owner Trust	-	"	-	US\$ 4,511	N/A	US\$ 4,511	
	UBS Commercial Mortgage Trust 2018-C10	-	"	-	US\$ 4,098	N/A	US\$ 4,098	
	JPMCC Commercial Mortgage Securities Trust 2017-JP7	-	"	-	US\$ 4,071	N/A	US\$ 4,071	
	BANK 2017-BNK4	-	"	-	US\$ 4,028	N/A	US\$ 4,028	
	BANK 2017-BNK5	-	"	-	US\$ 4,014	N/A	US\$ 4,014	
	BANK 2017-BNK6	-	"	-	US\$ 4,007	N/A	US\$ 4,007	
Morgan Stanley Bank of America Merrill Lynch Trust 2016-C29	-	"	-	US\$ 4,005	N/A	US\$ 4,005		

(Continued)

Held Company Name	Marketable Securities Type and Name	Relationship with the Company	Financial Statement Account	March 31, 2019				Note
				Shares/Units (In Thousands)	Carrying Value (Foreign Currencies in Thousands)	Percentage of Ownership (%)	Fair Value (Foreign Currencies in Thousands)	
TSMC Global	J.P. Morgan Chase Commercial Mortgage Securities Trust 2016-WIKI	-	Financial assets at fair value through other comprehensive income	-	US\$ 3,986	N/A	US\$ 3,986	
	Cold Storage Trust 2017-ICE3	-	"	-	US\$ 3,800	N/A	US\$ 3,800	
	GS Mortgage Securities Corp II	-	"	-	US\$ 3,146	N/A	US\$ 3,146	
	COMM 2015-CCRE25 Mortgage Trust	-	"	-	US\$ 3,009	N/A	US\$ 3,009	
	GS Mortgage Securities Corp Trust 2018-RIVR	-	"	-	US\$ 2,996	N/A	US\$ 2,996	
	GM Financial Consumer Automobile Receivables Trust 2017-2	-	"	-	US\$ 2,966	N/A	US\$ 2,966	
	Honda Auto Receivables 2017-2 Owner Trust	-	"	-	US\$ 2,961	N/A	US\$ 2,961	
	WFRBS Commercial Mortgage Trust 2013-C13	-	"	-	US\$ 2,827	N/A	US\$ 2,827	
	Honda Auto Receivables 2019-1 Owner Trust	-	"	-	US\$ 2,808	N/A	US\$ 2,808	
	GM Financial Automobile Leasing Trust 2018-3	-	"	-	US\$ 2,803	N/A	US\$ 2,803	
	BMW Floorplan Master Owner Trust	-	"	-	US\$ 2,799	N/A	US\$ 2,799	
	GS Mortgage Securities Trust 2011-GC3	-	"	-	US\$ 2,730	N/A	US\$ 2,730	
	GS Mortgage Securities Trust 2013-GCJ12	-	"	-	US\$ 2,628	N/A	US\$ 2,628	
	Morgan Stanley Capital I Trust 2018-H3	-	"	-	US\$ 2,619	N/A	US\$ 2,619	
	Toyota Auto Receivables 2018-C Owner Trust	-	"	-	US\$ 2,578	N/A	US\$ 2,578	
	Hertz Fleet Lease Funding LP	-	"	-	US\$ 2,329	N/A	US\$ 2,329	
	COMM 2014-CCRE17 Mortgage Trust	-	"	-	US\$ 2,246	N/A	US\$ 2,246	
	JPMDB Commercial Mortgage Securities Trust 2016-C2	-	"	-	US\$ 2,197	N/A	US\$ 2,197	
	UBS Commercial Mortgage Trust 2018-C11	-	"	-	US\$ 2,129	N/A	US\$ 2,129	
	COMM 2013-CCRE12 Mortgage Trust	-	"	-	US\$ 2,094	N/A	US\$ 2,094	
	BENCHMARK 2018-B4	-	"	-	US\$ 2,066	N/A	US\$ 2,066	
	Nissan Auto Lease Trust 2017-A	-	"	-	US\$ 2,041	N/A	US\$ 2,041	
	Wells Fargo Commercial Mortgage Trust 2015-C30	-	"	-	US\$ 2,040	N/A	US\$ 2,040	
	Wells Fargo Commercial Mortgage Trust 2015-LC20	-	"	-	US\$ 2,033	N/A	US\$ 2,033	
	JPMBB Commercial Mortgage Securities Trust 2014-C19	-	"	-	US\$ 2,031	N/A	US\$ 2,031	
	COMM 2015-CCRE22 Mortgage Trust	-	"	-	US\$ 2,028	N/A	US\$ 2,028	
	Citigroup Commercial Mortgage Trust 2017-P8	-	"	-	US\$ 2,017	N/A	US\$ 2,017	
	UBS-Barclays Commercial Mortgage Trust 2013-C6	-	"	-	US\$ 2,015	N/A	US\$ 2,015	
	JPMDB Commercial Mortgage Securities Trust 2017-C7	-	"	-	US\$ 2,001	N/A	US\$ 2,001	
	Toyota Auto Receivables 2016-B Owner Trust	-	"	-	US\$ 1,986	N/A	US\$ 1,986	
	Morgan Stanley Bank of America Merrill Lynch Trust 2016-C31	-	"	-	US\$ 1,977	N/A	US\$ 1,977	
	Toyota Auto Receivables 2017-C Owner Trust	-	"	-	US\$ 1,975	N/A	US\$ 1,975	
	Mercedes-Benz Auto Lease Trust 2018-B	-	"	-	US\$ 1,960	N/A	US\$ 1,960	
	Morgan Stanley Bank of America Merrill Lynch Trust 2013-C8	-	"	-	US\$ 1,809	N/A	US\$ 1,809	
	Ford Credit Auto Lease Trust	-	"	-	US\$ 1,803	N/A	US\$ 1,803	
	Citigroup Commercial Mortgage Trust 2015-GC35	-	"	-	US\$ 1,791	N/A	US\$ 1,791	
	Wheels SPV 2 LLC	-	"	-	US\$ 1,771	N/A	US\$ 1,771	
	BENCHMARK 2018-B6 Mortgage Trust	-	"	-	US\$ 1,766	N/A	US\$ 1,766	
	BANK 2018-BNK14	-	"	-	US\$ 1,742	N/A	US\$ 1,742	
	UBS-Barclays Commercial Mortgage Trust 2013-C5	-	"	-	US\$ 1,684	N/A	US\$ 1,684	
	Morgan Stanley Capital I Trust 2016-UB11	-	"	-	US\$ 1,680	N/A	US\$ 1,680	
	Toyota Auto Receivables 2018-A Owner Trust	-	"	-	US\$ 1,650	N/A	US\$ 1,650	
	Nelnet Student Loan Trust 2015-2	-	"	-	US\$ 1,615	N/A	US\$ 1,615	
	SLM Student Loan Trust 2005-4	-	"	-	US\$ 1,614	N/A	US\$ 1,614	
	Ford Credit Auto Lease Trust 2017-A	-	"	-	US\$ 1,607	N/A	US\$ 1,607	
	Nelnet Student Loan Trust 2010-4	-	"	-	US\$ 1,586	N/A	US\$ 1,586	
	Nelnet Student Loan Trust 2018-3	-	"	-	US\$ 1,545	N/A	US\$ 1,545	
	Morgan Stanley Capital I Trust 2018-H4	-	"	-	US\$ 1,520	N/A	US\$ 1,520	
	Morgan Stanley Capital I Trust 2017-H1	-	"	-	US\$ 1,512	N/A	US\$ 1,512	

(Continued)

Held Company Name	Marketable Securities Type and Name	Relationship with the Company	Financial Statement Account	March 31, 2019				Note
				Shares/Units (In Thousands)	Carrying Value (Foreign Currencies in Thousands)	Percentage of Ownership (%)	Fair Value (Foreign Currencies in Thousands)	
TSMC Global	Ford Credit Auto Owner Trust 2019-A	-	Financial assets at fair value through other comprehensive income	-	US\$ 1,508	N/A	US\$ 1,508	
	Ford Credit Auto Owner Trust 2015-A	-	"	-	US\$ 1,507	N/A	US\$ 1,507	
	COMM 2015-PC1 Mortgage Trust	-	"	-	US\$ 1,504	N/A	US\$ 1,504	
	Ford Credit Auto Lease Trust 2018-A	-	"	-	US\$ 1,502	N/A	US\$ 1,502	
	Edsouth Indenture No 10 LLC	-	"	-	US\$ 1,476	N/A	US\$ 1,476	
	Morgan Stanley Bank of America Merrill Lynch Trust 2015-C24	-	"	-	US\$ 1,457	N/A	US\$ 1,457	
	Toyota Auto Receivables 2018-B Owner Trust	-	"	-	US\$ 1,444	N/A	US\$ 1,444	
	ECMC Group Student Loan Trust 2018-2	-	"	-	US\$ 1,424	N/A	US\$ 1,424	
	Mercedes-Benz Master Owner Trust 2018-BA	-	"	-	US\$ 1,400	N/A	US\$ 1,400	
	Ford Credit Auto Owner Trust 2014-REV2	-	"	-	US\$ 1,396	N/A	US\$ 1,396	
	SLM Student Loan Trust 2013-6	-	"	-	US\$ 1,393	N/A	US\$ 1,393	
	COMM 2013-CCRE6 Mortgage Trust	-	"	-	US\$ 1,385	N/A	US\$ 1,385	
	Nelnet Student Loan Trust 2012-1	-	"	-	US\$ 1,382	N/A	US\$ 1,382	
	JPMCC Commercial Mortgage Securities Trust 2017-JP5	-	"	-	US\$ 1,353	N/A	US\$ 1,353	
	BMW Vehicle Lease Trust	-	"	-	US\$ 1,351	N/A	US\$ 1,351	
	Navient Student Loan Trust 2017-1	-	"	-	US\$ 1,314	N/A	US\$ 1,314	
	JPMBB Commercial Mortgage Securities Trust 2016-C1	-	"	-	US\$ 1,275	N/A	US\$ 1,275	
	Pheaa Student Loan Trust 2018-1	-	"	-	US\$ 1,270	N/A	US\$ 1,270	
	Hyundai Auto Lease Securitization Trust 2018-A	-	"	-	US\$ 1,252	N/A	US\$ 1,252	
	COMM 2015-DC1 Mortgage Trust	-	"	-	US\$ 1,233	N/A	US\$ 1,233	
	Navient Student Loan Trust 2019-1	-	"	-	US\$ 1,214	N/A	US\$ 1,214	
	Ford Credit Auto Owner Trust 2017-C	-	"	-	US\$ 1,213	N/A	US\$ 1,213	
	Morgan Stanley Bank of America Merrill Lynch Trust 2015-C20	-	"	-	US\$ 1,197	N/A	US\$ 1,197	
	Ford Credit Auto Lease Trust 2017-B	-	"	-	US\$ 1,163	N/A	US\$ 1,163	
	Enterprise Fleet Financing LLC	-	"	-	US\$ 1,058	N/A	US\$ 1,058	
	COMM 2015-CCRE27 Mortgage Trust	-	"	-	US\$ 1,057	N/A	US\$ 1,057	
	WFRBS Commercial Mortgage Trust 2011-C4	-	"	-	US\$ 1,036	N/A	US\$ 1,036	
	GM Financial Consumer Automobile Receivables Trust 2018-4	-	"	-	US\$ 1,033	N/A	US\$ 1,033	
	COMM 2014-LC17 Mortgage Trust	-	"	-	US\$ 1,019	N/A	US\$ 1,019	
	JPMBB Commercial Mortgage Securities Trust 2014-C21	-	"	-	US\$ 1,017	N/A	US\$ 1,017	
	Morgan Stanley Bank of America Merrill Lynch Trust 2014 C19	-	"	-	US\$ 1,016	N/A	US\$ 1,016	
	COMM 2014-CCRE20 Mortgage Trust	-	"	-	US\$ 1,016	N/A	US\$ 1,016	
	Nissan Auto Receivables 2017-B Owner Trust	-	"	-	US\$ 1,014	N/A	US\$ 1,014	
	Nissan Auto Receivables 2018-B Owner Trust	-	"	-	US\$ 1,010	N/A	US\$ 1,010	
	GS Mortgage Securities Corp Trust 2016-RENT	-	"	-	US\$ 1,005	N/A	US\$ 1,005	
	Ford Credit Auto Owner Trust 2017-REV1	-	"	-	US\$ 995	N/A	US\$ 995	
	GM Financial Consumer Automobile 2017-1	-	"	-	US\$ 991	N/A	US\$ 991	
	Citigroup Commercial Mortgage Trust 2013-GC11	-	"	-	US\$ 990	N/A	US\$ 990	
	Morgan Stanley Capital Barclays Bank Trust 2016-MART	-	"	-	US\$ 988	N/A	US\$ 988	
	Nelnet Student Loan Trust 2006-2	-	"	-	US\$ 983	N/A	US\$ 983	
	JP Morgan Chase Commercial Mortgage Securities Trust 2012-LC9	-	"	-	US\$ 917	N/A	US\$ 917	
	Honda Auto Receivables 2018-2 Owner Trust	-	"	-	US\$ 916	N/A	US\$ 916	
	GM Financial Automobile Leasing Trust 2017-1	-	"	-	US\$ 900	N/A	US\$ 900	
	CarMax Auto Owner Trust 2018-1	-	"	-	US\$ 879	N/A	US\$ 879	
	Morgan Stanley Bank of America Merrill Lynch Trust 2012-C6	-	"	-	US\$ 861	N/A	US\$ 861	
	Mercedes-Benz Auto Receivables Trust 2018-1	-	"	-	US\$ 847	N/A	US\$ 847	
	Nissan Auto Receivables 2019-A Owner Trust	-	"	-	US\$ 847	N/A	US\$ 847	
	280 Park Avenue 2017-280P Mortgage Trust	-	"	-	US\$ 829	N/A	US\$ 829	
	Hyundai Auto Lease Securitization Trust 2017-C	-	"	-	US\$ 826	N/A	US\$ 826	

(Continued)

Held Company Name	Marketable Securities Type and Name	Relationship with the Company	Financial Statement Account	March 31, 2019				Note
				Shares/Units (In Thousands)	Carrying Value (Foreign Currencies in Thousands)	Percentage of Ownership (%)	Fair Value (Foreign Currencies in Thousands)	
TSMC Global	Ford Credit Auto Owner Trust 2015-REV2	-	Financial assets at fair value through other comprehensive income	-	US\$ 807	N/A	US\$ 807	
	Honda Auto Receivables 2018-3 Owner Trust	-	"	-	US\$ 800	N/A	US\$ 800	
	Ford Credit Auto Owner Trust/Ford Credit 2014-REV1	-	"	-	US\$ 799	N/A	US\$ 799	
	Navient Student Loan Trust 2018-1	-	"	-	US\$ 798	N/A	US\$ 798	
	JPMBB Commercial Mortgage Securities Trust 2015-C31	-	"	-	US\$ 790	N/A	US\$ 790	
	SLM Student Loan Trust 2012-3	-	"	-	US\$ 779	N/A	US\$ 779	
	Citigroup Commercial Mortgage Trust 2015-GC27	-	"	-	US\$ 775	N/A	US\$ 775	
	Mercedes-Benz Auto Lease Trust 2018-A	-	"	-	US\$ 772	N/A	US\$ 772	
	CFCRE Commercial Mortgage Trust 2011-C1	-	"	-	US\$ 771	N/A	US\$ 771	
	Nissan Auto Receivables 2016-B Owner Trust	-	"	-	US\$ 767	N/A	US\$ 767	
	GM Financial Automobile Leasing Trust 2018-1	-	"	-	US\$ 756	N/A	US\$ 756	
	SLM Student Loan Trust 2013-1	-	"	-	US\$ 747	N/A	US\$ 747	
	Navient Student Loan Trust 2017-3	-	"	-	US\$ 726	N/A	US\$ 726	
	COMM 2015-LC19 Mortgage Trust	-	"	-	US\$ 726	N/A	US\$ 726	
	Toyota Auto Receivables 2018-D Owner Trust	-	"	-	US\$ 710	N/A	US\$ 710	
	Enterprise Fleet Financing 2019-1 LLC	-	"	-	US\$ 700	N/A	US\$ 700	
	Wells Fargo Commercial Mortgage Trust 2015-C28	-	"	-	US\$ 691	N/A	US\$ 691	
	Ally Auto Receivables Trust 2019-1	-	"	-	US\$ 665	N/A	US\$ 665	
	SLM Student Loan Trust 2013-4	-	"	-	US\$ 660	N/A	US\$ 660	
	Ford Credit Auto Owner Trust 2018-A	-	"	-	US\$ 644	N/A	US\$ 644	
	Mercedes-Benz Auto Lease Trust 2019-A	-	"	-	US\$ 615	N/A	US\$ 615	
	JP Morgan Chase Commercial Mortgage Securities Trust 2012-WLDN	-	"	-	US\$ 611	N/A	US\$ 611	
	CarMax Auto Owner Trust	-	"	-	US\$ 607	N/A	US\$ 607	
	JP Morgan Chase Commercial Mortgage Securities Trust 2012-C6	-	"	-	US\$ 592	N/A	US\$ 592	
	DBGS 2018-BIOD Mortgage Trust	-	"	-	US\$ 585	N/A	US\$ 585	
	Ally Auto Receivables Trust 2018-3	-	"	-	US\$ 578	N/A	US\$ 578	
	DBUBS 2011-LC2 Mortgage Trust	-	"	-	US\$ 515	N/A	US\$ 515	
	Hyundai Auto Lease Securitization Trust 2016-C	-	"	-	US\$ 512	N/A	US\$ 512	
	CD 2016-CD2 Mortgage Trust	-	"	-	US\$ 502	N/A	US\$ 502	
	COMM 2014-CCRE19 Mortgage Trust	-	"	-	US\$ 500	N/A	US\$ 500	
	GS Mortgage Securities Trust 2014-GC18	-	"	-	US\$ 492	N/A	US\$ 492	
	ARI Fleet Lease Trust 2018-A	-	"	-	US\$ 450	N/A	US\$ 450	
	Hyundai Auto Lease Securitization Trust 2017-A	-	"	-	US\$ 434	N/A	US\$ 434	
	Ford Credit Auto Owner Trust 2016-A	-	"	-	US\$ 426	N/A	US\$ 426	
	WFRBS Commercial Mortgage Trust 2014-C25	-	"	-	US\$ 406	N/A	US\$ 406	
	GM Financial Automobile Leasing Trust 2018-2	-	"	-	US\$ 392	N/A	US\$ 392	
	Morgan Stanley Bank of America Merrill Lynch Trust 2014-C18	-	"	-	US\$ 373	N/A	US\$ 373	
	Honda Auto Receivables 2017-4 Owner Trust	-	"	-	US\$ 368	N/A	US\$ 368	
	ARI Fleet Lease Trust 2018-B	-	"	-	US\$ 332	N/A	US\$ 332	
	BMW Vehicle Lease Trust 2018-1	-	"	-	US\$ 319	N/A	US\$ 319	
	JPMBB Commercial Mortgage Securities Trust 2013-C14	-	"	-	US\$ 276	N/A	US\$ 276	
	Toyota Auto Receivables 2019-A Owner Trust	-	"	-	US\$ 273	N/A	US\$ 273	
	Wells Fargo Commercial Mortgage Trust 2016-LC24	-	"	-	US\$ 266	N/A	US\$ 266	
	Wells Fargo Commercial Mortgage Trust 2015-NXS1	-	"	-	US\$ 264	N/A	US\$ 264	
	GM Financial Automobile Leasing Trust 2016-3	-	"	-	US\$ 249	N/A	US\$ 249	
	Morgan Stanley Bank of America Merrill Lynch Trust 2014-C16	-	"	-	US\$ 219	N/A	US\$ 219	
	Wells Fargo Commercial Mortgage Trust 2015-SG1	-	"	-	US\$ 215	N/A	US\$ 215	
	BMW Vehicle Lease Trust 2017-2	-	"	-	US\$ 188	N/A	US\$ 188	

(Continued)

Held Company Name	Marketable Securities Type and Name	Relationship with the Company	Financial Statement Account	March 31, 2019				Note
				Shares/Units (In Thousands)	Carrying Value (Foreign Currencies in Thousands)	Percentage of Ownership (%)	Fair Value (Foreign Currencies in Thousands)	
TSMC Global	Morgan Stanley Bank of America Merrill Lynch Trust 2012-C5	-	Financial assets at fair value through other comprehensive income	-	US\$ 162	N/A	US\$ 162	
	Honda Auto Receivables 2016-2 Owner Trust	-	"	-	US\$ 122	N/A	US\$ 122	
	WFRBS Commercial Mortgage Trust 2011-C5	-	"	-	US\$ 113	N/A	US\$ 113	
	GS Mortgage Securities Trust 2010-C1	-	"	-	US\$ 108	N/A	US\$ 108	
	Hyundai Auto Lease Securitization Trust 2017-B	-	"	-	US\$ 86	N/A	US\$ 86	
	Citigroup Commercial Mortgage Trust 2014-GC23	-	"	-	US\$ 70	N/A	US\$ 70	
	COMM 2014-CCRE15 Mortgage Trust	-	"	-	US\$ 46	N/A	US\$ 46	
	GM Financial Automobile Leasing Trust 2017-2	-	"	-	US\$ 46	N/A	US\$ 46	
	GS Mortgage Securities Trust 2014-GC24	-	"	-	US\$ 40	N/A	US\$ 40	
	GS Mortgage Securities Trust 2010-C2	-	"	-	US\$ 39	N/A	US\$ 39	
	<u>Non-publicly traded equity investments</u>							
	Primavera Capital Fund II L.P.	-	Financial assets at fair value through other comprehensive income	-	US\$ 66,254	4	US\$ 66,254	
VTAF II	<u>Non-publicly traded equity investments</u>							
	Sentelic	-	Financial assets at fair value through other comprehensive income	1,019	US\$ 2,033	4	US\$ 2,033	
	Aether Systems, Inc.	-	"	1,085	US\$ 352	20	US\$ 352	
	5V Technologies, Inc.	-	"	364	US\$ 313	2	US\$ 313	
VTAF III	<u>Non-publicly traded equity investments</u>							
	LiquidLeds Lighting Corp.	-	Financial assets at fair value through other comprehensive income	1,952	US\$ 800	14	US\$ 800	
	Neoconix, Inc.	-	"	4,147	US\$ 174	-	US\$ 174	
Growth Fund	<u>Non-publicly traded equity investments</u>							
	Innovium, Inc.	-	Financial assets at fair value through other comprehensive income	451	US\$ 2,393	-	US\$ 2,393	
	CNEX Labs, Inc.	-	"	237	US\$ 775	-	US\$ 775	

(Concluded)

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

MARKETABLE SECURITIES ACQUIRED AND DISPOSED OF AT COSTS OR PRICES OF AT LEAST NT\$300 MILLION OR 20% OF THE PAID-IN CAPITAL
FOR THE THREE MONTHS ENDED MARCH 31, 2019
(Amounts in Thousands of New Taiwan Dollars, Unless Specified Otherwise)

Company Name	Marketable Securities Type and Name	Financial Statement Account	Counter-party	Nature of Relationship	Beginning Balance		Acquisition		Disposal			Ending Balance (Note)		
					Shares/Units (In Thousands)	Amount	Shares/Units (In Thousands)	Amount	Shares/Units (In Thousands)	Amount	Carrying Value	Gain/Loss on Disposal	Shares/Units (In Thousands)	Amount
TSMC	Commercial paper Taiwan Power Company	Financial assets at amortized cost	-	-	180	\$ 1,795,261	-	\$ -	120	\$ 1,200,000	\$ 1,200,000	\$ -	60	\$ 598,357
TSMC Global	Corporate bond Anheuser-Busch InBev Worldwide Inc.	Financial assets at fair value through other comprehensive income	-	-	-	-	-	US\$ 11,039	-	US\$ 1,373	US\$ 1,329	US\$ 44	-	US\$ 10,168
	Wells Fargo & Co	Financial assets at amortized cost	-	-	-	US\$ 149,941	-	US\$ 10,187	-	-	-	-	-	US\$ 160,126
	JPMorgan Chase & Co.	"	-	-	-	US\$ 124,948	-	-	-	US\$ 40,000	US\$ 40,000	-	-	US\$ 84,967
	Westpac Banking Corp.	"	-	-	-	US\$ 99,987	-	-	-	US\$ 50,000	US\$ 50,000	-	-	US\$ 49,994
	Commonwealth Bank of Australia	"	-	-	-	US\$ 49,994	-	-	-	US\$ 50,000	US\$ 50,000	-	-	-
	Goldman Sachs Group, Inc.	"	-	-	-	US\$ 99,900	-	-	-	US\$ 100,000	US\$ 100,000	-	-	-
	National Australia Bank	"	-	-	-	US\$ 49,994	-	-	-	US\$ 50,000	US\$ 50,000	-	-	-
	Government bond United States Treasury Note/Bond	Financial assets at fair value through other comprehensive income	-	-	-	US\$ 283,314	-	US\$ 308,212	-	US\$ 185,498	US\$ 185,346	US\$ 152	-	US\$ 396,334
	United States Treasury Floating Rate Note	"	-	-	-	US\$ 68,164	-	-	-	US\$ 42,161	US\$ 42,195	US\$ (34)	-	US\$ 26,004
	Agency bonds/Agency mortgage-backed securities FNMA TBA 30 Yr 3	Financial assets at fair value through other comprehensive income	-	-	-	-	-	US\$ 92,523	-	US\$ 69,463	US\$ 69,025	US\$ 438	-	US\$ 23,485
	FHLMC TBA 30 Yr 3	"	-	-	-	US\$ 15	-	US\$ 43,753	-	US\$ 22,137	US\$ 21,706	US\$ 431	-	US\$ 22,049
	GNMA II TBA 30 Yr 5	"	-	-	-	US\$ 12,209	-	US\$ 37,505	-	US\$ 37,275	US\$ 37,190	US\$ 85	-	US\$ 12,521
	FNMA TBA 30 Yr 3.5	"	-	-	-	-	-	US\$ 91,764	-	US\$ 77,496	US\$ 77,231	US\$ 265	-	US\$ 10,221
	FNMA TBA 30 Yr 4.5	"	-	-	-	-	-	US\$ 39,842	-	US\$ 19,425	US\$ 19,397	US\$ 28	-	US\$ 9,002
	FNMA Pool BM4493	"	-	-	-	US\$ 16,915	-	US\$ 1,795	-	US\$ 12,661	US\$ 12,595	US\$ 66	-	US\$ 6,280
	FNMA Pool BM4681	"	-	-	-	US\$ 31,784	-	-	-	US\$ 26,790	US\$ 26,473	US\$ 317	-	US\$ 5,477
	FNMA TBA 30 Yr 5	"	-	-	-	US\$ 24,761	-	US\$ 44,160	-	US\$ 65,501	US\$ 65,433	US\$ 68	-	US\$ 3,565
	FNMA TBA 15 Yr 3.5	"	-	-	-	US\$ 2,020	-	US\$ 12,197	-	US\$ 12,200	US\$ 12,171	US\$ 29	-	US\$ 2,046
	FED HM LN PC Pool G61553	"	-	-	-	US\$ 15,045	-	-	-	US\$ 15,177	US\$ 15,109	US\$ 68	-	-
	FED HM LN PC Pool G61592	"	-	-	-	US\$ 21,507	-	-	-	US\$ 21,633	US\$ 21,407	US\$ 226	-	-
	FNMA Pool CA2352	"	-	-	-	US\$ 25,130	-	-	-	US\$ 25,161	US\$ 25,104	US\$ 57	-	-
	GNMA II TBA 30 Yr 4	"	-	-	-	US\$ 2,129	-	US\$ 10,752	-	US\$ 12,901	US\$ 12,873	US\$ 28	-	-
TSMC Global	Asset-backed securities Citibank Credit Card Issuance Trust	Financial assets at fair value through other comprehensive income	-	-	-	US\$ 68,487	-	US\$ 995	-	US\$ 10,539	US\$ 10,542	US\$ (3)	-	US\$ 59,170

Note: The ending balance includes the amortization of premium/discount on bonds investments, share of profits/losses of investees and other related adjustment.

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

ACQUISITION OF INDIVIDUAL REAL ESTATE PROPERTIES AT COSTS OF AT LEAST NT\$300 MILLION OR 20% OF THE PAID-IN CAPITAL FOR THE THREE MONTHS ENDED MARCH 31, 2019

(Amounts in Thousands of New Taiwan Dollars, Unless Specified Otherwise)

Company Name	Types of Property	Transaction Date	Transaction Amount (Foreign Currencies in Thousands)	Payment Term	Counter-party	Nature of Relationships	Prior Transaction of Related Counter-party				Price Reference	Purpose of Acquisition	Other Terms
							Owner	Relationships	Transfer Date	Amount			
TSMC	Fab	March 25, 2019	\$ 888,800	Monthly settlement by the construction progress and acceptance	PAN ASIA Corp.	-	N/A	N/A	N/A	N/A	Price comparison and price negotiation	Manufacturing purpose	None

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

TOTAL PURCHASES FROM OR SALES TO RELATED PARTIES OF AT LEAST NT\$100 MILLION OR 20% OF THE PAID-IN CAPITAL
FOR THE THREE MONTHS ENDED MARCH 31, 2019

(Amounts in Thousands of New Taiwan Dollars, Unless Specified Otherwise)

Company Name	Related Party	Nature of Relationships	Transaction Details				Abnormal Transaction		Notes/Accounts Payable or Receivable		Note
			Purchases/ Sales	Amount (Foreign Currencies in Thousands)	% to Total	Payment Terms	Unit Price	Payment Terms	Ending Balance (Foreign Currencies in Thousands)	% to Total	
TSMC	TSMC North America GUC	Subsidiary Associate	Sales	\$ 134,825,041	58	Net 30 days from invoice date (Note)	-	Note	\$ 63,659,192	63	
			Sales	963,914	-	Net 30 days from the end of the month of when invoice is issued	-	-	165,739	-	
	TSMC China	Subsidiary	Purchases	3,337,467	17	Net 30 days from the end of the month of when invoice is issued	-	-	(931,502)	3	
	TSMC Nanjing	Subsidiary	Purchases	2,734,150	14	Net 30 days from the end of the month of when invoice is issued	-	-	(922,190)	3	
	WaferTech	Indirect subsidiary	Purchases	1,580,046	8	Net 30 days from the end of the month of when invoice is issued	-	-	(883,186)	3	
	VIS	Associate	Purchases	1,127,639	6	Net 30 days from the end of the month of when invoice is issued	-	-	(273,032)	1	
	SSMC	Associate	Purchases	422,763	2	Net 30 days from the end of the month of when invoice is issued	-	-	(164,403)	1	
TSMC North America	GUC	Associate of TSMC	Sales	487,166 (US\$ 15,806)	-	Net 30 days from invoice date	-	-	137,817 (US\$ 4,470)	-	

Note: The tenor is 30 days from TSMC's invoice date or determined by the payment terms granted to its clients by TSMC North America.

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

RECEIVABLES FROM RELATED PARTIES AMOUNTING TO AT LEAST NT\$100 MILLION OR 20% OF THE PAID-IN CAPITAL

MARCH 31, 2019

(Amounts in Thousands of New Taiwan Dollars, Unless Specified Otherwise)

Company Name	Related Party	Nature of Relationships	Ending Balance (Foreign Currencies in Thousands)	Turnover Days (Note 1)	Overdue		Amounts Received in Subsequent Period	Allowance for Bad Debts
					Amount	Action Taken		
TSMC	TSMC North America	Subsidiary	\$ 64,417,163	51	\$ 3,002,667	-	\$ 28,508,965	\$ -
	TSMC Nanjing	Subsidiary	169,796	Note 2	-	-	-	-
	GUC	Associate	165,739	26	-	-	-	-
TSMC China	TSMC Nanjing	The same parent company	31,685,280 (RMB 6,906,572)	Note 2	-	-	-	-
	TSMC	Parent company	931,502 (RMB 203,045)	31	-	-	-	-
TSMC Nanjing	TSMC	Parent company	922,190 (RMB 201,015)	21	-	-	-	-
WaferTech	TSMC	The ultimate parent of the Company	883,186 (USD 28,647)	57	469,207 (USD 15,229)	-	469,207 (USD 15,229)	-
	TSMC Development	Parent company	181,608 (USD 5,891)	Note 2	-	-	-	-
TSMC Technology	TSMC	The ultimate parent of the Company	262,311 (USD 8,508)	Note 2	-	-	-	-
TSMC North America	GUC	Associate of TSMC	137,817 (USD 4,470)	23	-	-	-	-
	TSMC	Parent company	107,865 (USD 3,499)	Note 2	577 (USD 19)	-	577 (USD 19)	-
TSMC Japan	TSMC	Parent company	100,992 (JPY 361,202)	Note 2	18,908 (JPY 67,242)	-	18,908 (JPY 67,242)	-

Note 1: The calculation of turnover days excludes other receivables from related parties.

Note 2: The ending balance is primarily consisted of other receivables, which is not applicable for the calculation of turnover days.

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

INTERCOMPANY RELATIONSHIPS AND SIGNIFICANT INTERCOMPANY TRANSACTIONS
FOR THE THREE MONTHS ENDED MARCH 31, 2019

(Amounts in Thousands of New Taiwan Dollars)

No.	Company Name	Counter Party	Nature of Relationship (Note 1)	Intercompany Transactions			
				Financial Statements Item	Amount	Terms (Note 2)	Percentage of Consolidated Net Revenue or Total Assets
0	TSMC	TSMC North America	1	Net revenue from sale of goods	\$ 134,825,041	-	62%
				Receivables from related parties	63,659,192	-	3%
				Other receivables from related parties	757,971	-	-
				Payables to related parties	107,865	-	-
		TSMC Japan	1	Payables to related parties	100,992	-	-
		TSMC Europe	1	Marketing expenses - commission	113,864	-	-
		TSMC China	1	Purchases	3,337,467	-	2%
				Payables to related parties	931,502	-	-
TSMC Nanjing	1	Purchases	2,734,150	-	1%		
		Proceeds from disposal of property, plant and equipment	366,863	-	-		
		Other receivables from related parties	169,796	-	-		
		Payables to related parties	922,190	-	-		
TSMC Technology	1	Research and development expenses	593,317	-	-		
		Payables to related parties	262,311	-	-		
WaferTech	1	Purchases	1,580,046	-	1%		
		Payables to related parties	883,186	-	-		
1	TSMC China	TSMC Nanjing	3	Other receivables from related parties	31,685,280	-	1%
2	TSMC Development	WaferTech	3	Other payables from related parties	181,608	-	-

Note 1: No. 1 represents the transactions from parent company to subsidiary.
No. 3 represents the transactions between subsidiaries.

Note 2: The sales prices and payment terms of intercompany sales are not significantly different from those to third parties. For other intercompany transactions, prices and terms are determined in accordance with mutual agreements.

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

NAMES, LOCATIONS, AND RELATED INFORMATION OF INVESTEEES OVER WHICH THE COMPANY EXERCISES SIGNIFICANT INFLUENCE (EXCLUDING INFORMATION ON INVESTMENT IN MAINLAND CHINA)
 FOR THE THREE MONTHS ENDED MARCH 31, 2019
 (Amounts in Thousands of New Taiwan Dollars, Unless Specified Otherwise)

Investor Company	Investee Company	Location	Main Businesses and Products	Original Investment Amount		Balance as of March 31, 2019			Net Income (Losses) of the Investee (Foreign Currencies in Thousands)	Share of Profits/Losses of Investee (Note 1) (Foreign Currencies in Thousands)	Note
				March 31, 2019 (Foreign Currencies in Thousands)	December 31, 2018 (Foreign Currencies in Thousands)	Shares (In Thousands)	Percentage of Ownership	Carrying Value (Foreign Currencies in Thousands)			
TSMC	TSMC Global	Tortola, British Virgin Islands	Investment activities	\$ 355,162,309 (Note 3)	\$ 355,162,309	11	100	\$ 398,937,616	\$ 2,887,393	\$ 2,887,393	Subsidiary
	TSMC Partners	Tortola, British Virgin Islands	Investing in companies involved in the design, manufacture, and other related business in the semiconductor industry and other investment activities	31,456,130	31,456,130	988,268	100	53,079,089	471,097	471,097	Subsidiary
	VIS	Hsin-Chu, Taiwan	Manufacturing, selling, packaging, testing and computer-aided design of integrated circuits and other semiconductor devices and the manufacturing and design service of masks	10,180,677	10,180,677	464,223	28	9,402,933	1,387,527	391,724	Associate
	SSMC	Singapore	Manufacturing and selling of integrated circuits and other semiconductor devices	5,120,028	5,120,028	314	39	5,912,533	314,777	122,102	Associate
	VisEra Tech	Hsin-Chu, Taiwan	Engaged in manufacturing electronic spare parts and in researching, developing, designing, manufacturing, selling, packaging and testing of color filter	5,005,171	5,005,171	253,120	87	4,488,640	(49,791)	(43,289)	Subsidiary
	TSMC North America	San Jose, California, U.S.A	Selling and marketing of integrated circuits and other semiconductor devices	333,718	333,718	11,000	100	4,429,486	147,551	147,551	Subsidiary
	Xintec	Taoyuan, Taiwan	Wafer level chip size packaging and wafer level post passivation interconnection service	1,988,317	1,988,317	111,282	41	1,633,475	(326,144)	(133,707)	Associate
	GUC	Hsin-Chu, Taiwan	Researching, developing, manufacturing, testing and marketing of integrated circuits	386,568	386,568	46,688	35	1,359,341	152,677	53,193	Associate
	TSMC Europe	Amsterdam, the Netherlands	Customer service and supporting activities	15,749	15,749	-	100	449,213	10,353	10,353	Subsidiary
	VTAF III	Cayman Islands	Investing in new start-up technology companies	1,309,772	1,308,244	-	98	200,844	(823)	(806)	Subsidiary
	TSMC Japan	Yokohama, Japan	Customer service and supporting activities	83,760	83,760	6	100	143,197	1,409	1,409	Subsidiary
	VTAF II	Cayman Islands	Investing in new start-up technology companies	260,300	278,800	-	98	110,381	(1,079)	(1,057)	Subsidiary
	TSMC Korea	Seoul, Korea	Customer service and supporting activities	13,656	13,656	80	100	40,817	449	449	Subsidiary
	TSMC Solar Europe GmbH	Hamburg, Germany	Selling of solar related products and providing customer service	-	25,266	-	-	-	-	-	-
TSMC Partners	TSMC Development	Delaware, U.S.A	Investing in companies involved in the manufacturing related business in the semiconductor industry	18,095,323 (US\$ 586,939)	18,095,323 (US\$ 586,939)	-	100	29,579,313 (US\$ 959,433)	252,861 (US\$ 8,204)	Note 2	Subsidiary
	TSMC Technology	Delaware, U.S.A	Engineering support activities	440,315 (US\$ 14,282)	440,315 (US\$ 14,282)	-	100	621,626 (US\$ 20,163)	32,890 (US\$ 1,067)	Note 2	Subsidiary
	TSMC Canada	Ontario, Canada	Engineering support activities	70,909 (US\$ 2,300)	70,909 (US\$ 2,300)	2,300	100	215,264 (US\$ 6,982)	6,532 (US\$ 212)	Note 2	Subsidiary
	ISDF	Cayman Islands	Investing in new start-up technology companies	14,650 (US\$ 475)	14,650 (US\$ 475)	583	97	512 (US\$ 17)	-	Note 2	Subsidiary
	ISDF II	Cayman Islands	Investing in new start-up technology companies	-	-	9,299	97	-	-	Note 2	Subsidiary
VTAF III	Growth Fund	Cayman Islands	Investing in new start-up technology companies	67,942 (US\$ 2,204)	66,401 (US\$ 2,154)	-	100	99,301 (US\$ 3,221)	(308) (US\$ (10))	Note 2	Subsidiary
	Mutual-Pak	New Taipei, Taiwan	Manufacturing of electronic parts, wholesaling and retailing of electronic materials, and researching, developing and testing of RFID	49,123 (US\$ 1,593)	49,123 (US\$ 1,593)	4,693	30	28,176 (US\$ 914)	601 (US\$ 20)	Note 2	Associate

(Continued)

Investor Company	Investee Company	Location	Main Businesses and Products	Original Investment Amount		Balance as of March 31, 2019			Net Income (Losses) of the Investee (Foreign Currencies in Thousands)	Share of Profits/Losses of Investee (Note 1) (Foreign Currencies in Thousands)	Note
				March 31, 2019 (Foreign Currencies in Thousands)	December 31, 2018 (Foreign Currencies in Thousands)	Shares (In Thousands)	Percentage of Ownership	Carrying Value (Foreign Currencies in Thousands)			
TSMC Development	WaferTech	Washington, U.S.A	Manufacturing, selling and testing of integrated circuits and other semiconductor devices	\$ -	\$ -	293,637	100	\$ 4,731,190 (US\$ 153,461)	\$ 122,437 (US\$ 3,973)	Note 2	Subsidiary

Note 1: The share of profits/losses of investee includes the effect of unrealized gross profit on intercompany transactions.

Note 2: The share of profits/losses of the investee company is not reflected herein as such amount is already included in the share of profits/losses of the investor company.

Note 3: To lower the hedging cost, in August 2018, the Board of Directors of TSMC approved to inject US\$2,000,000 thousand of capital into TSMC Global. This project was approved by the Investment Commission, Ministry of Economic Affairs, R.O.C. (MOEA). The prepayment for investment was US\$100,000 thousand as of March 31, 2019.

(Concluded)

Taiwan Semiconductor Manufacturing Company Limited and Subsidiaries

**INFORMATION ON INVESTMENT IN MAINLAND CHINA
FOR THREE MONTHS ENDED MARCH 31, 2019**

(Amounts in Thousands of New Taiwan Dollars, Unless Specified Otherwise)

Investee Company	Main Businesses and Products	Total Amount of Paid-in Capital (RMB in Thousands)	Method of Investment	Accumulated Outflow of Investment from Taiwan as of January 1, 2019 (US\$ in Thousands)	Investment Flows		Accumulated Outflow of Investment from Taiwan as of March 31, 2019 (US\$ in Thousands)	Net Income (Losses) of the Investee Company	Percentage of Ownership	Share of Profits/Losses	Carrying Amount as of March 31, 2019	Accumulated Inward Remittance of Earnings as of March 31, 2019
					Outflow (US\$ in Thousands)	Inflow						
TSMC China	Manufacturing, selling, testing and computer-aided design of integrated circuits and other semiconductor devices	\$ 18,939,667 (RMB 4,502,080)	Note 1	\$ 18,939,667 (US\$ 596,000)	\$ -	\$ -	\$ 18,939,667 (US\$ 596,000)	\$ 461,590	100%	\$ 493,415 (Note 2)	\$ 57,342,326	\$ -
TSMC Nanjing	Manufacturing, selling, testing and computer-aided design of integrated circuits and other semiconductor devices	30,521,412 (RMB 6,650,119)	Note 1	30,521,412 (US\$ 1,000,000)	-	-	30,521,412 (US\$ 1,000,000)	(1,540,493)	100%	(1,330,016) (Note 2)	19,875,461	-

Accumulated Investment in Mainland China as of March 31, 2019 (US\$ in Thousands)	Investment Amounts Authorized by Investment Commission, MOEA (US\$ in Thousands)	Upper Limit on Investment
\$ 49,461,079 (US\$ 1,596,000)	\$ 119,412,667 (US\$ 3,596,000)	Note 3

Note 1: TSMC directly invested US\$596,000 thousand in TSMC China and US\$1,000,000 thousands in TSMC Nanjing.

Note 2: Amount was recognized based on the reviewed financial statements.

Note 3: As the Company has obtained the certificate of being qualified for operating headquarters issued by Industrial Development Bureau, MOEA on August 2016, the upper limit on investment in mainland China pursuant to "Principle of investment or Technical Cooperation in Mainland China" is not applicable.