ASE Technology Holding Co., Ltd.
and Subsidiaries

Consolidated Financial Statements as of December 31, 2017 and 2018 and for the Years Ended December 31, 2016, 2017 and 2018 and
Reports of Independent Registered Public Accounting Firms

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of
ASE Technology Holding Co., Ltd.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of ASE Technology Holding Co., Ltd. (a corporation incorporated under the laws of the Republic of China) and its subsidiaries (collectively, the "Group") as of December 31, 2017 and 2018, the related consolidated statements of comprehensive income, changes in equity and cash flows for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the "Consolidated Financial Statements") (all expressed in New Taiwan Dollars). In our opinion, based on our audits and the report of other auditors, the Consolidated Financial Statements present fairly, in all material respects, the financial position of the Group as of December 31, 2017 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board.

We did not audit the consolidated financial statements of Siliconware Precision Industries Co., Ltd. and its subsidiaries (collectively, "SPIL"), in which the Group's investment was accounted for (1) as an investment accounted for using the equity method as of December 31, 2017 and for each of the two years in the period ended December 31, 2017 and the period from January 1, 2018 through April 29, 2018 and (2) as a consolidated subsidiary as of December 31, 2018 and for the period from April 30, 2018 through December 31, 2018. The accompanying Consolidated Financial Statements included its equity investment in SPIL of NT$45,210,317 thousand as of December 31, 2017, and its share of profit in SPIL of NT$1,725,053 thousand, NT$915,253 thousand and NT$127,266 thousand (US$4,158 thousand) for each of the two years in the period ended December 31, 2017 and the period from January 1, 2018 through April 29, 2018. The total assets of SPIL constituted 22% of the Group's total assets as of December 31, 2018 and the revenues of SPIL for the period from April 30, 2018 through December 31, 2018 constituted 17% of the Group's revenues for the year ended December 31, 2018. The consolidated financial statements of SPIL were audited by other auditors whose report has been furnished to us, and our opinion, insofar as it relates to the amounts included for SPIL, is based solely on the report of other auditors.

Our audits also comprehended the translation of New Taiwan dollar amounts into U.S. dollar amounts and, in our opinion, such translation has been made in conformity with the basis stated in Note 4 to the Consolidated Financial Statements. Such U.S. dollar amounts are presented solely for the convenience of the readers outside the Republic of China.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Group's internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated April 26, 2019, expressed an unqualified opinion on the Group's internal control over financial reporting based on our audit and the report of other auditors.

Basis for Opinion

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

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

/s/ Deloitte & Touche

Taipei, Taiwan
Republic of China
April 26, 2019

We have served as the Group's auditor since 1984.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholder of
Siliconware Precision Industries Co., Ltd.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Siliconware Precision Industries Co., Ltd. and its subsidiaries (the “Company”) as of December 31, 2018 and 2017, and the related consolidated statements of comprehensive income, of changes in equity and of cash flows for each of the three years in the period ended December 31, 2018, including the related notes (collectively referred to as the “consolidated financial statements”) (not presented herein). We also have audited the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018 in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31 ,2018, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Change in Accounting Principles

As discussed in Note 3 to the consolidated financial statements, the Company changed the manner in which it accounts for revenues from contracts with customers and the manner in which it accounts for financial instruments in 2018.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management’s Annual Report on Internal Control over Financial Reporting (not presented herein). Our responsibility is to express opinions on the Company’s consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

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

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

/s/PricewaterhouseCoopers, Taiwan
Taipei, Taiwan
March 21, 2019

We have served as the Company’s auditor since 1994.

ASE TECHNOLOGY HOLDING CO., LTD. (FORMERLY KNOWN AS ADVANCED SEMICONDUCTOR ENGINEERING, INC.) AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS
(Amounts in Thousands)

	December 31, 2017	December 31, 2018	
ASSETS	**NT$**	**NT$**	**US$ (Note 4)**
CURRENT ASSETS			
Cash and cash equivalents (Note 6)	$ 46,078,066	$ 51,518,436	$ 1,683,059
Financial assets at fair value through profit or loss - current (Note 7)	5,223,067	7,262,227	237,250
Available-for-sale financial assets - current (Note 10)	89,159	-	-
Contract assets - current (Notes 3 and 42)	-	4,488,500	146,635
Trade receivables, net (Note 11)	55,200,706	79,481,359	2,596,581
Other receivables	1,051,955	1,283,180	41,920
Current tax assets (Note 27)	260,542	524,263	17,127
Inventories (Note 12)	24,260,911	36,627,451	1,196,584
Inventories related to real estate business (Notes 13, 26 and 38)	9,819,516	10,060,608	328,671
Other financial assets - current (Notes 14 and 38)	472,340	6,539,467	213,638
Other current assets	2,482,010	3,773,384	123,273
Total current assets	144,938,272	201,558,875	6,584,738
NON-CURRENT ASSETS			
Financial assets at fair value through profit or loss - non-current (Note 7)	-	636,231	20,785
Financial assets at fair value through other comprehensive income - non-current (Note 8)	-	1,597,323	52,183
Available-for-sale financial assets - non-current (Note 10)	1,123,006	-	-
Investments accounted for using the equity method (Note 15)	48,753,751	9,312,308	304,224
Property, plant and equipment (Notes 16, 26 and 39)	135,168,406	214,592,588	7,010,539
Investment properties (Notes 17, 26 and 38)	8,119,436	7,738,379	252,806
Goodwill (Notes 18 and 30)	9,934,494	49,974,446	1,632,618
Other intangible assets (Notes 19, 26, 30 and 37)	1,406,865	30,897,700	1,009,399
Deferred tax assets (Note 27)	4,001,821	5,108,357	166,885
Other financial assets - non-current (Notes 14 and 38)	1,170,500	1,044,294	34,116
Long-term prepayments for lease (Notes 20 and 38)	8,851,330	10,764,835	351,677
Other non-current assets	454,391	836,591	27,331
Total non-current assets	218,984,000	332,503,052	10,862,563
TOTAL	$ 363,922,272	$ 534,061,927	$ 17,447,301

(Continued)

ASE TECHNOLOGY HOLDING CO., LTD. (FORMERLY KNOWN AS ADVANCED SEMICONDUCTOR ENGINEERING, INC.) AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS
(Amounts in Thousands)

LIABILITIES AND EQUITY	December 31, 2017 NT$	December 31, 2018 NT$	December 31, 2018 US$ (Note 4)
CURRENT LIABILITIES			
Short-term borrowings (Note 21)	$ 17,962,471	$ 43,263,469	$ 1,413,377
Financial liabilities at fair value through profit or loss - current (Note 7)	677,430	36,655	1,197
Financial liabilities for hedging - current (Note 36)	-	3,899,634	127,397
Trade payables	41,672,233	56,884,116	1,858,351
Other payables (Note 23)	21,377,887	31,003,882	1,012,868
Current tax liabilities (Note 27)	7,619,328	6,781,136	221,533
Current portion of bonds payable (Note 22)	6,161,197	-	-
Current portion of long-term borrowings (Notes 21 and 38)	8,261,625	10,779,034	352,141
Other current liabilities	4,644,566	5,984,156	195,497
Total current liabilities	108,376,737	158,632,082	5,182,361
NON-CURRENT LIABILITIES			
Bonds payable (Note 22)	16,981,583	16,985,936	554,915
Long-term borrowings (Notes 21 and 38)	27,145,003	127,119,295	4,152,868
Deferred tax liabilities (Note 27)	4,961,487	5,806,713	189,700
Net defined benefit liabilities (Note 24)	3,936,685	5,118,677	167,222
Other non-current liabilities	1,210,590	1,371,302	44,799
Total non-current liabilities	54,235,348	156,401,923	5,109,504
Total liabilities	162,612,085	315,034,005	10,291,865
EQUITY ATTRIBUTABLE TO OWNERS OF THE COMPANY (Note 25)			
Share capital			
Ordinary shares	87,246,194	43,201,486	1,411,352
Shares subscribed in advance	134,593	15,658	512
Total share capital	87,380,787	43,217,144	1,411,864
Capital surplus (Note 32)	40,624,328	143,276,664	4,680,714
Retained earnings			
Legal reserve	16,765,066	-	-
Special reserve	3,353,938	3,353,938	109,570
Unappropriated earnings	53,599,541	20,403,477	666,562
Total retained earnings	73,718,545	23,757,415	776,132
Other equity	(6,311,089)	(6,903,681)	(225,537)
Treasury shares	(7,292,513)	(1,959,107)	(64,002)
Equity attributable to owners of the Company	188,120,058	201,388,435	6,579,171
NON-CONTROLLING INTERESTS (Note 25)	13,190,129	17,639,487	576,265
Total equity	201,310,187	219,027,922	7,155,436
TOTAL	$ 363,922,272	$ 534,061,927	$ 17,447,301

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

ASE TECHNOLOGY HOLDING CO., LTD. (FORMERLY KNOWN AS ADVANCED SEMICONDUCTOR ENGINEERING, INC.) AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(Amounts in Thousands Except Earnings Per Share)

	For the Year Ended December 31			
	2016 (Retrospectively Adjusted)	2017 (Retrospectively Adjusted)	2018	
	NT$	NT$	NT$	US$ (Note 4)
OPERATING REVENUES (Notes 3 and 42)	$ 274,884,107	$ 290,441,208	$ 371,092,421	$ 12,123,242
OPERATING COSTS (Notes 12 and 26)	221,696,922	237,708,937	309,929,371	10,125,102
GROSS PROFIT	53,187,185	52,732,271	61,163,050	1,998,140
OPERATING EXPENSES (Note 26)				
Selling and marketing expenses	3,473,586	3,308,992	4,933,602	161,176
General and administrative expenses	11,662,082	12,458,054	14,618,900	477,586
Research and development expenses	11,391,147	11,746,613	14,962,799	488,821
Total operating expenses	26,526,815	27,513,659	34,515,301	1,127,583
OTHER OPERATING INCOME AND EXPENSES, NET (Note 26)	(800,280)	108,556	371,583	12,139
PROFIT FROM OPERATIONS	25,860,090	25,327,168	27,019,332	882,696
NON-OPERATING INCOME AND EXPENSES				
Other income (Note 26)	589,236	707,754	1,092,558	35,693
Other gains, net (Note 26)	2,276,544	6,259,453	7,874,273	257,245
Finance costs (Note 26)	(2,261,075)	(1,799,494)	(3,568,241)	(116,571)
Share of the profit or loss of associates and joint ventures	1,503,910	525,782	(480,244)	(15,689)
Total non-operating income and expenses	2,108,615	5,693,495	4,918,346	160,678
PROFIT BEFORE INCOME TAX	27,968,705	31,020,663	31,937,678	1,043,374
INCOME TAX EXPENSE (Note 27)	5,390,844	6,523,603	4,513,369	147,448
PROFIT FOR THE YEAR	22,577,861	24,497,060	27,424,309	895,926
OTHER COMPREHENSIVE INCOME (LOSS)				
Items that will not be reclassified subsequently to profit or loss:				
Remeasurement of defined benefit obligation	(417,181)	205,344	(308,180)	(10,068)
Unrealized loss on equity instruments at fair value through other comprehensive income	-	-	(422,441)	(13,801)
Share of other comprehensive income (loss) of associates and joint ventures	(49,794)	7,249	(558,217)	(18,237)

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ASE TECHNOLOGY HOLDING CO., LTD. (FORMERLY KNOWN AS ADVANCED SEMICONDUCTOR ENGINEERING, INC.) AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(Amounts in Thousands Except Earnings Per Share)

	For the Year Ended December 31			
	2016 (Retrospectively Adjusted)	2017 (Retrospectively Adjusted)	2018	
	NT$	NT$	NT$	US$ (Note 4)
Income tax relating to items that will not be reclassified subsequently	$ 73,637	$ (51,217)	$ 134,853	$ 4,406
	(393,338)	161,376	(1,153,985)	(37,700)
Items that may be reclassified subsequently to profit or loss:				
Exchange differences on translating foreign operations	(6,445,643)	(5,287,734)	227,821	7,443
Unrealized gain (loss) on available-for-sale financial assets	(248,599)	224,036	-	-
Unrealized loss on investments in debt instruments at fair value through other comprehensive income	-	-	(63,076)	(2,061)
Share of other comprehensive income (loss) of associates and joint ventures	(871,679)	264,389	136,608	4,463
	(7,565,921)	(4,799,309)	301,353	9,845
Other comprehensive loss for the year, net of income tax	(7,959,259)	(4,637,933)	(852,632)	(27,855)
TOTAL COMPREHENSIVE INCOME FOR THE YEAR	$ 14,618,602	$ 19,859,127	$ 26,571,677	$ 868,071
PROFIT FOR THE YEAR ATTRIBUTABLE TO:				
Owners of the Company	$ 21,324,423	$ 22,819,119	$ 26,220,721	$ 856,606
Non-controlling interests	1,253,438	1,677,941	1,203,588	39,320
	$ 22,577,861	$ 24,497,060	$ 27,424,309	$ 895,926
TOTAL COMPREHENSIVE INCOME FOR THE YEAR ATTRIBUTABLE TO:				
Owners of the Company	$ 13,956,976	$ 18,524,067	$ 25,620,461	$ 836,996
Non-controlling interests	661,626	1,335,060	951,216	31,075
	$ 14,618,602	$ 19,859,127	$ 26,571,677	$ 868,071
EARNINGS PER SHARE (Note 28)				
Basic	$ 5.57	$ 5.59	$ 6.18	$ 0.20
Diluted	$ 4.66	$ 5.19	$ 6.07	$ 0.20
EARNINGS PER AMERICAN DEPOSITARY SHARE ("ADS") (Note 28)				
Basic	$ 11.13	$ 11.18	$ 12.35	$ 0.40
Diluted	$ 9.31	$ 10.38	$ 12.14	$ 0.40

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

ASE TECHNOLOGY HOLDING CO., LTD. (FORMERLY KNOWN AS ADVANCED SEMICONDUCTOR ENGINEERING, INC.) AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(Amounts in Thousands)

	Equity Attributable to Owners of the Company														
	Share Capital			Retained Earnings				Other Equity							
	Shares (In Thousands)	Amounts	Capital Surplus	Legal Reserve	Special Reserve	Unappropriated Earnings	Total	Exchange Differences on Translating Foreign Operations	Unrealized Gain (Loss) on Available-for-sale Financial Assets	Unrealized Gain (Loss) on Financial Assets at Fair Value Through Other Comprehensive Income	Total	Treasury Shares	Total	Non-controlling Interests	Total Equity
BALANCE AT JANUARY 1, 2016	7,910,428	$ 79,185,660	$ 23,758,550	$ 12,649,145	$ 3,353,938	$ 37,696,865	$ 53,699,948	$ 4,492,671	$ 588,119	$ -	$ 5,080,790	$ (7,292,513)	$ 154,432,435	$ 11,492,545	$ 165,924,980
Change from investments in associates and joint ventures accounted for using the equity method	-	-	51,959	-	-	-	-	-	43,536	-	43,536	-	95,495	-	95,495
Net profit for the year ended December 31, 2016	-	-	-	-	-	21,324,423	21,324,423	-	-	-	-	-	21,324,423	1,253,438	22,577,861
Other comprehensive income (loss) for the year ended December 31, 2016, net of income tax	-	-	-	-	-	(402,184)	(402,184)	(6,136,294)	(828,969)	-	(6,965,263)	-	(7,367,447)	(591,812)	(7,959,259)
Total comprehensive income (loss) for the year ended December 31, 2016	-	-	-	-	-	20,922,239	20,922,239	(6,136,294)	(828,969)	-	(6,965,263)	-	13,956,976	661,626	14,618,602
Appropriation of 2015 earnings															
Legal reserve	-	-	-	1,947,887	-	(1,947,887)	-	-	-	-	-	-	-	-	-
Cash dividends distributed by the Company	-	-	-	-	-	(12,476,779)	(12,476,779)	-	-	-	-	-	(12,476,779)	-	(12,476,779)
	-	-	-	1,947,887	-	(14,424,666)	(12,476,779)	-	-	-	-	-	(12,476,779)	-	(12,476,779)
Issue of dividends received by subsidiaries from the Company	-	-	233,013	-	-	-	-	-	-	-	-	-	233,013	-	233,013
Partial disposal of interests in subsidiaries and additional acquisition of majority-owned subsidiaries (Note 32)	-	-	(20,552)	-	-	(5,884)	(5,884)	-	-	-	-	-	(26,436)	26,436	-
Changes in percentage of ownership interest in subsidiaries	-	-	(1,912,887)	-	-	-	-	-	-	-	-	-	(1,912,887)	(912,886)	(2,825,773)
Issue of ordinary shares under employee share options (Note 29)	35,756	382,380	600,737	-	-	-	-	-	-	-	-	-	983,117	-	983,117
Non-controlling interests arising from acquisition of subsidiaries	-	-	-	-	-	-	-	-	-	-	-	-	-	42,857	42,857
Cash dividends distributed by subsidiaries	-	-	-	-	-	-	-	-	-	-	-	-	-	(237,850)	(237,850)
Additional non-controlling interest arising on issue of employee share options by subsidiaries (Note 29)	-	-	(444,320)	-	-	-	-	-	-	-	-	-	(444,320)	927,823	483,503
BALANCE AT DECEMBER 31, 2016	7,946,184	79,568,040	22,266,500	14,597,032	3,353,938	44,188,554	62,139,524	(1,643,623)	(197,314)	-	(1,840,937)	(7,292,513)	154,840,614	12,000,551	166,841,165
Change from investments in associates and joint ventures accounted for using the equity method	-	-	1,490	-	-	-	-	-	-	-	-	-	1,490	-	1,490
Net profit for the year ended December 31,2017	-	-	-	-	-	22,819,119	22,819,119	-	-	-	-	-	22,819,119	1,677,941	24,497,060
Other comprehensive income (loss) for the year ended December 31, 2017, net of income tax	-	-	-	-	-	175,100	175,100	(5,090,036)	619,884	-	(4,470,152)	-	(4,295,052)	(342,881)	(4,637,933)
Total comprehensive income (loss) for the year ended December 31, 2017	-	-	-	-	-	22,994,219	22,994,219	(5,090,036)	619,884	-	(4,470,152)	-	18,524,067	1,335,060	19,859,127
Appropriation of 2016 earnings															
Legal reserve	-	-	-	2,168,034	-	(2,168,034)	-	-	-	-	-	-	-	-	-
Cash dividends distributed by the Company	-	-	-	-	-	(11,415,198)	(11,415,198)	-	-	-	-	-	(11,415,198)	-	(11,415,198)
	-	-	-	2,168,034	-	(13,583,232)	(11,415,198)	-	-	-	-	-	(11,415,198)	-	(11,415,198)
Issue of ordinary shares for capital increase by cash (Note 29)	300,000	3,000,000	7,290,000	-	-	-	-	-	-	-	-	-	10,290,000	-	10,290,000
Issue of ordinary shares under conversion of bonds (Notes 22 and 25)	424,258	4,242,577	9,657,905	-	-	-	-	-	-	-	-	-	13,900,482	-	13,900,482

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ASE TECHNOLOGY HOLDING CO., LTD. (FORMERLY KNOWN AS ADVANCED SEMICONDUCTOR ENGINEERING, INC.) AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(Amounts in Thousands)

	Equity Attributable to Owners of the Company														
								Other Equity							
	Share Capital			Retained Earnings				Exchange Differences on Translating Foreign Operations	Unrealized Gain (Loss) on Available-for-sale Financial Assets	Unrealized Gain (Loss) on Financial Assets at Fair Value Through Other Comprehensive Income					
	Shares (In Thousands)	Amounts	Capital Surplus	Legal Reserve	Special Reserve	Unappropriated Earnings	Total				Total	Treasury Shares	Total	Non-controlling Interests	Total Equity
Issue of dividends received by subsidiaries from the Company	-	$ -	$ 200,977	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 200,977	$ -	$ 200,977
Changes in percentage of ownership interest in subsidiaries	-	-	3,055	-	-	-	-	-	-	-	-	-	3,055	(3,055)	-
Issue of ordinary shares under employee share options (Note 29)	67,637	570,170	1,256,789	-	-	-	-	-	-	-	-	-	1,826,959	(159,200)	1,667,759
Cash dividends distributed by subsidiaries	-	-	-	-	-	-	-	-	-	-	-	-	-	(246,440)	(246,440)
Additional non-controlling interest arising on issue of employee share options by subsidiaries (Note 29)	-	-	(52,388)	-	-	-	-	-	-	-	-	-	(52,388)	263,213	210,825
BALANCE AT DECEMBER 31, 2017	8,738,079	87,380,787	40,624,328	16,765,066	3,353,938	53,599,541	73,718,545	(6,733,659)	422,570	-	(6,311,089)	(7,292,513)	188,120,058	13,190,129	201,310,187
Effect of retrospective applications (Note 3)	-	-	-	-	-	886,316	886,316	-	(422,570)	135,517	(287,053)	-	599,263	5,183	604,446
ADJUSTED BALANCE AT JANUARY 1, 2018	8,738,079	87,380,787	40,624,328	16,765,066	3,353,938	54,485,857	74,604,861	(6,733,659)	-	135,517	(6,598,142)	(7,292,513)	188,719,321	13,195,312	201,914,633
Change from investments in associates and joint ventures accounted for using the equity method	-	-	1,411,899	-	-	88,201	88,201	-	-	-	-	-	1,500,100	-	1,500,100
Cash dividends paid from the capital surplus (Note 25)	-	-	(10,795,980)	-	-	-	-	-	-	-	-	-	(10,795,980)	-	(10,795,980)
Other changes in the capital surplus	-	-	872	-	-	-	-	-	-	-	-	-	872	-	872
Net profit for the year ended December 31,2018	-	-	-	-	-	26,220,721	26,220,721	-	-	-	-	-	26,220,721	1,203,588	27,424,309
Other comprehensive income (loss) for the year ended December 31, 2018, net of income tax	-	-	-	-	-	(146,194)	(146,194)	562,794	-	(1,016,860)	(454,066)	-	(600,260)	(252,372)	(852,632)
Total comprehensive income (loss) for the year ended December 31, 2018	-	-	-	-	-	26,074,527	26,074,527	562,794	-	(1,016,860)	(454,066)	-	25,620,461	951,216	26,571,677
Effect of the joint share exchange (Note 25)	(4,318,392)	(43,183,919)	117,693,658	(16,765,066)	-	(57,744,673)	(74,509,739)	-	-	-	-	-	-	-	-
Buy-back of ordinary shares	-	-	-	-	-	-	-	-	-	-	-	(71,302)	(71,302)	-	(71,302)
Cancellation of treasury shares	(121,852)	(1,218,520)	(1,480,903)	-	-	(2,705,285)	(2,705,285)	-	-	-	-	5,404,708	-	-	-
Issue of dividends received by subsidiaries from the Company	-	-	182,354	-	-	-	-	-	-	-	-	-	182,354	-	182,354
Disposal of interest in associates and joint ventures accounted for using the equity method	-	-	(1,408,495)	-	-	204,450	204,450	282,291	-	(133,364)	148,927	-	(1,055,118)	-	(1,055,118)
Differences between consideration and carrying amount arising from acquisition or disposal of subsidiaries (Note 32)	-	-	(1,142,856)	-	-	-	-	-	-	-	-	-	(1,142,856)	2,783,015	1,640,159
Changes in percentage of ownership interest in subsidiaries (Note 32)	-	-	(1,118,102)	-	-	-	-	-	-	-	-	-	(1,118,102)	(801,884)	(1,919,986)
Issue of ordinary shares under employee share options (Note 29)	23,879	238,796	549,345	-	-	-	-	-	-	-	-	-	788,141	-	788,141
Cash dividends distributed by subsidiaries	-	-	-	-	-	-	-	-	-	-	-	-	-	(424,815)	(424,815)
Additional non-controlling interest arising on issue of employee share options by subsidiaries (Note 29)	-	-	(1,239,456)	-	-	-	-	-	-	-	-	-	(1,239,456)	1,936,643	697,187
Fair value through other comprehensive income - equity instruments	-	-	-	-	-	400	400	-	-	(400)	(400)	-	-	-	-
BALANCE AT DECEMBER 31, 2018	4,321,714	$ 43,217,144	$ 143,276,664	$ -	$ 3,353,938	$ 20,403,477	$ 23,757,415	$ (5,888,574)	$ -	$ (1,015,107)	$ (6,903,681)	$ (1,959,107)	$ 201,388,435	$ 17,639,487	$ 219,027,922
US DOLLARS (Note 4) BALANCE AT DECEMBER 31, 2018	4,321,714	$ 1,411,864	$ 4,680,714	$ -	$ 109,570	$ 666,562	$ 776,132	$ (192,374)	$ -	$ (33,163)	$ (225,537)	$ (64,002)	$ 6,579,171	$ 576,265	$ 7,155,436

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

ASE TECHNOLOGY HOLDING CO., LTD. (FORMERLY KNOWN AS ADVANCED SEMICONDUCTOR ENGINEERING, INC.) AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS
(Amounts in Thousands)

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
CASH FLOWS FROM OPERATING ACTIVITIES				
Profit before income tax	$ 27,968,705	$ 31,020,663	$ 31,937,678	$ 1,043,374
Adjustments for:				
Depreciation expense	28,961,614	28,747,518	40,286,453	1,316,121
Amortization expense	508,823	457,666	2,402,450	78,486
Net loss (gain) on fair value change of financial assets and liabilities at fair value through profit or loss	(447,559)	2,783,902	(1,989,490)	(64,995)
Finance costs	2,261,075	1,799,494	3,568,241	116,571
Interest income	(230,067)	(306,871)	(466,211)	(15,231)
Dividend income	(26,411)	(59,039)	(190,397)	(6,220)
Compensation cost of employee share options	470,788	438,765	215,648	7,045
Share of loss (profit) of associates and joint ventures	(1,503,910)	(525,782)	480,244	15,689
Loss (gain) on disposal of property, plant and equipment	131,044	(348,070)	56,902	1,859
Impairment loss recognized on financial assets	91,886	77,101	675,624	22,072
Reversal of impairment loss recognized on financial assets	(28,022)	-	-	-
Impairment loss recognized on non-financial assets	1,340,011	1,113,499	1,113,998	36,393
Reversal of impairment loss recognized on non-financial assets	-	-	(100,000)	(3,267)
Gain on disposal of subsidiaries	-	(5,589,457)	-	-
Gain on remeasurement of investments for using the equity method	-	-	(7,421,408)	(242,451)
Net loss (gain) on foreign currency exchange	(407,160)	(2,356,480)	1,360,380	44,442
Others	900,378	1,172,005	1,142,735	37,332
Changes in operating assets and liabilities				
Financial assets held for trading	1,052,111	(226,049)	-	-
Financial assets mandatorily at fair value through profit or loss	-	-	345,540	11,288
Contract assets	-	-	(508,166)	(16,601)
Trade receivables	(6,184,873)	(4,066,374)	(9,313,539)	(304,265)
Other receivables	(211,755)	(330,491)	443,517	14,489
Inventories	3,156,759	(2,907,848)	(9,249,714)	(302,179)
Other current assets	(24,517)	(781,477)	(385,172)	(12,583)
Financial liabilities held for trading	(2,952,116)	(3,874,662)	(2,039,771)	(66,637)
Trade payables	1,665,420	4,753,270	6,989,198	228,331
Other payables	1,380,205	685,398	1,016,338	33,203
Other current liabilities	(2,347,599)	211,145	228,190	7,455
Other operating activities items	(407,143)	27,538	(281,736)	(9,204)
Cash generated from operations	55,117,687	51,915,364	60,317,532	1,970,517
Interest received	228,509	236,746	523,679	17,108
Dividend received	4,043,644	1,929,218	297,882	9,731
Interest paid	(2,043,870)	(1,666,759)	(3,239,159)	(105,820)
Income tax paid	(5,238,103)	(4,983,769)	(6,825,243)	(222,974)
Net cash generated from operating activities	52,107,867	47,430,800	51,074,691	1,668,562

(Continued)

ASE TECHNOLOGY HOLDING CO., LTD. (FORMERLY KNOWN AS ADVANCED SEMICONDUCTOR ENGINEERING, INC.) AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS
(Amounts in Thousands)

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
CASH FLOWS FROM INVESTING ACTIVITIES				
Purchase of financial assets at fair value through comprehensive income	$ -	$ -	$ (105,000)	$ (3,430)
Proceeds on sale of financial assets at fair value other comprehensive income	-	-	94,217	3,078
Return of capital from financial assets at fair value other comprehensive income	-	-	116,278	3,799
Purchase of financial assets designated as at fair value through profit or loss	(64,853,336)	(61,308,095)	-	-
Proceeds on sale of financial assets designated as at fair value through profit or loss	66,472,870	61,601,865	-	-
Purchase of available-for-sale financial assets	(1,590,928)	(902,648)	-	-
Proceeds on sale of available-for-sale financial assets	867,336	1,121,517	-	-
Cash received from return of capital by available-for-sale financial assets	28,927	16,175	-	-
Acquisition of associates and joint ventures	(16,041,463)	-	(451,563)	(14,752)
Net cash outflow on acquisition of subsidiaries	(73,437)	-	(95,241,855)	(3,111,462)
Cash received from return of capital by investee accounted for using the equity method	-	-	262,941	8,590
Net cash inflow from disposal of subsidiaries	-	7,020,883	-	-
Payments for property, plant and equipment	(26,714,163)	(24,699,240)	(41,386,443)	(1,352,057)
Proceeds from disposal of property, plant and equipment	670,200	1,488,210	1,127,644	36,839
Payments for intangible assets	(513,893)	(337,984)	(577,765)	(18,875)
Proceeds from disposal of intangible assets	25,646	34,690	-	-
Payments for investment properties	-	(186,522)	(125,764)	(4,109)
Decrease (increase) in other financial assets	(1,231,186)	236,227	6,208,527	202,827
Increase in other non-current assets	(206,031)	(171,320)	(1,970,772)	(64,383)
Proceeds from financial liabilities for hedging	-	-	2,507,233	81,909
Net cash used in investing activities	(43,159,458)	(16,086,242)	(129,542,322)	(4,232,026)
CASH FLOWS FROM FINANCING ACTIVITIES				
Net proceeds from (repayment of) short-term borrowings	(10,640,229)	(2,038,993)	22,327,813	729,429
Net repayment of short-term bills payable	(4,348,054)	-	-	-
Proceeds from issue of bonds	9,000,000	8,000,000	-	-
Repayment of bonds payable	(10,365,135)	(9,123,972)	(6,185,600)	(202,078)
Proceeds from long-term borrowings	62,282,917	35,394,158	199,743,582	6,525,436
Repayment of long-term borrowings	(52,924,902)	(51,867,539)	(114,232,623)	(3,731,873)
Dividends paid	(12,243,766)	(11,214,221)	(10,613,626)	(346,737)
Proceeds from issue of ordinary shares	-	10,290,000	-	-
Proceeds from exercise of employee share options	995,832	1,439,819	1,269,680	41,479
Payments for buy-back of ordinary shares	-	-	(71,302)	(2,329)
Proceeds from disposal of interests in subsidiaries	-	-	2,807,568	91,721

(Continued)

ASE TECHNOLOGY HOLDING CO., LTD. (FORMERLY KNOWN AS ADVANCED SEMICONDUCTOR ENGINEERING, INC.) AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS
(Amounts in Thousands)

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Decrease in non-controlling interests	$ (3,063,623)	$ (246,440)	$ (11,820,227)	$ (386,156)
Other financing activities items	219,940	43,761	(113,859)	(3,720)
Net cash generated from (used in) financing activities	(21,087,020)	(19,323,427)	83,111,406	2,715,172
EFFECTS OF EXCHANGE RATE CHANGES ON THE BALANCE OF CASH AND CASH EQUIVALENTS HELD IN FOREIGN CURRENCY	(4,720,046)	(4,335,589)	796,595	26,024
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	(16,858,657)	7,685,542	5,440,370	177,732
CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE YEAR	55,251,181	38,392,524	46,078,066	1,505,327
CASH AND CASH EQUIVALENTS AT THE END OF THE YEAR	$ 38,392,524	$ 46,078,066	$ 51,518,436	$ 1,683,059

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

ASE TECHNOLOGY HOLDING CO., LTD. (FORMERLY KNOWN AS ADVANCED SEMICONDUCTOR ENGINEERING, INC.) AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Amounts in Thousands, Unless Stated Otherwise)

1. GENERAL INFORMATION

ASE Technology Holding Co., Ltd. (the "Company") is a corporation incorporated in Nantze Export Processing Zone under the laws of Republic of China ("R.O.C.") starting from April 30, 2018 (date of incorporation). The Company and its subsidiaries (collectively referred to as the "Group") offer a comprehensive range of semiconductors packaging, testing, and electronic manufacturing services ("EMS").

The board of directors of the Company's subsidiaries, Advanced Semiconductor Engineering, Inc. (symbol "2311", "ASE") and Siliconware Precision Industries Co., Ltd. (symbol "2325", "SPIL"), approved in June 2016 to enter into and execute a joint share exchange agreement to establish the Company and the Company acquired all issued and outstanding ordinary shares of ASE and SPIL in the way of share exchange. The share exchange was conducted at an exchange ratio of 1 ordinary share of ASE for 0.5 ordinary share of the Company, and at NT$51.2 in cash per SPIL's ordinary share. The share exchange transaction has been approved both at ASE's and SPIL's special shareholders' meeting on February 12, 2018 and has been completed on April 30, 2018. As a result, ASE and SPIL became wholly-owned subsidiaries of the Company on April 30, 2018, and both of ASE's and SPIL's ordinary shares have been delisted while the ordinary shares of the Company were listed starting from the same date under the symbol "3711". In addition, ASE's ordinary shares that have been traded on the New York Stock Exchange (the "NYSE") under the symbol "ASX" in the form of American Depositary Shares ("ADS") starting from September 2000 were exchanged as the Company's ADSs under the same symbol "ASX" starting from April 30, 2018.

For enhancing operational flexibility through organization restructure, the board of directors of ASE resolved in October 2018 to spin off its investment department which was responsible for managing the ordinary shares and assets of USI Inc. ("USIINC") as well as relevant assets into a newly established company, USI Global Inc. ("USI Global"). USI Global then issued new ordinary shares to the Company as a consideration. In November 2018, the spin-off has been completed and the Company has obtained control over ASE and USI Global. In December 2018, the board of directors of the Company and USI Global further resolved to proceed with the merger which was completed in January 2019. After the merger, the Company is the surviving company while USI Global is the dissolving company. The aforementioned spin-off and merger have no material effect on the Group's financial position and financial performance.

The ordinary shares of the Company's subsidiary, Universal Scientific Industrial (Shanghai) Co., Ltd. ("USISH"), have been listed on the Shanghai Stock Exchange (the "SSE") under the symbol "601231" since February 2012.

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

2. APPROVAL OF FINANCIAL STATEMENTS

The consolidated financial statements were approved for issue by the management on April 22, 2019.

3. APPLICATION OF NEW AND REVISED INTERNATIONAL FINANCIAL REPORTING STANDARDS AS ISSUED BY THE INTERNATIONAL ACCOUNTING STANDARDS BOARD ("IASB") (collectively, "IFRSs")

a. Amendments to IFRSs that are mandatorily effective for the current year

In the current year, the Group has applied the following new, revised or amended standards and interpretations that have been issued and effective:

New, Revised or Amended Standards and Interpretations		Effective Date Issued by IASB (Note 1)
Amendments to IFRS 2	Classification and Measurement of Share-based Payment Transactions	January 1, 2018
IFRS 9	Financial Instruments	January 1, 2018
Amendments to IFRS 9 and IFRS 7	Mandatory Effective Date of IFRS 9 and Transition Disclosures	January 1, 2018
IFRS 15	Revenue from Contracts with Customers	January 1, 2018
Amendments to IFRS 15	Clarifications to IFRS15 Revenue from Contracts with Customers	January 1, 2018
Amendments to IAS 40	Transfers of investment property	January 1, 2018
IFRIC 22	Foreign Currency Transactions and Advance Consideration	January 1, 2018

Note 1: The aforementioned new, revised or amended standards and interpretations are effective for annual period beginning on or after the effective dates, unless specified otherwise.

Except for the following, the initial application of the aforementioned new, revised or amended standards and interpretations did not have effect on the Group's accounting policies..

1) IFRS 9 "Financial Instruments" and related amendments

IFRS 9 supersedes IAS 39 "Financial Instruments: Recognition and Measurement", with consequential amendments to IFRS 7 "Financial Instruments: Disclosures" and other standards. IFRS 9 sets out the requirements for classification, measurement and impairment of financial assets and hedge accounting. Refer to Note 4 for information relating to the relevant accounting policies.

The requirements for classification, measurement and impairment of financial assets have been applied retrospectively from January 1, 2018, and the requirements for hedge accounting have been applied prospectively. IFRS 9 is not applicable to items that have already been derecognized as of December 31, 2017.

The impact of adoption on the consolidated financial statements was not material.

Classification, measurement and impairment of financial assets

On the basis of the facts and circumstances that existed as of January 1, 2018, the Group has performed an assessment of the classification of recognized financial assets and has elected not to reflect the figures on a retrospective basis.

The following table shows the original measurement categories and carrying amount under IAS 39 and the new measurement categories and carrying amount under IFRS 9 for each class of the Group's financial assets and financial liabilities as of January 1, 2018.

Financial Assets	Measurement Category IAS 39	Measurement Category IFRS 9	Carrying Amount IAS 39 NT$	Carrying Amount IAS 39 US$ (Note 4)	Carrying Amount IFRS 9 NT$	Carrying Amount IFRS 9 US$ (Note 4)	Remark
Cash and cash equivalents	Loans and receivables	Amortized cost	$ 46,078,066	$ 1,505,327	$ 46,078,066	$ 1,505,327	
Derivatives	Held for trading	Mandatorily at fair value through profit or loss (“FVTPL”)	121,863	3,981	121,863	3,981	
Equity instruments	Held for trading	Mandatorily at FVTPL	4,410,732	144,094	4,410,732	144,094	
	Available-for-sale	Mandatorily at FVTPL	279,791	9,141	279,791	9,141	b)
	Available-for-sale	Fair value through other comprehensive income (“FVTOCI”) - equity instruments	908,549	29,681	908,549	29,681	a)
Open-end mutual funds	Held for trading	Mandatorily at FVTPL	589,976	19,274	589,976	19,274	
	Available-for-sale	Mandatorily at FVTPL	23,825	778	23,825	778	b)
Debt instruments	Designated as at FVTPL	Mandatorily at FVTPL	100,496	3,283	100,496	3,283	
	Other financial assets	FVTOCI - debt instruments	1,000,000	32,669	1,080,000	35,283	d)
Time deposits with original maturity of over three months, pledged time deposits and guarantee deposits	Loans and receivables	Amortized cost	405,520	13,248	405,520	13,248	c)
Trade receivables and other receivables	Loans and receivables	Amortized cost	56,252,661	1,837,722	56,252,661	1,837,722	

Financial Assets	IAS 39 Carrying Amount as of January 1, 2018 NT$	Reclassifi-cations NT$	Remea-surements NT$	IFRS 9 Carrying Amount as of January 1, 2018 NT$	Retained Earnings Effect on January 1, 2018 NT$	Other Equity Effect on January 1, 2018 NT$	Remark
FVTPL	$ 5,223,067						
Add: Reclassification from available-for-sale (IAS 39) - required reclassification	-	$ 303,616	$ -		$ 110,648	$ (110,648)	b)
	5,223,067	303,616	-	$ 5,526,683	110,648	(110,648)	
FVTOCI							
Debt instruments							
Add: Reclassification from other financial assets	-	1,000,000	80,000		-	80,000	d)
Equity instruments							
Add: Reclassification from available-for-sale (IAS 39)	-	908,549	-		417,398	(417,398)	a)
	-	1,908,549	80,000	1,988,549	417,398	(337,398)	
Investments accounted for using the equity method	48,753,751	-	(2,586)	48,751,165	(163,579)	160,993	
	$53,976,818	$ 2,212,165	$ 77,414	$56,266,397	$ 364,467	$ (287,053)	

(Continued)

Financial Assets	IAS 39 Carrying Amount as of January 1, 2018	Reclassifi-cations	Remea-surements	IFRS 9 Carrying Amount as of January 1, 2018	Retained Earnings Effect on January 1, 2018	Other Equity Effect on January 1, 2018	Remark
	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	
FVTPL	$ 170,633						
Add: Reclassification from available-for-sale (IAS 39) - required reclassification	-	$ 9,919	$ -		$ 3,615	$ (3,615)	b)
	170,633	9,919	-	$ 180,551	3,615	(3,615)	
FVTOCI							
Debt instruments							
Add: Reclassification from other financial assets	-	32,669	2,614		-	2,614	d)
Equity instruments							
Add: Reclassification from available-for-sale (IAS 39)	-	29,682	-		13,636	(13,636)	a)
	-	62,351	2,614	64,964	13,636	(11,022)	
Investments accounted for using the equity method	1,592,739	-	(85)	1,592,655	(5,344)	5,259	
	$ 1,763,372	$ 72,270	$ 2,529	$ 1,838,170	$ 11,907	$ (9,378)	

(Concluded)

a) Unquoted shares and limited partnership classified as available-for-sale are designated as at FVTOCI and the changes in fair value accumulated in other equity are transferred directly to retained earnings instead of being reclassified to profit or loss on disposal. Impairment losses previously recognized and accumulated in retained earnings are adjusted by the Group to record an increase in retained earnings and a decrease in other equity, unrealized gains or losses on financial assets at fair value through other comprehensive income, since no subsequent impairment assessment is required under IFRS 9;

b) Quoted shares classified as available-for-sale are classified as at fair value through profit or loss under IFRS 9. Open-end mutual funds classified as available-for-sale are classified as at fair value through profit or loss under IFRS 9 because the contractual cash flows are not solely payments of principal and interest on the principal outstanding and they are not equity instruments. The Group reclassifies unrealized gains or losses on available-for-sale financial assets in other equity to retained earnings;

c) Time deposits with original maturity of over three months, pledged time deposits and guarantee deposits are classified as measured at amortized cost under IFRS 9 because, on initial recognition, the contractual cash flows that are solely payments of principal and interest on the principal outstanding and these investments are held within a business model whose objective is to collect the contractual cash flows; and

d) Debt investments with no active market are classified as at fair value through other comprehensive income under IFRS 9, because, on initial recognition, the contractual cash flows that are solely payments of principal and interest on the principal outstanding and these investments are held within a business model whose objective is achieved both by collecting contractual cash flows and selling financial assets. The Group adjusts those debt investments and other equity, unrealized gains or losses on financial assets at fair value through other comprehensive income, based on their fair value.

2) IFRS 15 "Revenue from Contracts with Customers" and related amendment

IFRS 15 establishes principles for recognizing revenue that apply to all contracts with customers, and supersedes IAS 18 "Revenue", IAS 11 "Construction Contracts" and a number of revenue-related interpretations. Refer to Note 4 for related accounting policies.

Most of revenues generated from the goods manufactured by the Group's operating segments in packaging and testing are changed to be recognized over time after the application of IFRS 15. Prior to the application of IFRS 15, the Group recognized revenues when the significant risks and rewards of ownership of inventories have been transferred to customers.

The Group elected only to retrospectively apply IFRS 15 to contracts that were not complete as of January 1, 2018 and recognized the cumulative effect of retrospectively applying IFRS 15 in retained earnings on January 1, 2018.

The impact of adoption on the consolidated financial statements was not material.

The impact on assets, liabilities and equity as of January 1, 2018 from the initial application of IFRS 15 is set out below:

	IAS 18 Carrying Amount as of January 1, 2018	Adjustments Arising from Initial Application	IFRS 15 Carrying Amount as of January 1, 2018
	NT$	NT$	NT$
Inventories	$ 24,260,911	$ (1,381,778)	$ 22,879,133
Contract assets - current	-	1,971,107	1,971,107
Investments accounted for using the equity method	48,753,751	40,139	48,793,890
Deferred tax assets	4,001,821	(7,287)	3,994,534
Total effect on assets	$ 77,016,483	$ 622,181	$ 77,638,664
Current tax liabilities	$ 7,619,328	$ 5,078	$ 7,624,406
Deferred tax liabilities	4,961,487	90,071	5,051,558
Total effect on liabilities	$ 12,580,815	$ 95,149	$ 12,675,964
Retained earnings	$ 73,718,545	$ 521,849	$ 74,240,394
Non-controlling interests	13,190,129	5,183	13,195,312
Total effect on equity	$ 86,908,674	$ 527,032	$ 87,435,706

	IAS 18 Carrying Amount as of January 1, 2018	Adjustments Arising from Initial Application	IFRS 15 Carrying Amount as of January 1, 2018
	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)
Inventories	$ 792,581	$ (45,141)	$ 747,440
Contract assets - current	-	64,394	64,394
Investments accounted for using the equity method	1,592,739	1,311	1,594,050

(Continued)

	IAS 18 Carrying Amount as of January 1, 2018	Adjustments Arising from Initial Application	IFRS 15 Carrying Amount as of January 1, 2018
	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)
Deferred tax assets	$ 130,736	$ (238)	$ 130,498
Total effect on assets	$ 2,516,056	$ 20,326	$ 2,536,382
Current tax liabilities	$ 248,916	$ 166	$ 249,082
Deferred tax liabilities	162,087	2,943	165,030
Total effect on liabilities	$ 411,003	$ 3,109	$ 414,112
Retained earnings	$ 2,408,316	$ 17,048	$ 2,425,364
Non-controlling interests	430,909	169	431,078
Total effect on equity	$ 2,839,225	$ 17,217	$ 2,856,442

(Concluded)

Had the Group applied IAS 18 in the current year, the following adjustments should have been made to reflect the line items and balances under IFRS 15.

Impact on assets, liabilities and equity as of December 31, 2018

	NT$	US$ (Note 4)
Increase in inventories	$ 2,313,269	$ 75,572
Decrease in contract assets - current	(4,498,500)	(146,961)
Increase in trade receivables	1,073,368	35,066
Decrease in investments accounted for using the equity method	(37,312)	(1,219)
Increase in deferred tax assets	26,389	862
Decrease in assets	$ (1,122,786)	$ (36,680)
Decrease in current tax liabilities	$ (47,028)	$ (1,536)
Decrease in deferred tax liabilities	(141,934)	(4,637)
Decrease in liabilities	$ (188,962)	$ (6,173)
Decrease in retained earnings	$ (933,310)	$ (30,490)
Decrease in non-controlling interests	(514)	(17)
Decrease in equity	$ (933,824)	$ (30,507)

Impact on total comprehensive income for the year ended December 31, 2018

	NT$	US$ (Note 4)
Decrease in operating revenues	$ (475,155)	$ (15,523)
Decrease in operating costs	$ (101,964)	$ (3,331)
Increase in share of profit of associates and joint ventures	$ 2,828	$ 92
Decrease in income tax expense	$ (81,908)	$ (2,676)
Decrease in net profit and total comprehensive income for the year	$ (406,792)	$ (13,290)
Increase (decrease) in net profit and total comprehensive income attributable to:		
Owners of the Company	$ (411,461)	$ (13,442)
Non-controlling interests	4,669	152
	$ (406,792)	$ (13,290)
Impact on earnings per share:		
Decrease in basic earnings per share	$ (0.10)	$ (0.00)
Decrease in diluted earnings per share	$ (0.10)	$ (0.00)

b. New, revised or amended standards and interpretations in issue but not yet effective

The Group has not applied the following new, revised or amended standards and interpretations that have been issued but are not yet effective:

New, Revised or Amended Standards and Interpretations		Effective Date Issued by IASB (Note 1)
Amendments to IFRSs	Annual Improvements to IFRSs 2015-2017 Cycle	January 1, 2019
Amendments to IFRS 9	Prepayment Features with Negative Compensation	January 1, 2019
Amendments to IFRS 10 and IAS 28	Sale or Contribution of Assets between an Investor and its Associate or Joint Venture	To be determined by IASB
IFRS 16	Leases	January 1, 2019
Amendments to IAS 19	Plan Amendment, Curtailment or Settlement	January 1, 2019 (Note 2)
Amendments to IAS 28	Long-term Interests in Associate and Joint Venture	January 1, 2019
IFRIC 23	Uncertainty over Income Tax Treatments	January 1, 2019
Amendments to IFRS 3	Definition of a Business	January 1, 2020 (Note 3)
Amendments to IAS 1 and IAS 8	Definition of Material	January 1, 2020 (Note 4)

Note 1: The aforementioned new, revised or amended standards and interpretations are effective for annual period beginning on or after the effective dates, unless specified otherwise.

Note 2: The Group shall apply these amendments to plan amendments, curtailments or settlements occurring on or after January 1, 2019.

Note 3: The Group shall apply these amendments to business combinations for which the acquisition date is on or after the beginning of the first annual period beginning on or after January 1, 2020 and to asset acquisitions that occur on or after the beginning of that period.

Note 4: The Group shall apply these amendments prospectively for annual periods beginning on or after January 1, 2020.

c. Significant changes in accounting policy resulted from new, revised and amended standards and interpretations in issue but not yet effective

As of the date the consolidated financial statements were authorized for issue, the Group assessed that the application of the aforementioned new, revised or amended standards and interpretations will not have material impact on the Group's financial position and financial performance.

1) IFRS 16 "Leases"

IFRS 16 sets out the accounting standards for leases that will supersede IAS 17, IFRIC 4 and a number of related interpretations.

<u>Definition of a lease</u>

Upon initial application of IFRS 16, the Group will elect to apply 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 will not be reassessed and will be accounted for in accordance with the transitional provisions under IFRS 16.

Upon initial application of IFRS 16, if the Group is a lessee, it will recognize right-of-use assets, or investment properties if the right-of-use assets meet the definition of investment properties, and lease liabilities for all leases on the consolidated balance sheets except for those whose payments under low-value asset and short-term leases will be recognized as expenses on a straight-line basis. On the consolidated statements of comprehensive income, the Group should present the depreciation expense charged on the right-of-use assets separately from the interest expense accrued on the lease liabilities; interest is computed using the effective interest method. On the consolidated statements of cash flows, cash payments for the principal portion of the lease liabilities will be classified within financing activities; cash payments for the interest portion will be classified within operating activities.

The application of IFRS 16 is not expected to have a material impact on the accounting of the Group as lessor.

The Group anticipates applying IFRS 16 retrospectively with the cumulative effect of the initial application of this standard recognized on January 1, 2019. Comparative information will not be adjusted on a retrospective basis.

The Group expects to apply the following practical expedients:

a) The Group will apply a single discount rate to a portfolio of leases with reasonably similar characteristics to measure lease liabilities.

b) The Group will account for those leases for which the lease term ends on or before December 31, 2019 as short-term leases.

c) The Group will exclude initial direct costs from the measurement of right-of-use assets on January 1, 2019.

d) The Group will use hindsight, such as in determining lease terms, to measure lease liabilities.

For leases currently classified as finance leases under IAS 17, the carrying amount of right-of-use assets and lease liabilities on January 1, 2019 will be determined as the carrying amount of the leased assets and finance lease payables as of December 31, 2018.

Anticipated impact on assets, liabilities and equity as of January 1, 2019

	IAS 17 Carrying Amount as of December 31, 2018	Adjustments Arising from Initial Application of IFRS 16	IFRS 16 Carrying Amount as of January 1, 2019
	NT$	NT$	NT$
Other financial assets - current	$ 6,539,467	$ (31)	$ 6,539,436
Other current assets	3,773,384	(385,014)	3,388,370
Long-term prepayments for lease	10,764,835	(10,764,835)	-
Property, plant and equipment	214,592,588	(277,079)	214,315,509
Right-of-use assets	-	10,724,198	10,724,198
Investment properties	7,738,379	6,599,225	14,337,604
Other financial assets - non-current	1,044,294	(2,747)	1,041,547
Other intangible assets	30,897,700	(59,667)	30,838,033
Total effect on assets	$ 275,350,647	$ 5,834,050	$ 281,184,697
Obligation under leases - current	$ -	$ 490,085	$ 490,085
Other current liabilities	5,984,156	(17,144)	5,967,012
Obligation under leases - non-current	-	5,598,071	5,598,071
Other current liabilities - non-current	1,371,302	(236,962)	1,134,340
Total effect on liabilities	$ 7,355,458	$ 5,834,050	$ 13,189,508

	IAS 17 Carrying Amount as of December 31, 2018	Adjustments Arising from Initial Application of IFRS 16	IFRS 16 Carrying Amount as of January 1, 2019
	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)
Other financial assets - current	$ 213,638	$ (1)	$ 213,637
Other current assets	123,273	(12,578)	110,695
Long-term prepayments for lease	351,677	(351,677)	-
Property, plant and equipment	7,010,539	(9,052)	7,001,487
Right-of-use assets	-	350,349	350,349
Investment properties	252,806	215,591	468,397
Other financial assets - non-current	34,116	(90)	34,026
Other intangible assets	1,009,399	(1,949)	1,007,450
Total effect on assets	$ 8,995,448	$ 190,593	$ 9,168,041
Obligation under leases - current	$ -	$ 16,010	$ 16,010
Other current liabilities	195,497	(560)	194,937
Obligation under leases - non-current	-	182,884	182,884
Other current liabilities - non-current	44,799	(7,741)	37,058
Total effect on liabilities	$ 240,296	$ 190,593	$ 430,889

2) Amendments to IAS 19 "Plan Amendment, Curtailment or Settlement"

The amendments stipulate that, if a plan amendment, curtailment or settlement occurs, the current service cost and the net interest for the remainder of the annual reporting period are determined using the actuarial assumptions used for the remeasurement of the net defined benefit liabilities (assets). In addition, the amendments clarify the effect of a plan amendment, curtailment or settlement on the requirements regarding the asset ceiling. The Group will apply the above amendments prospectively.

4. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

a. Statement of compliance

The consolidated financial statements have been prepared in accordance with IFRSs as issued by the IASB.

b. Basis of preparation

As disclosed in Note 1, the share exchange between the Company and ASE was an organization restructure under common control that the Company was essentially the continuation of ASE. The related assets and liabilities in the Company's consolidated financial statements, before the date of incorporation, were recognized based on the carrying amounts of those in ASE's consolidated financial statements. The consolidated financial statements of the Company for prior periods are prepared under the assumption that the Company owned 100% shareholdings of ASE at the very beginning.

The consolidated financial statements have been prepared on the historical cost basis except for financial instruments which are measured at fair value and net defined benefit liabilities which are measured at the present value of the defined benefit obligation less the fair value of plan assets.

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

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

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

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

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

Current assets include cash and cash equivalents and those assets held primarily for trading purposes or expected to be realized within twelve months after the balance sheet date, unless the asset is to be used for an exchange or to settle a liability, or otherwise remains restricted, at more than twelve months after the balance sheet date. Current liabilities are obligations incurred for trading purposes or to be settled within twelve months after the balance sheet date (even if an agreement to refinance, or to reschedule payments, on a long-term basis is completed after the balance sheet date and before the consolidated financial statements are authorized for issue) and liabilities that do not have an unconditional right to defer settlement for at least 12 months after the balance sheet date (terms of a liability that could, at the option of the counterparty, result in its settlement by the issue of equity instruments do not affect its classification). Assets and liabilities that are not classified as current are classified as non-current.

The Group engages in the construction business which has an operating cycle of over one year. The normal operating cycle applies when considering the classification of the Group's construction-related assets and liabilities.

d. Basis of consolidation

1) Principles for preparing consolidated financial statements

The Company became the ultimate parent company of the Group after completing the share exchange with ASE on April 30, 2018. In addition, the Company obtained control over SPIL on April 30, 2018 and, therefore, included SPIL's subsidiaries in the Group's consolidated financial statements from the same date.

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

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

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

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

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

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

2) Subsidiaries included in consolidated financial statements were as follows:

Name of Investee	Main Businesses	Establishment and Operating Location	Percentage of Ownership (%) December 31 2017	Percentage of Ownership (%) December 31 2018
ASE	Engaged in the packaging and testing of semiconductors	Kaohsiung, R.O.C.	100.0	100.0
A.S.E. Holding Limited	Holding company	Bermuda	100.0	100.0
J & R Holding Limited ("J&R Holding")	Holding company	Bermuda	100.0	100.0
Innosource Limited	Holding company	British Virgin Islands	100.0	100.0
Omniquest Industrial Limited	Holding company	British Virgin Islands	100.0	100.0
ASE Marketing & Service Japan Co., Ltd.	Engaged in marketing and sales services	Japan	100.0	100.0
ASE Test, Inc.	Engaged in the testing of semiconductors	Kaohsiung, R.O.C.	100.0	100.0
Luchu Development Corporation	Engaged in the development of real estate properties	Taipei, R.O.C.	86.1	86.1
TLJ Intertech Inc. ("TLJ")	Engaged in information software services	Taipei, R.O.C.	60.0	60.0
MingFung Information Service Corp., Ltd.	Engaged in information software services, and was established in May 2018.	Taipei, R.O.C.	-	100.0
Alto Enterprises Limited	Holding company	British Virgin Islands	100.0	100.0
Super Zone Holdings Limited	Holding company	Hong Kong	100.0	100.0
ASE (Kun Shan) Inc.	Engaged in the packaging and testing of semiconductors	Kun Shan, China	100.0	100.0
ASE Investment (Kun Shan) Limited	Holding company	Kun Shan, China	100.0	100.0
Advanced Semiconductor Engineering (China) Ltd.	Will engage in the packaging and testing of semiconductors	Shanghai, China	100.0	100.0
ASE Investment (Labuan) Inc.	Holding company	Malaysia	100.0	100.0
ASE Test Limited ("ASE Test")	Holding company	Singapore	100.0	100.0
ASE (Korea) Inc. ("ASE Korea")	Engaged in the packaging and testing of semiconductors	Korea	100.0	100.0
J&R Industrial Inc.	Engaged in leasing equipment and investing activity	Kaohsiung, R.O.C.	100.0	100.0
ASE Japan Co., Ltd. ("ASE Japan")	Engaged in the packaging and testing of semiconductors	Japan	100.0	100.0
ASE (U.S.) Inc.	After-sales service and sales support	U.S.A.	100.0	100.0
Global Advanced Packaging Technology Limited	Holding company	British Cayman Islands	100.0	100.0
ASE WeiHai Inc.	Engaged in the packaging and testing of semiconductors	Shandong, China	100.0	100.0

(Continued)

Name of Investee	Main Businesses	Establishment and Operating Location	Percentage of Ownership (%) December 31 2017	2018
Suzhou ASEN Semiconductors Co., Ltd. ("ASEN")	Engaged in the packaging and testing of semiconductors	Suzhou, China	60.0	70.0
Anstock Limited	Engaged in financing activity	British Cayman Islands	100.0	100.0
Anstock II Limited	Engaged in financing activity	British Cayman Islands	100.0	100.0
ASE (Shanghai) Inc.	Engaged in the production of substrates	Shanghai, China	100.0	100.0
ASE Corporation	Holding company	British Cayman Islands	100.0	100.0
ASE Mauritius Inc.	Holding company	Mauritius	100.0	100.0
ASE Labuan Inc.	Holding company	Malaysia	100.0	100.0
Shanghai Ding Hui Real Estate Development Co., Ltd.	Engaged in the development, construction and sale of real estate properties	Shanghai, China	100.0	100.0
Shanghai Ding Qi Property Management Co., Ltd.	Engaged in the management of real estate properties	Shanghai, China	100.0	100.0
Advanced Semiconductor Engineering (HK) Limited	Engaged in the trading of substrates	Hong Kong	100.0	100.0
Shanghai Ding Wei Real Estate Development Co., Ltd.	Engaged in the development, construction and leasing of real estate properties	Shanghai, China	100.0	100.0
Shanghai Ding Yu Real Estate Development Co., Ltd.	Engaged in the development, construction and leasing of real estate properties	Shanghai, China	100.0	100.0
Shanghai Ding Fan Department Store Co., Ltd.	Engaged in department store business	Shanghai, China	100.0	100.0
Kun Shan Ding Hong Real Estate Development Co., Ltd.	Engaged in the development, construction and leasing of real estate properties	Kun Shan, China	100.0	100.0
Shanghai Ding Xu Property Management Co., Ltd.	Engaged in the management of real estate properties	Shanghai, China	100.0	100.0
ASE Electronics Inc.	Engaged in the production of substrates	Kaohsiung, R.O.C.	100.0	100.0
ASE Test Holdings, Ltd.	Holding company	British Cayman Islands	100.0	100.0
ASE Holdings (Singapore) Pte. Ltd.	Holding company	Singapore	100.0	100.0
ASE Singapore Pte. Ltd.	Engaged in the packaging and testing of semiconductors	Singapore	100.0	100.0
ISE Labs, Inc.	Engaged in the testing of semiconductors	U.S.A.	100.0	100.0
ASE Electronics (M) Sdn. Bhd.	Engaged in the packaging and testing of semiconductors	Malaysia	100.0	100.0
ASE Assembly & Test (Shanghai) Limited	Engaged in the packaging and testing of semiconductors	Shanghai, China	100.0	100.0

(Continued)

Name of Investee	Main Businesses	Establishment and Operating Location	Percentage of Ownership (%) December 31 2017	2018
ASE Trading (Shanghai) Ltd.	Liquidated in December 2018	Shanghai, China	100.0	-
ISE Labs, China, Ltd.	Engaged in the testing of semiconductors, and was established in October 2018	Shanghai, China	-	100.0
Wuxi Tongzhi Microelectronics Co., Ltd.	Engaged in the packaging and testing of semiconductors	Wuxi, China	100.0	100.0
USI Global	Engaged in investing activities, and was established in November 2018 and then dissolved in January 2019	Nantou, R.O.C.	-	100.0
USIINC	Engaged in investing activity	Nantou, R.O.C.	99.2	100.0
Huntington Holdings International Co., Ltd.	Holding company	British Virgin Islands	99.2	100.0
Unitech Holdings International Co., Ltd. (“UHI”)	Holding company	British Virgin Islands	99.2	100.0
Real Tech Holdings Limited	Holding company	British Virgin Islands	99.2	100.0
Universal ABIT Holding Co., Ltd.	In the process of liquidation	British Cayman Islands	99.2	100.0
Rising Capital Investment Limited	Holding company	British Virgin Islands	99.2	100.0
Rise Accord Limited	Holding company	British Virgin Islands	99.2	100.0
Universal Scientific Industrial (Kunshan) Co., Ltd.	Engaged in the manufacturing and sale of computer assistance system and related peripherals	Kun Shan, China	99.2	100.0
USI Enterprise Limited (“USIE”)	Engaged in the services of investment advisory and warehousing management	Hong Kong	96.9	95.4
Universal Scientific Industrial (Shanghai) Co., Ltd. (“USISH”)	Engaged in the designing, manufacturing and sale of electronic components	Shanghai, China	75.8	74.6
Universal Global Technology Co., Limited	Holding company	Hong Kong	75.8	74.6
Universal Global Technology (Kunshan) Co., Ltd.	Engaged in the designing and manufacturing of electronic components	Kun Shan, China	75.8	74.6
Universal Global Technology (Shanghai) Co., Ltd.	Engaged in the processing and sales of computer and communication peripherals as well as business in import and export of goods and technology	Shanghai, China	75.8	74.6
Universal Global Electronics (Shanghai) Co., Ltd.	Engaged in the sale of electronic components and telecommunications equipment	Shanghai, China	75.8	74.6

(Continued)

Name of Investee	Main Businesses	Establishment and Operating Location	Percentage of Ownership (%) December 31 2017	2018
USI America Inc.	Engaged in the manufacturing and processing of motherboards and wireless network communication and provision of related technical service	U.S.A.	75.8	74.6
Universal Global Industrial Co., Limited	Engaged in manufacturing, trading and investing activity	Hong Kong	75.8	74.6
Universal Global Scientific Industrial Co., Ltd. ("UGTW")	Engaged in the manufacturing of components of telecomm and cars and provision of related R&D services	Nantou, R.O.C.	75.8	74.6
Universal Scientific Industrial De Mexico S.A. De C.V.	Engaged in the assembling of motherboards and computer components	Mexico	75.8	74.6
USI Japan Co., Ltd.	Engaged in the manufacturing and sale of computer peripherals, integrated chip and other related accessories	Japan	75.8	74.6
USI Electronics (Shenzhen) Co., Ltd.	Engaged in the design, manufacturing and sale of motherboards and computer peripherals	Shenzhen, China	75.8	74.6
Universal Global Electronics Co., Ltd.	Engaged in accepting and outsourcing orders as well as sales of electronic components and service of technical advisory, and was established in February 2018	Hong Kong	-	74.6
Universal Scientific Industrial Co., Ltd. ("USI")	Engaged in the manufacturing, processing and sale of computers, computer peripherals and related accessories	Nantou, R.O.C.	75.5	74.4
SPIL	Engaged in the assembly, testing and turnkey services of integrated circuits	Taichung, R.O.C.	-	100.0
SPIL (B.V.I.) Holding Limited	Engaged in investing activities	British Virgin Islands	-	100.0
Siliconware Investment Co., Ltd.	Engaged in investing activities	Taipei, R.O.C.	-	100.0
Siliconware USA, Inc.	Engaged in marketing activities	U.S.A.	-	100.0

(Continued)

Name of Investee	Main Businesses	Establishment and Operating Location	Percentage of Ownership (%) December 31 2017	Percentage of Ownership (%) December 31 2018
SPIL (Cayman) Holding Limited	Engaged in investing activities	British Cayman Islands	-	100.0
Siliconware Technology (Suzhou) Limited	Engaged in the packaging and testing of semiconductors	Suzhou, China	-	70.0
Siliconware Electronics (Fujian) Co., Limited	Engaged in the packaging and testing of semiconductors	Fujian, China	-	100.0

(Concluded)

e. Business combinations

Acquisitions of businesses are accounted for using the acquisition method. Acquisition-related costs are generally recognized in profit or loss as they are incurred.

Goodwill is measured as the excess of the sum of the consideration transferred, the amount of any non-controlling interests in the acquiree, and the fair value of the acquirer's previously held equity interest in the acquiree (if any) over the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed. If, after re-assessment, the net of the acquisition-date amounts of the identifiable assets acquired and liabilities assumed exceeds the sum of the consideration transferred, the amount of any non-controlling interests in the acquiree and the fair value of the acquirer's previously held interest in the acquiree (if any), the excess is recognized immediately in profit or loss as a bargain purchase gain.

When a business combination is achieved in stages, the Group's previously held equity interest in the acquiree is remeasured to its acquisition-date fair value and the resulting gain or loss, if any, is recognized in profit or loss or other comprehensive income. Amounts arising from interests in the acquiree prior to the acquisition date that have previously been recognized in other comprehensive income are recognized on the same basis as would be required if that interest were directly disposed of by the Group.

If the initial accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, the Group reports provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted retrospectively during the measurement period, or additional assets or liabilities are recognized, to reflect new information obtained about facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognized at that date.

Business combination involving entities under common control is not accounted for by acquisition method but accounted for at the carrying amounts of the entities.

f. Foreign currencies

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

At each balance sheet date, monetary items denominated in foreign currencies are retranslated at the rates prevailing at that date. Exchange differences on monetary items arising from settlement or translation are recognized in profit or loss in the period in which they arise except for exchange differences on transactions entered into in order to hedge certain foreign currency risks.

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

Non-monetary items that are measured at historical cost in a foreign currency are translated using the exchange rate at the date of the transaction, and are not retranslated.

For the purposes of presenting the consolidated financial statements, the assets and liabilities of the Group's foreign operations (including subsidiaries, associates and joint ventures in other countries that use currencies which are different from the currency of the Company) are translated into the New Taiwan dollars using exchange rates prevailing at each balance sheet date. Income and expense items are translated at the average exchange rates for the period. The resulting currency translation differences are recognized in other comprehensive income and accumulated in equity attributed to the owners of the Company and non-controlling interests as appropriate.

On the disposal of the Group's entire interest in a foreign operation, or a disposal involving the loss of control over a subsidiary that includes a foreign operation, or a partial disposal of an interest in a joint arrangement or an associate that includes a foreign operation of which the retained interest becomes a financial asset, all of the exchange differences accumulated in equity in respect of that operation attributable to the owners of the Company are reclassified to profit or loss.

In relation to a partial disposal of a subsidiary that does not result in the Group losing control over the subsidiary, the proportionate share of accumulated exchange differences is re-attributed to the non-controlling interests of the subsidiary and is not recognized in profit or loss. For all other partial disposals, the proportionate share of the accumulated exchange differences recognized in other comprehensive income is reclassified to profit or loss.

g. Inventories and inventories related to real estate business

Inventories, including raw materials (materials received from customers for processing, mainly semiconductor wafers, are excluded from inventories as title and risk of loss remain with the customers), supplies, work in process, finished goods, and materials and supplies in transit are stated at the lower of cost or net realizable value. Inventory write-downs are made by item, except for those that may be appropriate to group items of similar or related inventories. Net realizable value is the estimated selling prices of inventories less all estimated costs of completion and estimated costs necessary to make the sale. Raw materials and supplies are recorded at moving average cost while work in process and finished goods are recorded at standard cost.

Inventories related to real estate business include land and buildings held for sale, land held for construction and construction in progress. Land held for development is recorded as land held for construction upon obtaining the title of ownership. Prior to the completion, the borrowing costs directly attributable to construction in progress are capitalized as part of the cost of the asset. Construction in progress is transferred to land and buildings held for sale upon completion. Land and buildings held for sale, construction in progress and land held for construction are stated at the lower of cost or net realizable value and related write-downs are made by item. The amounts received in advance for real estate properties are first recorded as advance receipts and then recognized as revenue when the construction is completed and the title and significant risk of the real estate properties are transferred to customers. Cost of sales of land and buildings held for sale are recognized based on the ratio of property sold to the total property developed.

h. Investments in associates and joint ventures

An associate is an entity over which the Group has significant influence and that is neither a subsidiary nor an interest in a joint venture. Joint venture is a joint arrangement whereby the Group and other parties that have joint control of the arrangement have rights to the net assets of the arrangement.

Under the equity method, investments in an associate and a joint venture are initially recognized at cost and adjusted thereafter to recognize the Group’s share of the profit or loss and other comprehensive income of the associate and joint venture. The Group also recognizes the changes in the Group’s share of equity of associates and joint venture.

Any excess of the cost of acquisition over the Group’s share of the net fair value of the identifiable assets and liabilities of an associate or a joint venture at the date of acquisition is recognized as goodwill, which is included within the carrying amount of the investment and is not amortized. Any excess of the Group’s share of the net fair value of the identifiable assets and liabilities over the cost of acquisition after reassessment is recognized immediately in profit or loss.

When the Group subscribes for additional new shares of an associate and joint venture at a percentage different from its existing ownership percentage, the resulting carrying amount of the investment differs from the amount of the Group’s proportionate interest in the associate and joint venture. The Group records such a difference as an adjustment to investments with the corresponding amount charged or credited to capital surplus - changes in capital surplus from investments in associates and joint ventures accounted for using the equity method. If the Group’s ownership interest is reduced due to its additional subscription of the new shares of the associate and joint venture, the proportionate amount of the gains or losses previously recognized in other comprehensive income in relation to that associate and joint venture is reclassified to profit or loss on the same basis as would be required had the investee directly disposed of the related assets or liabilities. When the adjustment should be debited to capital surplus, but the capital surplus recognized from investments accounted for using the equity method is insufficient, the shortage is debited to retained earnings.

When the Group’s share of losses of an associate and a joint venture equals or exceeds its interest in that associate and joint venture (which includes any carrying amount of the investment accounted for using the equity method and long-term interests that, in substance, form part of the Group’s net investment in the associate and joint venture), the Group discontinues recognizing its share of further losses. Additional losses and liabilities are recognized only to the extent that the Group has incurred legal obligations or constructive obligations, or made payments on behalf of that associate and joint venture.

The entire carrying amount of an investment (including goodwill) is tested for impairment as a single asset by comparing its recoverable amount with its carrying amount. Any impairment loss recognized is not allocated to any asset, including goodwill, that forms part of the carrying amount of the investment. Any reversal of that impairment loss is recognized to the extent that the recoverable amount of the investment subsequently increases.

The Group discontinues the use of the equity method from the date on which its investment ceases to be an associate and a joint venture. Any retained investment is measured at fair value at that date, and the fair value is regarded as the investment’s fair value on initial recognition as a financial asset. The difference between the previous carrying amount of the associate and the joint venture attributable to the retained interest and its fair value is included in the determination of the gain or loss on disposal of the associate and the joint venture. The Group accounts for all amounts previously recognized in other comprehensive income in relation to that associate and joint venture on the same basis as would be required had that associate directly disposed of the related assets or liabilities. If an investment in an associate becomes an investment in a joint venture or an investment in a joint venture becomes an investment in an associate, the Group continues to apply the equity method and does not remeasure the retained interest.

When a group entity transacts with its associate and joint venture, profits and losses resulting from the transactions with the associate and joint venture are recognized in the Group' consolidated financial statements only to the extent that interests in the associate and the joint venture are not related to the Group.

i. Property, plant and equipment

Except for land which is stated at cost, property, plant and equipment (including assets held under finance leases) are stated at cost less accumulated depreciation and accumulated impairment.

Properties in the course of construction are carried at cost, less any recognized impairment loss. Cost includes professional fees and borrowing costs eligible for capitalization. Such assets are depreciated and classified to the appropriate categories of property, plant and equipment when completed and ready for their intended use.

Freehold land is not depreciated.

Depreciation of property, plant and equipment is recognized using the straight-line method. Each significant part is depreciated separately. If the lease term is shorter than the assets' useful lives, such assets are depreciated over the lease term. The estimated useful lives, residual values and depreciation method are reviewed at each balance sheet date, with the effect of any changes in estimate accounted for on a prospective basis.

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

j. Investment properties

Investment properties are properties held to earn rentals and/or for capital appreciation (including property under construction for such purposes). Investment properties also include land held for a currently undetermined future use.

Investment properties are measured initially at cost, including transaction costs. Subsequent to initial recognition, investment properties are measured at cost less accumulated depreciation and accumulated impairment loss. Depreciation is recognized using the straight-line method.

Investment properties under construction are stated at cost less accumulated depreciation and accumulated impairment loss. Cost includes professional fees and borrowing costs eligible for capitalization. Depreciation of these assets commences when the assets are ready for their intended use.

For a transfer from property, plant and equipment to investment properties, the property's deemed cost for subsequent accounting is its carrying amount at the end of owner-occupation.

For a transfer from inventories to investment properties, the property's deemed cost for subsequent accounting is its carrying amount at inception of an operating lease.

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

k. Goodwill

Goodwill arising from an acquisition of a business is carried at cost as established at the date of acquisition of the business less accumulated impairment loss.

For the purposes of impairment testing, goodwill is allocated to each of the Group's cash-generating units or groups of cash-generating units (referred to as "cash-generating units") that is expected to benefit from the synergies of the combination.

A cash-generating unit to which goodwill has been allocated is tested for impairment annually, or more frequently when there is an indication that the unit may be impaired, by comparing its carrying amount, including the attributed goodwill, with its recoverable amount. However, if the goodwill allocated to a cash-generating unit was acquired in a business combination during the current annual period, that unit shall be tested for impairment before the end of the current annual period. If the recoverable amount of the cash-generating unit is less than its carrying amount, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit and then pro rata to the other assets of the unit based on the carrying amount of each asset in the unit. Any impairment loss is recognized directly in profit or loss. An impairment loss recognized for goodwill is not reversed in subsequent periods.

l. Other intangible assets

Other intangible assets with finite useful lives acquired separately are initially measured at cost and subsequently measured at cost less accumulated amortization and accumulated impairment loss. Other intangible assets are amortized using the straight-line method over their estimated useful lives. The estimated useful lives, residual values, and amortization methods are reviewed at each balance sheet date, with the effect of any changes in estimate being accounted for on a prospective basis.

Other intangible assets acquired in a business combination and recognized separately from goodwill are initially recognized at their fair value at the acquisition date which is regarded as their cost. Subsequent to initial recognition, they are measured on the same basis as intangible assets that are acquired separately.

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

m. Impairment of tangible and intangible assets other than goodwill

At each balance sheet date, the Group reviews the carrying amounts of its tangible and intangible assets, excluding goodwill, to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss. When it is not possible to estimate the recoverable amount of an individual asset, the Group estimates the recoverable amount of the cash-generating unit to which the asset belongs. Corporate assets are allocated to the individual cash-generating units on a reasonable and consistent basis of allocation. The recoverable amount is the higher of fair value less costs to sell and value in use. If the recoverable amount of an asset or cash-generating unit is estimated to be less than its carrying amount, the carrying amount of the asset or cash-generating unit is reduced to its recoverable amount, with the resulting impairment loss recognized in profit or loss.

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

n. Financial instruments

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

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

1) Financial assets

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

a) Measurement category

2018

Financial assets held by the Group are classified into the following categories: financial assets at FVTPL, financial assets at amortized cost, and investments in debt instruments and equity instruments at FVTOCI.

i. Financial asset at FVTPL

Financial asset is classified as at FVTPL when the financial asset is mandatorily classified or it is designated as at FVTPL. The Group's financial assets mandatorily classified as at FVTPL include investments in equity instruments which are not designated as at FVTOCI and debt instruments that do not meet the amortized cost criteria or the FVTOCI criteria.

A financial asset may be designated as at FVTPL upon initial recognition if such designation eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise.

Financial assets at FVTPL are subsequently measured at fair value, with any gains or losses arising on remeasurement recognized in profit or loss. The net gain or loss recognized in profit or loss incorporates any dividend or interest earned on the financial asset.

Fair value is determined in the manner described in Note 36.

ii. Financial assets at amortized cost

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

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

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

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

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

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

ii) Financial assets that are not credit-impaired on purchase or origination but have subsequently become credit-impaired, for which interest income is calculated by applying the effective interest rate to the amortized cost of such financial assets in subsequent reporting periods.

Cash equivalents include time deposits with original maturities within 3 months from the date of acquisition, which are highly liquid, readily convertible to a known amount of cash and are subject to an insignificant risk of changes in value. These cash equivalents are held for the purpose of meeting short-term cash commitments.

iii. Investments in debt instruments at FVTOCI

For the Group's debt instruments that meet the following conditions are subsequently measured at FVTOCI:

i) the debt instrument is held within a business model whose objective is achieved by both the collecting of contractual cash flows and the selling of the financial assets; and

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

Investments in debt instruments at FVTOCI are subsequently measured at fair value. Changes in the carrying amounts of these debt instruments relating to changes in foreign currency exchange rates, interest income calculated using the effective interest method and impairment losses or reversals are recognized in profit or loss. Other changes in the carrying amount of these debt instruments are recognized in other comprehensive income and will be reclassified to profit or loss when the investment is disposed of.

iv. Investments in equity instruments at FVTOCI

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

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

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

Prior to 2018

The classification of financial assets held by ASE and its subsidiaries includes financial assets at FVTPL, available-for-sale financial assets, and loans and receivables.

i. Financial assets at FVTPL

Financial assets are classified as at FVTPL when the financial assets are either held for trading or they are designated as at FVTPL.

A financial asset other than a financial asset held for trading may be designated as at FVTPL upon initial recognition if:

i) Such designation eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise; or

ii) The financial asset forms part of a group of financial assets or financial liabilities or both, which is managed and has performance evaluated on a fair value basis in accordance with ASE and its subsidiaries' documented risk management or investment strategy, and information about the grouping is provided internally on that basis; or

iii) The contract contains one or more embedded derivatives so that the entire hybrid (combined) contract can be designated as at FVTPL.

Financial assets at FVTPL are stated at fair value with any gains or losses arising on remeasurement recognized in profit or loss. The net gain or loss recognized in profit or loss incorporates any dividend or interest earned on the financial asset.

Fair value is determined in the manner described in Note 36.

ii. Available-for-sale financial assets

Available-for-sale financial assets are non-derivatives that are either designated as available-for-sale or are not classified as (1) loans and receivables, (2) held-to-maturity investments or (3) financial assets at fair value through profit or loss.

Available-for-sale financial assets are stated at fair value at each balance sheet date. Changes in the carrying amount of available-for-sale monetary financial assets relating to changes in foreign currency rates, interest income calculated using the effective interest method and dividends on available-for-sale equity investments are recognized in profit or loss. Other changes in the carrying amount of available-for-sale financial assets are recognized in other comprehensive income and accumulated under the heading of unrealized gain (loss) on available-for-sale financial assets. When the investment is disposed of or is determined to be impaired, the cumulative gain or loss previously accumulated in the unrealized gain (loss) on available-for-sale financial assets is reclassified to profit or loss.

Dividends on available-for-sale equity instruments are recognized in profit or loss when ASE and its subsidiaries's right to receive the dividends is established.

iii. Loans and receivables

Loans and receivables including cash and cash equivalents, trade receivables, other receivables and other financial assets are measured at amortized cost using the effective interest method, less any impairment. Interest income is recognized by applying the effective interest rate, except for short-term receivables when the effect of discounting is immaterial.

Cash equivalents are short-term, highly liquid investments that are readily convertible to known amounts of cash and which are subject to an insignificant risk of change in value.

b) Impairment of financial assets and contract assets

2018

At each balance sheet date, the Group recognizes a loss allowance for expected credit losses on financial assets at amortized cost (including trade receivables), investments in debt instruments that are measured at FVTOCI as well as contract assets.

The Group always recognizes lifetime Expected Credit Loss (“ECL”) for trade receivables and contract assets. For all other financial instruments, the Group recognizes lifetime ECL when there has been a significant increase in credit risk since initial recognition. If, on the other hand, the credit risk on the financial instrument has not increased significantly since initial recognition, the Group measures the loss allowance for that financial instrument at an amount equal to 12-month ECL.

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

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

Prior to 2018

Financial assets, other than those at FVTPL, are assessed for indicators of impairment at each balance sheet date. Financial assets are considered to be impaired when there is objective evidence that, as a result of one or more events that occurred after the initial recognition of the financial assets, the estimated future cash flows of the investments have been affected.

For financial assets carried at amortized cost, such as trade receivables and other receivables, assets that are assessed not to be impaired individually are, further, assessed for impairment on a collective basis. ASE and its subsidiaries assess the collectability of receivables based on their past experience of collecting payments and observable changes that correlate with default on receivables.

For financial assets carried at amortized cost, the amount of the impairment loss recognized is the difference between the assets’ carrying amounts and the present value of estimated future cash flows, discounted at the financial assets’ original effective interest rates. If, in a subsequent period, the amount of the impairment loss decreases and the decreases can be objectively related to an event occurring after the impairment loss recognized, the previously recognized impairment loss is reversed either directly or by adjusting an allowance account through profit or loss. The reversal shall not result in carrying amounts of financial assets that exceed what the amortized cost would have been at the date the impairment is reversed.

For any available-for-sale equity investments, a significant or prolonged decline in the fair value of the security below its cost is considered to be objective evidence of impairment. When an available-for-sale financial asset is considered to be impaired, cumulative gains or losses previously recognized in other comprehensive income are reclassified to profit or loss in the period.

In respect of available-for-sale equity securities, impairment loss previously recognized in profit or loss is not reversed through profit or loss. Any increase in fair value subsequent to impairment is recognized in other comprehensive income. In respect of available-for-sale debt securities, impairment loss is subsequently reversed through profit or loss if an increase in the fair value of the investment can be objectively related to an event occurring after the recognition of the impairment loss.

The carrying amount of the financial asset is reduced by the impairment loss directly for all financial assets with the exception of trade and other receivables where the carrying amount is reduced through the use of an allowance account. When trade and other receivables are considered uncollectible, they are written off against the allowance account. Subsequent recoveries of amounts previously written off are credited against the allowance account. Changes in the carrying amount of the allowance account are recognized in profit or loss except for uncollectible trade receivables and other receivables that are written off against the allowance account.

c) Derecognition of financial assets

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

Before 2018, on derecognition of a financial asset in its entirety, the difference between the asset's carrying amount and the sum of the consideration received and receivable and the cumulative gain or loss which had been recognized in other comprehensive income is recognized in profit or loss. Starting from 2018, on derecognition of a financial asset at amortized cost in its entirety, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognized in profit or loss. On derecognition of an investment in a debt instrument at FVTOCI, the difference between the asset's carrying amount and the sum of the consideration received and receivable and the cumulative gain or loss which had been recognized in other comprehensive income is recognized in profit or loss. However, on derecognition of an investment in an equity instrument at FVTOCI, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognized in profit or loss, and the cumulative gain or loss which had been recognized in other comprehensive income is transferred directly to retained earnings, without recycling through profit or loss.

2) Equity instruments

Debt and equity instruments issued by a group entity are classified as either financial liabilities or as equity in accordance with the substance of the contractual arrangements and the definitions of a financial liability and an equity instrument.

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

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

3) Financial liabilities

Financial liabilities are measured either at amortized cost using the effective interest method or at FVTPL. Financial liabilities measured at FVTPL are held for trading.

Financial liabilities held for trading are stated at fair value, with any gain or loss arising on remeasurement recognized in profit or loss. The net gain or loss recognized in profit or loss incorporates any interest or dividend paid on the financial liability. Fair value is determined in the manner described in Note 36.

The Group derecognizes financial liabilities only when the Group's obligations are discharged, cancelled or expired. The difference between the carrying amount of the financial liability derecognized and the consideration paid and payable, including any non-cash assets transferred or liabilities assumed, is recognized in profit or loss.

4) Derivative financial instruments

The Group enters into a variety of derivative financial instruments to manage its exposure to interest rate and foreign exchange rate risks, including forward exchange contracts, swap contracts, interest rate swap contracts and foreign currency option contracts.

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

Before 2018, derivatives embedded in non-derivative host contracts were treated as separate derivatives when they met the definition of a derivative; their risks and characteristics were not closely related to those of the host contracts; and the contracts were not measured at FVTPL. Starting from 2018, derivatives embedded in hybrid contracts that contain financial asset hosts that is within the scope of IFRS 9 are not separated; instead, the classification is determined in accordance with the entire hybrid contract. Derivatives embedded in non-derivative host contracts that are not financial assets that is within the scope of IFRS 9 (e.g. financial liabilities) are treated as separate derivatives when they meet the definition of a derivative, their risks and characteristics are not closely related to those of the host contracts and the host contracts are not measured at FVTPL.

5) Convertible bonds

a) Convertible bonds contain conversion option classified as an equity

The component parts of compound instruments (convertible bonds) issued by the Group are classified separately as financial liabilities and equity in accordance with the substance of the contractual arrangements and the definitions of a financial liability and an equity instrument.

On initial recognition, the fair value of the liability component is estimated using the prevailing market interest rate for similar non-convertible instruments. This amount is recorded as a liability on an amortized cost basis using the effective interest method until extinguished upon conversion or the instrument's maturity date. Any embedded derivative liability is measured at fair value.

The conversion option classified as equity is determined by deducting the amount of the liability component from the fair value of the compound instrument as a whole. This is recognized and included in equity, net of income tax effects, and is not subsequently remeasured. In addition, the conversion option classified as equity will remain in equity until the conversion option is exercised, in which case, the balance recognized in equity will be transferred to capital surplus - share premium. When the conversion option remains unexercised at maturity, the balance recognized in equity will be transferred to capital surplus - share premium.

Transaction costs that relate to the issuance of the convertible bonds are allocated to the liability and equity components in proportion to the allocation of the gross proceeds. Transaction costs relating to the equity component are recognized directly in equity. Transaction costs relating to the liability component are included in the carrying amount of the liability component.

b) Convertible bonds contain conversion option classified as a liability

The conversion options component of the convertible bonds issued by the Group that will be settled other than by the exchange of a fixed amount of cash or other financial asset for a fixed number of the Group's own equity instruments is classified as derivative financial liabilities.

On initial recognition, the derivative financial liabilities component of the convertible bonds is recognized at fair value, and the initial carrying amount of the component of non-derivative financial liabilities is determined by deducting the amount of derivative financial liabilities from the fair value of the hybrid instrument as a whole. In subsequent periods, the non-derivative financial liabilities component of the convertible bonds is measured at amortized cost using the effective interest method. The derivative financial liabilities component is measured at fair value and the changes in fair value are recognized in profit or loss.

Transaction costs that relate to the issue of the convertible bonds are allocated to the derivative financial liabilities component and the non-derivative financial liabilities component in proportion to their relative fair values. Transaction costs relating to the derivative financial liabilities component are recognized immediately in profit or loss. Transaction costs relating to the non-derivative financial liabilities component are included in the carrying amount of the liability component.

o. Hedge Accounting

The Group designates certain hedging instruments, which include derivatives, embedded derivatives and non-derivatives in respect of foreign currency risk, as either fair value hedges or cash flow hedges.

1) Fair value hedges

Changes in the fair value of derivatives that are designated and qualify as fair value hedges are recognized in profit or loss immediately, together with any changes in the fair value of the hedged asset or liability that are attributable to the hedged risk. The change in the fair value of the hedging instrument and the change in the hedged item attributable to the hedged risk are recognized in profit or loss in the line item relating to the hedged item.

Before 2018, hedge accounting was discontinued prospectively when ASE and its subsidiaries revoked the designated hedging relationship; when the hedging instrument expired or was sold, terminated, or exercised; or when the hedging instrument no longer met the criteria for hedge accounting. From 2018, the Group discontinues hedge accounting only when the hedging relationship cease to meet the qualifying criteria; for instance, when the hedging instrument expires or is sold, terminated, or exercised.

2) Cash flow hedges

The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income. The gain or loss relating to the ineffective portion are recognized immediately in profit or loss.

The associated gains or losses that were recognized in other comprehensive income are reclassified from equity to profit or loss as a reclassification adjustment in the line item relating to the hedged item in the same period when the hedged item affects profit or loss. If a hedge of a forecasted transaction subsequently results in the recognition of a non-financial asset or a non-financial liability, the associated gains and losses that were recognized in other comprehensive income are removed from equity and included in the initial cost of the non-financial asset or non-financial liability.

Before 2018, hedge accounting was discontinued prospectively when ASE and its subsidiaries revoked the designated hedging relationship; when the hedging instrument expired or was sold, terminated, or exercised; or when the hedging instrument no longer met the criteria for hedge accounting. From 2018, the Group discontinues hedge accounting only when the hedging relationship cease to meet the qualifying criteria; for instance, when the hedging instrument expires or is sold, terminated, or exercised. The cumulative gain or loss on the hedging instrument that has been previously recognized in other comprehensive income from the period when the hedge was effective remains separately in equity until the forecast transaction occurs. When a forecast transaction is no longer expected to occur, the gain or loss accumulated in equity is recognized immediately in profit or loss.

p. Revenue recognition

<u>2018</u>

The Group identifies the contracts with customers, allocates transaction prices to performance obligations and, when performance obligations are satisfied, recognizes revenues at fixed amounts as agreed in the contracts with taking estimated volume discounts into consideration.

For contracts where the period between the date on which the Group transfers a promised good or service to a customer and the date on which the customer pays for that good or service is one year or less, the Group does not adjust the promised amount of consideration for the effects of a significant financing component.

<u>Operating revenues</u>

The Group's operating revenues include revenues from sale of goods and services as well as sale and leasing of real estate properties.

When customers control goods as they are manufactured in progress, the Group measures progress on the basis of input incurred relative to the total input and recognizes revenues and contract assets over time. Those contract assets are then reclassified to trade receivables at the point at which they are invoiced to customers.

The Group recognizes revenues and trade receivables when the goods are shipped or the goods are delivered to the customers' specific locations because it is the time when customers have full discretion over the manner of distribution and price to sell the goods, has the primary responsibility for sales to future customers, and bears the risks of obsolescence.

The revenues from sale of real estate properties are recognized when customers purchase real estate properties and complete the transfer procedures. The revenues from leasing real estate properties are recognized during leasing periods on the straight-line basis.

<u>Prior to 2018</u>

Revenue is measured at the fair value of the consideration received or receivable take into account of estimated customer returns, rebates and other similar allowances.

1) Revenue from sale of goods and real estate properties

Revenue from the sale of goods and real estate properties is recognized when all the following conditions are satisfied:

a) ASE and its subsidiaries has transferred to the buyer the significant risks and rewards of ownership of the goods;

b) ASE and its subsidiaries retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold;

c) The amount of revenue can be measured reliably;

d) It is probable that the economic benefits associated with the transaction will flow to ASE and its subsidiaries; and

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

2) Revenue from rendering of services

Service income is recognized when services are rendered.

3) Revenue from dividend and interest income

Dividend income from investments and interest income from financial assets are recognized when they are probable that the economic benefits will flow to ASE and its subsidiaries and the amount of income can be reliably measured. Interest income is accrued on a time basis, by reference to the principal outstanding and at the effective interest rate applicable.

q. Leasing

Leases are classified as finance leases 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.

<u>The Group as lessor</u>

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

<u>The Group as lessee</u>

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

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

r. Borrowing costs

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

Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization.

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

s. Government grants

Government grants are not recognized until there is reasonable assurance that the Group will comply with the conditions attaching to them and that the grants will be received.

Government grants are recognized in profit or loss on a systematic basis over the periods in which the Group recognizes as expenses the related costs for which the grants are intended to compensate. Specifically, government grants whose primary condition is that the Group should purchase, construct or otherwise acquire non-current assets are recognized as deferred revenue in the consolidated financial statements and transferred to profit or loss on a systematic and rational basis over the useful lives of the related assets.

Government grants that are receivable as compensation for expenses or losses already incurred or for the purpose of giving immediate financial support to the Group with no future related costs are recognized in profit or loss in the period in which they become receivable.

t. Employee benefits

a) Short-term employee benefits

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

b) Retirement benefits

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

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

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

u. Employee share options

The fair value at the grant date of the employee share options is expensed on a straight-line basis over the vesting period, based on the Group’s best estimate of the number of options that are expected to ultimately vest, with a corresponding increase in capital surplus - employee share options and non-controlling interests. It is recognized as an expense in full at the grant date if vesting immediately. The grant date of issued ordinary shares for cash which are reserved for employees is the date on which the number of shares that the employees purchase is confirmed.

At each balance sheet date, the Group reviews its estimate of the number of employee share options expected to vest. The impact of the revision of the original estimates is recognized in profit or loss such that the cumulative expense reflects the revised estimate, with a corresponding adjustment to the capital surplus - employee share options and non-controlling interests.

The grant by the Company of its equity instruments to the employees of a subsidiary under options is treated as a capital contribution. The fair value of employee services received under the arrangement is measured by reference to the grant-date fair value and is recognized over the vesting period as an addition to the investment in the subsidiary, with a corresponding credit to capital surplus - employee share options.

v. Taxation

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

1) Current tax

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

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

2) Deferred tax

Deferred tax is recognized on temporary differences between the carrying amounts of assets and liabilities in the consolidated financial statements and the corresponding tax bases used in the computation of taxable profit. If a temporary difference arises from the initial recognition (other than in a business combination) of assets and liabilities in a transaction that affects neither the taxable profit nor the accounting profit, the resulting deferred tax asset or liability is not recognized. In addition, a deferred tax liability is not recognized on taxable temporary differences arising from the initial recognition of goodwill.

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

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

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

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

3) Current and deferred tax for the year

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

Where current tax or deferred tax arises from the initial accounting for a business combination, the tax effect is included in the accounting for the business combination.

w. U.S. Dollar Amounts

A translation of the consolidated financial statements into U.S. dollars is included solely for the convenience of the readers, and has been translated from New Taiwan dollar (NT$) at the exchange rate as set forth in the statistical release by the U.S. Federal Reserve Board of the United States, which was NT$30.61 to US$1.00 as of December 31, 2018. The translation should not be construed as a representation that the NT$ amounts have been, could have been, or could in the future be, converted into U.S. dollars at this or any other rate of exchange.

5. CRITICAL ACCOUNTING JUDGMENTS AND KEY SOURCES OF ESTIMATION UNCERTAINTY

In the application of the Group's accounting policies, which are described in Note 4, management is required to make judgments, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and underlying assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

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

Acquisition of subsidiaries

After the acquisition of a subsidiary, the Group should identify the difference between the investment cost and the Group' share of the net fair value of the subsidiary's identifiable assets acquired and liabilities assumed. It involves critical judgments and estimations when determining the aforementioned net fair values. The management engaged independent external appraiser to assist them in identifying and evaluating the subsidiary's identifiable tangible assets, intangible assets and liabilities, including the type of intangible assets that may be identified and the related estimated cash flows or the relief from expenses. The excess of the fair value over the carrying amount of those identified tangible and intangible assets on the acquisition date will be depreciated or amortized over their remaining useful lives or expected future economic benefit lives. The management considered that the related estimation and assumption has appropriately reflected the net fair value of those identifiable assets acquired and liabilities assumed. However, there may be of high uncertainty related to the semiconductor industry varied by economic trends.

6. CASH AND CASH EQUIVALENTS

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Cash on hand	$ 8,404	$ 7,940	$ 259
Checking accounts and demand deposits	39,697,319	32,329,820	1,056,185
Cash equivalents	6,372,343	19,180,676	626,615
	$ 46,078,066	$ 51,518,436	$ 1,683,059

7. FINANCIAL INSTRUMENTS AT FAIR VALUE THROUGH PROFIT OR LOSS

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Financial assets designated as at FVTPL			
Private-placement convertible bonds	$ 100,496	$ -	$ -
Financial assets held for trading			
Quoted ordinary shares	$ 4,410,732	$ -	$ -
Open-end mutual funds	589,976	-	-
Forward exchange contracts	61,325	-	-
Swap contracts	60,538	-	-
	5,122,571	-	-
Financial assets mandatorily classified as at FVTPL			
Derivative instruments (non-designated hedges)			
Swap contracts	-	1,557,714	50,889
Forward exchange contracts	-	32,070	1,048
Non-derivative financial assets			
Quoted ordinary shares	-	5,151,255	168,287
Open-end mutual funds	-	581,800	19,007
Unquoted preferred shares	-	275,000	8,984
Private-placement funds	-	200,123	6,537
Hybrid financial assets			
Private-placement convertible bonds	-	100,496	3,283
	-	7,898,458	258,035
	5,223,067	7,898,458	258,035
Current	5,223,067	7,262,227	237,250
Non-current	$ -	$ 636,231	$ 20,785

(Continued)

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Financial liabilities held for trading			
Derivative instruments (non-designated hedging)			
Swap contracts	$ 652,107	$ 29,058	$ 949
Forward exchange contracts	25,323	7,597	248
	$ 677,430	$ 36,655	$ 1,197

(Concluded)

The Group's private-placement convertible bonds included embedded derivative instruments which were not closely related to the host contracts and the contracts were designated as at FVTPL on initial recognition under IAS 39. After application of IFRS 9, the entire contracts are assessed and classified mandatorily as at FVTPL since they contain host contracts that are assets within the scope of IFRS 9.

At each balance sheet date, the outstanding swap contracts not accounted for hedge accounting were as follows:

Currency	Maturity Period	Notional Amount (In Thousands)
December 31, 2017		
Sell NT$/Buy US$	2018.01-2018.12	NT$53,136,302/US$1,782,400
Sell US$/Buy CNY	2018.01	US$52,948/CNY349,800
Sell US$/Buy JPY	2018.02-2018.03	US$70,324/JPY7,870,000
Sell US$/Buy NT$	2018.01	US$217,300/NT$6,505,767
December 31, 2018		
Sell NT$/Buy US$	2019.01-2019.12	NT$49,570,469/US$1,687,400
Sell US$/Buy CNY	2019.01	US$50,292/CNY349,800
Sell US$/Buy JPY	2019.01	US$54,203/JPY6,090,000
Sell US$/Buy NT$	2019.01	US$208,800/NT$6,423,242

At each balance sheet date, the outstanding forward exchange contracts not accounted for hedge accounting were as follow:

Currency	Maturity Period	Notional Amount (In Thousands)
December 31, 2017		
Sell NT$/Buy US$	2018.01	NT$2,389,620/US$80,000
Sell US$/Buy CNY	2018.01-2018.04	US$125,000/CNY828,858
Sell US$/Buy EUR	2018.01	US$10,674/EUR9,000
Sell US$/Buy JPY	2018.01-2018.02	US$45,517/JPY5,111,101
Sell US$/Buy MYR	2018.01-2018.03	US$15,000/MYR61,859
Sell US$/Buy NT$	2018.01	US$1,000/NT$30,142
Sell US$/Buy SGD	2018.01-2018.02	US$11,300/SGD15,305

(Continued)

	Maturity Period	Notional Amount (In Thousands)
December 31, 2018		
Sell NT$/Buy US$	2019.01-2019.02	NT$2,453,540/US$80,000
Sell US$/Buy CNY	2019.01	US$29,000/CNY200,108
Sell US$/Buy EUR	2019.01	US$4,103/EUR3,600
Sell US$/Buy JPY	2019.01-2019.02	US$37,733/JPY4,231,754
Sell US$/Buy MYR	2019.01-2019.02	US$14,000/MYR58,430
Sell US$/Buy SGD	2019.01-2019.02	US$13,400/SGD18,391

(Concluded)

8. FINANCIAL ASSETS AT FAIR VALUE THROUGH OTHER COMPREHENSIVE INCOME - 2018

	December 31, 2018	
	NT$	US$ (Note 4)
Investments in equity instruments at FVTOCI	$ 580,399	$ 18,961
Investments in debt instruments at FVTOCI	1,016,924	33,222
	$ 1,597,323	$ 52,183

a. Investments in equity instruments at FVTOCI

	December 31, 2018	
	NT$	US$ (Note 4)
Unquoted ordinary shares	$ 532,047	$ 17,381
Limited partnership	39,669	1,296
Unquoted preferred shares	8,683	284
	$ 580,399	$ 18,961

Investments in equity instruments were classified as available-for-sale under IAS 39. Refer to Notes 3 and 10 for information relating to their reclassification and comparative information for prior periods.

b. Investments in debt instruments at FVTOCI

	December 31, 2018	
	NT$	US$ (Note 4)
Unsecured subordinate corporate bonds	$ 1,016,924	$ 33,222

In June 2016, the Group acquired 1,000 units of perpetual unsecured subordinate corporate bonds in the amount of NT$1,000,000 thousand. The corporate bonds are all in denomination of NT$1,000 thousand with annual interest rate at 3.5% and with effective interest rate at 3.2% as of December 31, 2017 and 2018. The bonds were classified as other financial assets－non-current under IAS 39. Refer to Notes 3 and 14 for information relating to its reclassification and comparative information for prior periods.

9. CREDIT RISK MANAGEMENT FOR INVESTMENTS IN DEBT INSTRUMENTS- 2018

The Group’s investment in unsecured subordinate corporate bonds is rated the equivalent of investment grade or higher and has low credit risk for the purpose of impairment assessment.

There was no significant increase in credit risk of such debt instrument since initial recognition leading to changes in interest rates and terms, and there was also no significant change in bond issuer's operation affecting the ability performing debt obligation. We evaluated that no expected credit losses existed. The Group reviews changes in bond yields and other public information periodically and makes an assessment whether there has been a significant increase in lifetime ECL since initial recognition.

10. AVAILABLE-FOR-SALE FINANCIAL ASSETS - 2017

	December 31, 2017
	NT$
Unquoted ordinary shares	$ 605,110
Quoted ordinary shares	279,791
Limited partnership	246,072
Unquoted preferred shares	57,367
Open-end mutual funds	23,825
	1,212,165
Current	89,159
Non-current	$ 1,123,006

11. TRADE RECEIVABLES, NET

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
At amortized cost			
Gross carrying amount	$ 55,265,607	$ 79,636,748	$ 2,601,658
Less: Allowance for impairment loss	64,901	155,389	5,077
	$ 55,200,706	$ 79,481,359	$ 2,596,581

a. For the year ended December 31, 2018

The Group's average credit terms were 30 to 90 days. The Group evaluates the risk and probability of credit loss by reference to the Group's past experiences, financial condition of each customer, as well as general economic conditions, competitive advantage and future development of the industry in which the customer operates. The Group then reviews the recoverable amount of each individual trade receivable at each balance sheet date to ensure that adequate allowance is made for possible irrecoverable amounts. In this regard, management believes the Group's credit risk was significantly reduced. In addition, the Group applies the simplified approach to providing for expected credit losses prescribed by IFRS 9, which permits the use of lifetime expected loss provision for all trade receivables. The expected credit losses on trade receivables are estimated using a provision matrix by reference to past default experience of the debtor and an analysis of the debtor's current financial position, adjusted for general economic conditions of the industry in which the debtors operate and an assessment of both the current as well as the forecast direction of economic conditions at each balance sheet date.

The Group writes off a trade receivable when there is information indicating that the debtor is in severe financial difficulty and there is no realistic prospect of recovery. For trade receivables that have been written off, the Group continues to engage in enforcement activity to attempt to recover the receivables due. Where recoveries are made, these are recognized in profit or loss.

The following table details the loss allowance of trade receivables based on the Group's provision matrix.

December 31, 2018

	Not Past Due NT$	Overdue 1 to 30 days NT$	Overdue 31 to 90 Days NT$	Overdue Over 91 Days NT$	Individually Impaired NT$	Total NT$
Expected credit loss rate	0%	0~10%	0~50%	1~100%	0~100%	-
Gross carrying amount	$ 71,819,583	$ 6,537,819	$ 778,799	$ 405,707	$ 94,840	$ 79,636,748
Loss allowance (Lifetime ECL)	(7,119)	(4,463)	(14,949)	(40,080)	(88,778)	(155,389)
Amortized cost	$ 71,812,464	$ 6,533,356	$ 763,850	$ 365,627	$ 6,062	$ 79,481,359

	Not Past Due US$ (Note 4)	Overdue 1 to 30 days US$ (Note 4)	Overdue 31 to 90 Days US$ (Note 4)	Overdue Over 91 Days US$ (Note 4)	Individually Impaired US$ (Note 4)	Total US$ (Note 4)
Expected credit loss rate	0%	0~10%	0~50%	1~100%	0~100%	-
Gross carrying amount	$ 2,346,278	$ 213,585	$ 25,443	$ 13,254	$ 3,098	$ 2,601,658
Loss allowance (Lifetime ECL)	(233)	(147)	(488)	(1,309)	(2,900)	(5,077)
Amortized cost	$ 2,346,045	$ 213,438	$ 24,955	$ 11,945	$ 198	$ 2,596,581

The movements of the loss allowance of trade receivables were as follows:

	For the Year Ended December 31, 2018 NT$	For the Year Ended December 31, 2018 US$ (Note 4)
Balance at January 1, 2018	$ 64,901	$ 2,120
Net remeasurement of loss allowance	150,128	4,905
Acquisition through business combinations	3,482	114
Amounts written off	(60,109)	(1,964)
Effects of foreign currency exchange differences	(3,013)	(98)
Balance at December 31, 2018	$ 155,389	$ 5,077

b. For the year ended December 31, 2017

The credit term that ASE and its subsidiaries applied in 2017 was identical with that applied by the Group in 2018. Allowance for doubtful debts is assessed by reference to the collectability of receivables by evaluating the account aging, historical experience and current financial condition of customers.

Aging of receivables based on the past due date

	December 31, 2017 NT$
Not past due	$ 49,599,512
1 to 30 days	4,986,491
31 to 90 days	562,200
More than 91 days	117,404
	$ 55,265,607

Aging of receivables that were past due but not impaired

	December 31, 2017
	NT$
1 to 30 days	$ 4,942,677
31 to 90 days	378,526
	$ 5,321,203

Except for those impaired, ASE and its subsidiaries had not provided an allowance for doubtful debts on trade receivables at each balance sheet date since there has not been a significant change in credit quality and the amounts were still considered collectible. ASE and its subsidiaries did not hold any collateral or other credit enhancements over these balances nor did it have a legal right to offset against any amounts owed by ASE and its subsidiaries to counterparties.

Movement of the allowance for doubtful trade receivables

	Impaired Individually	Impaired Collectively	Total
	NT$	NT$	NT$
Balance at January 1, 2016	$ 39,046	$ 43,860	$ 82,906
Impairment losses reversed	(21,501)	(6,521)	(28,022)
Effect of foreign currency exchange differences	(1,092)	(83)	(1,175)
Balance at December 31, 2016	16,453	37,256	53,709
Impairment losses recognized	9,527	4,102	13,629
Amounts written off	-	(34)	(34)
Effect of foreign currency exchange differences	(850)	(1,553)	(2,403)
Balance at December 31, 2017	$ 25,130	$ 39,771	$ 64,901

12. INVENTORIES

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Finished goods	$ 6,740,816	$ 7,680,083	$ 250,901
Work in process	3,452,332	3,195,478	104,393
Raw materials	12,625,502	23,250,801	759,582
Supplies	894,196	1,892,194	61,816
Raw materials and supplies in transit	548,065	608,895	19,892
	$ 24,260,911	$ 36,627,451	$ 1,196,584

The cost of inventories recognized as operating costs for the years ended December 31, 2016, 2017 and 2018 were NT$219,630,270 thousand, NT$237,193,286 thousand and NT$309,020,850 thousand (US$10,095,421 thousand), respectively, which included write-downs of inventories at NT$451,780 thousand, NT$398,824 thousand and NT$980,927 thousand (US$32,046 thousand), respectively.

13. INVENTORIES RELATED TO REAL ESTATE BUSINESS

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Land and buildings held for sale	$ 25,825	$ 20,734	$ 677
Construction in progress	8,106,166	8,252,348	269,597
Land held for construction	1,687,525	1,787,526	58,397
	$ 9,819,516	$ 10,060,608	$ 328,671

Construction in progress is mainly located on Hutai Road in Shanghai, China and Lidu Road in Kun Shan, China. The capitalized borrowing costs for the years ended December 31, 2016, 2017 and 2018 are disclosed in Note 26.

Construction in progress located on Caobao Road in Shanghai, China was completed in the third quarter of 2017 and immediately leased out for the lease business. As a result, the Group reclassified those buildings and land use right under the line item of inventories related to real estate business to investment properties of NT$6,971,372 thousand and long-term prepayments for lease of NT$5,798,449 thousand, respectively.

As of December 31, 2017 and 2018, inventories related to real estate business of NT$9,818,869 thousand and NT$10,060,608 thousand (US$328,671 thousand), respectively, are expected to be recovered longer than twelve months.

Refer to Note 38 for the carrying amount of inventories related to real estate business that had been pledged by the Group to secure bank borrowings.

14. OTHER FINANCIAL ASSETS

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Time deposits with original maturity of over three months	$ 405,520	$ 6,320,669	$ 206,490
Guarantee deposits	170,594	766,190	25,031
Pledged time deposits (Note 38)	59,456	496,847	16,231
Unsecured subordinate corporate bonds (Notes 8 and 9)	1,000,000	-	-
Others (Note 38)	7,270	55	2
	1,642,840	7,583,761	247,754
Current	472,340	6,539,467	213,638
Non-current	$ 1,170,500	$ 1,044,294	$ 34,116

15. INVESTMENTS ACCOUNTED FOR USING THE EQUITY METHOD

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Investments in associates	$ 48,267,237	$ 9,131,814	$ 298,328
Investments in joint venture	486,514	180,494	5,896
	$ 48,753,751	$ 9,312,308	$ 304,224

a. Investments in associates

1) Investments in associates accounted for using the equity method consisted of the following:

Name of Associate	Main Business	Operating Location	Carrying Amount as of December 31 2017 NT$	2018 NT$	2018 US$ (Note 4)
Material associate					
SPIL	Engaged in the assembly, testing and turnkey services of integrated circuits	R.O.C.	$ 45,210,371	$ -	$ -
Associates that are not individually material					
Deca Technologies Inc. (”DECA”)	Holding company and the group engaged in manufacturing, development and marketing of wafer level packaging and interconnect technology	British Cayman Islands	1,583,124	866,312	28,302
Hung Ching Development & Construction Co. (“HC”)	Engaged in the development, construction and leasing of real estate properties	R.O.C.	1,248,711	1,095,233	35,780
Hung Ching Kwan Co. (“HCK”)	Engaged in the leasing of real estate properties	R.O.C.	309,630	295,772	9,663
Advanced Microelectronic Products Inc. (“AMPI”)	Engaged in integrated circuit	R.O.C.	215,550	184,134	6,015
ChipMOS Technologies Inc. (“ChipMOS”)	Engaged in the packaging and testing of semiconductors	R.O.C.	-	4,237,982	138,451
Yann Yuan Investment Co., Ltd. (“Yann Yuan”)	Engaged in investing activities	R.O.C.	-	2,752,530	89,923
			48,567,386	9,431,963	308,134
	Less: Deferred gain on transfer of land		300,149	300,149	9,806
			$ 48,267,237	$ 9,131,814	$ 298,328

2) At each balance sheet date, the percentages of ownership held by the Group were as follows:

	December 31 2017	2018
SPIL	33.29%	-
DECA	22.04%	22.04%
HC	26.22%	26.22%
HCK	27.31%	27.31%
AMPI	38.76%	38.76%
ChipMOS	-	20.47%
Yann Yuan	-	32.21%

As disclosed in Note 1, the Company acquired all issued and outstanding ordinary shares of SPIL on April 30, 2018 (the acquisition date) in accordance with the joint share exchange agreement and had the control over SPIL. The investment in SPIL originally accounted for using the equity method was remeasured to the fair value at the acquisition date. The gain arising on remeasurement of NT$7,421,408 thousand (US$ 242,451 thousand) was recognized under the line item of other gains, net (Note 26) in the consolidated statements of comprehensive income for the year ended December 31, 2018.

Following the acquisition of 100% shareholdings of SPIL on April 30, 2018, the Company indirectly held ordinary shares of ChipMOS and Yann Yuan through SPIL. In June 2018, SPIL, acquired additional 19,159 thousand ordinary shares of ChipMOS from open market with total cash consideration of NT$451,563 thousand (US$14,752 thousand). As a result, the percentage of ownership in ChipMOS was increased from 18.23% to 20.47% and the SPIL had significant influence over ChipMOS. As of December 31, 2018, the Group has completed the identification of the difference between the cost of the investment and the Group' share of the net fair value of ChipMOS' identifiable assets and liabilities.

The Group evaluated the recoverable amount of its investment in DECA by the present value of cash flow projection made by DECA's management with discount rate of 14.1%. The recoverable amount was lower than its carrying amount and, therefore, the Group recognized an impairment loss of NT$521,010 thousand (US$17,021 thousand) under the line item of other gains, net in the consolidated statements of comprehensive income for the year ended December 31, 2018 (Note 26).

3) Fair values (Level 1 inputs in terms of IFRS 13) of investments in associates with available published price quotation are summarized as follows:

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
SPIL	$ 52,176,190	$ -	$ -
HC	$ 1,695,156	$ 1,537,307	$ 50,222
AMPI	$ 468,572	$ 369,925	$ 12,085
ChipMOS	$ -	$ 3,886,561	$ 126,970

4) Summarized financial information in respect of the Group's material associate

The summarized financial information below represents amounts shown in SPIL's consolidated financial statements prepared in accordance with IFRSs and adjusted by the Group for equity method accounting purposes.

	December 31, 2017
	NT$
Current assets	$ 49,065,912
Non-current assets	101,693,417
Current liabilities	(26,194,615)
Non-current liabilities	(27,213,266)
Equity	$ 97,351,448
Proportion of the Group's ownership interest in SPIL	33.29%
Net assets attributable to the Group	$ 32,408,297
Goodwill	12,802,074
Carrying amount	$ 45,210,371

	For the Year Ended December 31, 2016	For the Year Ended December 31, 2017	For the Period from January 1, 2018 through April 29, 2018	
	NT$	NT$	NT$	US$ (Note 4)
Operating revenue	$ 85,111,913	$ 83,554,385	$ 26,169,040	$ 854,918
Gross profit	$ 15,027,247	$ 12,464,792	$ 4,421,493	$ 144,446
Profit before income tax	$ 7,351,661	$ 4,347,810	$ 848,072	$ 27,706
Net profit	$ 5,484,462	$ 2,822,231	$ 413,317	$ 13,503
Other comprehensive income (loss)	(2,373,532)	579,057	633,879	20,708
Total comprehensive income	$ 3,110,930	$ 3,401,288	$ 1,047,196	$ 34,211
Cash dividends received from SPIL	$ 3,941,740	$ 1,815,275	$ -	$ -

5) Aggregate information of associates that are not individually material

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
The Group’s share of:				
Net profit (loss)	$ (139,366)	$ (190,532)	$ 147,535	$ 4,820
Other comprehensive income (loss)	(115,650)	59,676	(613,471)	(20,042)
Total comprehensive loss	$ (255,016)	$ (130,856)	$ (465,936)	$ (15,222)

b. Investments in joint venture

1) The joint venture that was not individually material and accounted for using the equity method was the Group’s investment in ASE Embedded Electronics Inc. (“ASEEE”). As of December 31, 2017 and 2018, the percentages of ownership were both 51%. ASEEE is located in R.O.C. and engaged in the production of embedded substrate.

2) ASE’s board of directors resolved in February 2019 to purchase ordinary shares newly issued by ASEEE at par value through its capital increase by cash. The total consideration will not be more than NT$1,500,000 thousand (US$49,004 thousand), representing 150,000 thousand ordinary shares.

3) Aggregate information of the Group’s joint venture that is not individually material

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
The Group’s share of net loss and total comprehensive loss	$ (90,478)	$ (184,366)	$ (306,156)	$ (10,002)

16. PROPERTY, PLANT AND EQUIPMENT

The carrying amounts of each class of property, plant and equipment were as follows:

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Land	$ 3,258,518	$ 10,165,969	$ 332,113
Buildings and improvements	58,272,864	78,963,937	2,579,678
Machinery and equipment	66,185,198	108,087,970	3,531,133
Other equipment	1,588,113	6,463,160	211,145
Construction in progress and machinery in transit	5,863,713	10,911,552	356,470
	$ 135,168,406	$ 214,592,588	$ 7,010,539

For the year ended December 31, 2016

	Land	Buildings and improvements	Machinery and equipment	Other equipment	Construction in progress and machinery in transit	Total
	NT$	NT$	NT$	NT$	NT$	NT$
Cost						
Balance at January 1, 2016	$ 3,381,300	$ 94,447,932	$243,283,607	$ 7,722,408	$ 6,397,760	$355,233,007
Additions	-	22,341	94,480	470,901	27,093,140	27,680,862
Disposals	-	(684,698)	(5,956,179)	(159,822)	(268,782)	(7,069,481)
Reclassification	-	5,110,102	19,661,732	691,276	(25,463,285)	(175)
Acquisitions through business combinations	-	-	-	1,159	-	1,159
Effect of foreign currency exchange differences	(16,287)	(2,637,502)	(8,882,884)	(251,261)	(45,291)	(11,833,225)
Balance at December 31, 2016	$ 3,365,013	$ 96,258,175	$248,200,756	$ 8,474,661	$ 7,713,542	$364,012,147
Accumulated depreciation and impairment						
Balance at January 1, 2016	$ -	$ 34,646,878	$164,568,298	$ 5,907,414	$ 113,342	$205,235,932
Depreciation expenses	-	5,114,263	22,983,290	864,061	-	28,961,614
Impairment losses recognized	-	620	876,123	5,564	5,924	888,231
Disposals	-	(449,198)	(5,544,489)	(151,875)	(100,049)	(6,245,611)
Reclassification	-	(5,123)	9,660	(4,537)	-	-
Acquisitions through business combinations	-	-	-	824	-	824
Effect of foreign currency exchange differences	-	(1,077,896)	(7,392,888)	(236,371)	(1,929)	(8,709,084)
Balance at December 31, 2016	$ -	$ 38,229,544	$175,499,994	$ 6,385,080	$ 17,288	$220,131,906

For the year ended December 31, 2017

	Land	Buildings and improvements	Machinery and equipment	Other equipment	Construction in progress and machinery in transit	Total
	NT$	NT$	NT$	NT$	NT$	NT$
Cost						
Balance at January 1, 2017	$ 3,365,013	$ 96,258,175	$248,200,756	$ 8,474,661	$ 7,713,542	$364,012,147
Additions	-	350,434	102,301	130,659	23,094,288	23,677,682
Disposals	-	(609,294)	(8,449,949)	(763,937)	(73,248)	(9,896,428)
Reclassification	(35,965)	6,483,392	18,331,738	174,947	(25,428,464)	(474,352)
Effect of foreign currency exchange differences	(70,530)	(2,294,779)	(4,986,843)	(204,250)	557,595	(6,998,807)
Balance at December 31, 2017	$ 3,258,518	$100,187,928	$253,198,003	$ 7,812,080	$ 5,863,713	$370,320,242
Accumulated depreciation and impairment						
Balance at January 1, 2017	$ -	$ 38,229,544	$175,499,994	$ 6,385,080	$ 17,288	$220,131,906
Depreciation expenses	-	5,156,558	22,722,307	746,422	-	28,625,287
Impairment losses recognized	-	2,310	286,880	368	-	289,558
Disposals	-	(478,903)	(7,540,654)	(720,319)	(17,288)	(8,757,164)
Reclassification	-	(210,080)	34,452	(24,117)	-	(199,745)
Effect of foreign currency exchange differences	-	(784,365)	(3,990,174)	(163,467)	-	(4,938,006)
Balance at December 31, 2017	$ -	$ 41,915,064	$187,012,805	$ 6,223,967	$ -	$235,151,836

For the year ended December 31, 2018

	Land	Buildings and improvements	Machinery and equipment	Other equipment	Construction in progress and machinery in transit	Total
	NT$	NT$	NT$	NT$	NT$	NT$
Cost						
Balance at January 1, 2018	$ 3,258,518	$100,187,928	$253,198,003	$ 7,812,080	$ 5,863,713	$370,320,242
Additions	-	144,898	192,673	84,860	38,669,807	39,092,238
Disposals	-	(677,206)	(26,493,282)	(2,251,060)	(34,902)	(29,456,450)
Reclassification	-	5,388,709	32,060,513	2,148,211	(39,612,324)	(14,891)
Acquisition through business combinations (Note 30)	6,880,400	37,127,957	95,810,062	11,122,171	5,781,189	156,721,779
Effect of foreign currency exchange differences	27,051	(464,275)	(929,579)	(78,095)	244,069	(1,200,829)
Balance at December 31, 2018	$ 10,165,969	$141,708,011	$353,838,390	$ 18,838,167	$ 10,911,552	$535,462,089

	Land	Buildings and improvements	Machinery and equipment	Other equipment	Construction in progress and machinery in transit	Total
	NT$	NT$	NT$	NT$	NT$	NT$
Accumulated depreciation and impairment						
Balance at January 1, 2018	$ -	$ 41,915,064	$ 187,012,805	$ 6,223,967	$ -	$ 235,151,836
Depreciation expenses	-	6,325,948	31,751,251	1,816,587	-	39,893,786
Impairment losses recognized	-	29,531	97,680	5,860	-	133,071
Disposals	-	(491,033)	(25,704,778)	(2,070,302)	-	(28,266,113)
Reclassification	-	(265)	-	-	-	(265)
Acquisition through business combinations (Note 30)	-	15,097,920	53,210,063	6,428,174	-	74,736,157
Effect of foreign currency exchange differences	-	(133,091)	(616,601)	(29,279)	-	(778,971)
Balance at December 31, 2018	$ -	$ 62,744,074	$245,750,420	$ 12,375,007	$ -	$320,869,501

(Concluded)

	Land	Buildings and improvements	Machinery and equipment	Other equipment	Construction in progress and machinery in transit	Total
	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)
Cost						
Balance at January 1, 2018	$ 106,453	$ 3,273,046	$ 8,271,741	$ 255,213	$ 191,562	$ 12,098,015
Additions	-	4,734	6,294	2,772	1,263,306	1,277,106
Disposals	-	(22,124)	(865,511)	(73,540)	(1,140)	(962,315)
Reclassification	-	176,044	1,047,387	70,180	(1,294,097)	(486)
Acquisition through business combinations (Note 30)	224,776	1,212,936	3,130,025	363,351	188,866	5,119,954
Effect of foreign currency exchange differences	884	(15,168)	(30,368)	(2,551)	7,973	(39,230)
Balance at December 31, 2018	$ 332,113	$ 4,629,468	$ 11,559,568	$ 615,425	$ 356,470	$ 17,493,044
Accumulated depreciation and impairment						
Balance at January 1, 2018	$	$ 1,369,326	$ 6,109,533	$ 203,331	$ -	$ 7,682,190
Depreciation expense	-	206,663	1,037,283	59,346	-	1,303,292
Impairment losses recognized	-	965	3,191	192	-	4,348
Disposals	-	(16,042)	(839,751)	(67,635)	-	(923,428)
Reclassification	-	(9)	-	-	-	(9)
Acquisition through business combinations (Note 30)	-	493,235	1,738,323	210,003	-	2,441,561
Effect of foreign currency exchange differences	-	(4,348)	(20,144)	(957)	-	(25,449)
Balance at December 31, 2018	$ -	$ 2,049,790	$ 8,028,435	$ 404,280	$ -	$ 10,482,505

Due to the Group's future operation plans and capacity evaluation or production demands in segment of packaging and testing, the Group believed that a portion of property, plant and equipment does not qualify for the production needs and, therefore, recognized an impairment loss of NT$888,231 thousand, NT$289,558 thousand and NT$133,071 thousand (US$4,348 thousand) under the line item of other operating income and expenses in the consolidated statements of comprehensive income (Note 26) for the years ended December 31, 2016, 2017 and 2018, respectively. The recoverable amount of a portion of the impaired property, plant and equipment is determined by its fair value less costs of disposal, of which the fair value is based on the recent quoted prices of assets with similar age and obsolescence that provided by the vendors in secondary market which represent a Level 3 input because the secondary market is not very active. The recoverable amount of the other portion of the impaired property, plant and equipment is determined on the basis of its value in use and the Group expects to derive zero future cash flows from these assets.

Each class of property, plant and equipment was depreciated on a straight-line basis over the following useful lives:

Buildings and improvements	
Main plant buildings	10-55 years
Cleanrooms	10-20 years
Others	3-20 years
Machinery and equipment	2-10 years
Other equipment	2-20 years

The capitalized borrowing costs for the years ended December 31, 2016, 2017 and 2018 are disclosed in Note 26.

17. INVESTMENT PROPERTIES

	Land	Buildings and improvements	Total
	NT$	NT$	NT$
Cost			
Balance at January 1, 2017	$ -	$ -	$ -
Additions	-	186,535	186,535
Disposals	-	(342)	(342)
Transferred from inventories related to real estate business and property, plant and equipment	35,965	8,114,110	8,150,075
Effects of foreign currency exchange differences	-	106,482	106,482
Balance at December 31, 2017	$ 35,965	$ 8,406,785	$ 8,442,750
Accumulated depreciation and impairment			
Balance at January 1, 2017	$ -	$ -	$ -
Depreciation expenses	-	122,231	122,231
Disposals	-	(161)	(161)
Transferred from property, plant and equipment	-	199,745	199,745
Effects of foreign currency exchange differences	-	1,499	1,499
Balance at December 31, 2017	$ -	$ 323,314	$ 323,314
Carrying amount at December 31, 2017	$ 35,965	$ 8,083,471	$ 8,119,436

	Land	Buildings and improvements	Total
	NT$	NT$	NT$
Cost			
Balance at January 1, 2018	$ 35,965	$ 8,406,785	$ 8,442,750
Additions	-	125,853	125,853
Transferred from property, plant and equipment	-	14,891	14,891
Effects of foreign currency exchange differences	-	(137,739)	(137,739)
Balance at December 31, 2018	$ 35,965	$ 8,409,790	$ 8,445,755
Accumulated depreciation and impairment			
Balance at January 1, 2018	$ -	$ 323,314	$ 323,314
Depreciation expenses	-	392,667	392,667
Transferred from property, plant and equipment	-	265	265
Effects of foreign currency exchange differences	-	(8,870)	(8,870)
Balance at December 31, 2018	$ -	$ 707,376	$ 707,376
Carrying amount at December 31, 2018	$ 35,965	$ 7,702,414	$ 7,738,379

	Land	Buildings and improvements	Total
	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)
Cost			
Balance at January 1, 2018	$ 1,175	$ 274,642	$ 275,817
Additions	-	4,111	4,111
Transferred from property, plant and equipment	-	487	487
Effects of foreign currency exchange differences	-	(4,500)	(4,500)
Balance at December 31, 2018	$ 1,175	$ 274,740	$ 275,915
Accumulated depreciation and impairment			
Balance at January 1, 2018	$ -	$ 10,562	$ 10,562
Depreciation expenses	-	12,828	12,828
Transferred from property, plant and equipment	-	9	9
Effects of foreign currency exchange differences	-	(290)	(290)
Balance at December 31, 2018	$ -	$ 23,109	$ 23,109
Carrying amount at December 31, 2018	$ 1,175	$ 251,631	$ 252,806

The investment properties were depreciated on a straight-line basis over the following useful lives:

Main buildings	10-40 years
Others	3-20 years

The fair value of the investment properties was approximately NT$11,560,440 thousand and NT$11,764,829 thousand (US$384,346 thousand) as of December 31, 2017 and 2018, respectively, which was measured using the market approach and the income approach based on level 3 inputs by independent professional appraisers. The significant unobservable inputs were discounted rates.

Investment properties are held under freehold interests. Refer to Note 38 for the carrying amount of the investment properties that had been pledged by the Group to secure borrowings.

18. GOODWILL

	Cost	Accumulated impairment	Carrying amount
	NT$	NT$	NT$
Balance at January 1, 2016	$ 12,495,515	$ 1,988,996	$ 10,506,519
Acquisitions through business combinations (Note 30)	15,323	-	15,323
Effect of foreign currency exchange differences	(31,533)	-	(31,533)
Balance at December 31, 2016	12,479,305	1,988,996	10,490,309
Impairment losses recognized	-	425,117	(425,117)
Effect of foreign currency exchange differences	(130,698)	-	(130,698)
Balance at December 31, 2017	12,348,607	2,414,113	9,934,494

	Cost	Accumulated impairment	Carrying amount
	NT$	NT$	NT$
Acquisition through business combinations (Note 30)	$ 39,990,231	$ -	$ 39,990,231
Effect of foreign currency exchange differences	49,721	-	49,721
Balance at December 31, 2018	$ 52,388,559	$ 2,414,113	$ 49,974,446

	Cost	Accumulated impairment	Carrying amount
	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)
Balance at January 1, 2018	$ 403,418	$ 78,867	$ 324,551
Acquisition through business combinations (Note 30)	1,306,443	-	1,306,443
Effect of foreign currency exchange differences	1,624	-	1,624
Balance at December 31, 2018	$ 1,711,485	$ 78,867	$ 1,632,618

a. Allocating goodwill to cash-generating units

Goodwill had been allocated to the following cash-generating units for impairment testing purposes: packaging segment, testing segment, EMS segment and other segment. The carrying amounts of goodwill allocated to cash-generating units were as follows:

Cash-generating units	December 31 2017 NT$	2018 NT$	2018 US$ (Note 4)
Packaging segment	$ 1,362,724	$ 35,729,371	$ 1,167,245
Testing segment	7,775,581	13,448,886	439,362
Others	796,189	796,189	26,011
	$ 9,934,494	$ 49,974,446	$ 1, 632,618

b. Impairment assessment

At the end of each year, the Group performs impairment assessment by reviewing the recoverable amounts based on value in use which incorporates cash flow projections estimated by management covering a five-year period. The cash flows beyond that five-year period have been extrapolated using a steady per annum growth rate. In assessing value in use, the estimated future cash flows are discounted to their present value using annual discount rates which were 9.09%-10.49%, 8.97%-11.29% and 8.01%- 8.57% as of December 31, 2016, 2017 and 2018, respectively. The key assumption used in value in use calculations was the growth rates for operating revenue, which were based on the revenue forecast for the Group and the industry as well as the Group’s historical experience.

As of December 31, 2017, the recoverable amount of other segment was lower than its carrying amount since its actual growth in revenue did not meet its forecast previously made by management. The review led to the recognition of an impairment loss of NT$425,117 thousand under the line item of other operating income and expenses, net (Note 26) in the consolidated statements of comprehensive income for the year ended December 31, 2017.

Management believed that any reasonably possible change in the key assumptions on which recoverable amount would not cause the aggregate carrying amount of the cash-generating unit to exceed its aggregate recoverable amount significantly.

19. OTHER INTANGIBLE ASSETS

The carrying amounts of each class of other intangible assets were as follows:

	December 31 2017 NT$	2018 NT$	2018 US$ (Note 4)
Customer relationships	$ 113,776	$ 10,366,797	$ 338,673
Computer software	864,331	1,159,682	37,886
Patents and acquired specific technology	319,402	19,255,669	629,065
Others	109,356	115,552	3,775
	$ 1,406,865	$ 30,897,700	$ 1,009,399

For the year ended December 31, 2016

	Customer relationships NT$	Computer software NT$	Patents and acquired specific technology NT$	Others NT$	Total NT$
Cost					
Balance at January 1, 2016	$ 915,636	$ 3,338,360	$ 154,082	$ 193,338	$ 4,601,416
Additions (Note 37)	-	372,188	301,351	1,605	675,144
Disposals or derecognization	(41,099)	(80,537)	(1,310)	-	(122,946)
Reclassification	-	-	786	-	786
Acquisitions through business combinations	41,099	-	64,380	30	105,509
Effect of foreign currency exchange differences	-	(77,782)	(4,846)	(2,581)	(85,209)
Balance at December 31, 2016	$ 915,636	$ 3,552,229	$ 514,443	$ 192,392	$ 5,174,700
Accumulated amortization					
Balance at January 1, 2016	$ 641,234	$ 2,385,038	$ 138,386	$ 54,665	$ 3,219,323
Amortization expense	121,412	345,836	24,154	17,421	508,823
Disposals or derecognization	(41,099)	(58,765)	(1,310)	-	(101,174)
Reclassification	-	-	786	-	786
Acquisitions through business combinations	-	-	483	23	506
Effect of foreign currency exchange differences	-	(63,407)	(7,283)	(135)	(70,825)
Balance at December 31, 2016	$ 721,547	$ 2,608,702	$ 155,216	$ 71,974	$ 3,557,439

For the year ended December 31, 2017

	Customer relationships NT$	Computer software NT$	Patents and acquired specific technology NT$	Others NT$	Total NT$
Cost					
Balance at January 1, 2017	$ 915,636	$ 3,552,229	$ 514,443	$ 192,392	$ 5,174,700
Additions	-	265,497	-	12,328	277,825
Disposals	-	(83,595)	(123,744)	(4,978)	(212,317)
Effect of foreign currency exchange differences	-	(47,679)	(1,213)	(988)	(49,880)
Balance at December 31, 2017	$ 915,636	$ 3,686,452	$ 389,486	$ 198,754	$ 5,190,328

(Continued)

	Customer relationships NT$	Computer software NT$	Patents and acquired specific technology NT$	Others NT$	Total NT$
Accumulated amortization					
Balance at January 1, 2017	$ 721,547	$ 2,608,702	$ 155,216	$ 71,974	$ 3,557,439
Amortization expense	80,313	316,580	43,493	17,280	457,666
Disposals	-	(72,481)	(123,743)	-	(196,224)
Effect of foreign currency exchange differences	-	(30,680)	(4,882)	144	(35,418)
Balance at December 31, 2017	$ 801,860	$ 2,822,121	$ 70,084	$ 89,398	$ 3,783,463

(Concluded)

For the year ended December 31, 2018

	Customer relationships NT$	Computer software NT$	Patents and acquired specific technology NT$	Others NT$	Total NT$
Cost					
Balance at January 1, 2018	$ 915,636	$ 3,686,452	$ 389,486	$ 198,754	$ 5,190,328
Additions	-	528,883	-	8,776	537,659
Disposals	-	(95,358)	(231)	(4,000)	(99,589)
Acquisition through business combinations (Note 30)	11,000,000	274,868	20,200,000	32,800	31,507,668
Effect of foreign currency exchange differences	-	6,200	(899)	(332)	4,969
Balance at December 31, 2018	$11,915,636	$ 4,401,045	$20,588,356	$ 235,998	$37,141,035

	Customer relationships NT$	Computer software NT$	Patents and acquired specific technology NT$	Others NT$	Total NT$
Accumulated amortization					
Balance at January 1, 2018	$ 801,860	$ 2,822,121	$ 70,084	$ 89,398	$ 3,783,463
Amortization expense	746,979	373,536	1,263,309	18,626	2,402,450
Disposals	-	(95,202)	(231)	(4,000)	(99,433)
Acquisition through business combinations (Note 30)	-	137,799	-	15,483	153,282

(Continued)

	Customer relationships	Computer software	Patents and acquired specific technology	Others	Total
	NT$	NT$	NT$	NT$	NT$
Effect of foreign currency exchange differences	$ -	$ 3,109	$ (475)	$ 939	$ 3,573
Balance at December 31, 2018	$ 1,548,839	$ 3,241,363	$ 1,332,687	$ 120,446	$ 6,243,335

(Concluded)

	Customer relationships	Computer software	Patents and acquired specific technology	Others	Total
	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)
Cost					
Balance at January 1, 2018	$ 29,913	$ 120,433	$ 12,724	$ 6,493	$ 169,563
Additions	-	17,278	-	287	17,565
Disposals	-	(3,115)	(8)	(131)	(3,254)
Acquisition through business combinations	359,359	8,980	659,915	1,072	1,029,326
Effect of foreign currency exchange differences	-	202	(29)	(11)	162
Balance at December 31, 2018	$ 389,272	$ 143,778	$ 672,602	$ 7,710	$ 1,213,362
Accumulated amortization					
Balance at January 1, 2018	$ 26,196	$ 92,196	$ 2,290	$ 2,921	$ 123,603
Amortization expense	24,403	12,203	41,271	608	78,485
Disposals	-	(3,110)	(8)	(131)	(3,249)
Acquisition through business combinations	-	4,502	-	506	5,008
Effect of foreign currency exchange differences	-	101	(16)	31	116
Balance at December 31, 2018	$ 50,599	$ 105,892	$ 43,537	$ 3,935	$ 203,963

Each class of other intangible assets was amortized on the straight-line basis over the following useful lives:

Customer relationships	11 years
Computer software	2-10 years
Patents and acquired specific technology	5-15 years
Others	5-32 years

20. LONG-TERM PREPAYMENTS FOR LEASE

Long-term prepayments for lease mainly represented land use rights located in China with periods for use from 30 to 70 years and will expire through 2048 to 2089.

21. BORROWINGS

a. Short-term borrowings

Bank loans

Short-term borrowings mainly represented unsecured revolving bank loans with annual interest rates at 0.80%-4.79% and 0.76%-5.10% as of December 31, 2017 and 2018, respectively.

b. Long-term borrowings

1) Bank loans

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Working capital bank loans			
Syndicated bank loans - repayable through May 2019 to May 2023, annual interest rates were 2.61% - 2.70% and 1.80% as of December 31, 2017 and 2018, respectively	$ 4,761,600	$ 55,000,000	$ 1,796,798
Others - repayable through February 2019 to October 2023, annual interest rates were 0.93%-2.10% and 0.75%-3.77% as of December 31, 2017 and 2018, respectively	23,941,947	75,533,354	2,467,604
Mortgage loans			
Repayable through July 2019 to June 2023, annual interest rates were 4.95%-5.39% and 5.39% as of December 31, 2017 and 2018	4,705,149	4,393,826	143,542
	33,408,696	134,927,180	4,407,944
Less: unamortized arrangement fee	1,200	128,083	4,184
	33,407,496	134,799,097	4,403,760
Less: current portion	8,261,625	10,779,034	352,141
	$ 25,145,871	$ 124,020,063	$ 4,051,619

Pursuant to some of the above working capital bank loans agreements, the Company and its subsidiaries should maintain certain financial covenants including current ratio, leverage ratio, tangible net assets and interest coverage ratio. Such financial ratios are calculated based on each of their annual audited consolidated financial statements or semi-annual reviewed consolidated financial statements. The Company and its subsidiaries were in compliance with all of the financial covenants as of December 31, 2017 and 2018.

2) Long-term bills payable

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
China Bills Finance Corporation, repayable in February 2020, annual interest rate were 0.96% and 0.99% as of December 31, 2017 and 2018, respectively	$ 1,000,000	$ 1,000,000	$ 32,669
International Bills Finance Corporation, repayable in March 2020, annual interest rate were 0.96% and %1.00% as of December 31, 2017 and 2018, respectively	1,000,000	1,000,000	32,669
Ta Ching Bills Finance Corporation, repayable in January 2020, annual interest rates was 0.98% as of December 31, 2018	-	1,100,000	35,936
	2,000,000	3,100,000	101,274
Less: unamortized discounts	868	768	25
	$ 1,999,132	$ 3,099,232	$ 101,249

22. BONDS PAYABLE

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Unsecured domestic bonds			
Repayable at maturity in January 2021 and interest due annually with annual interest rate at 1.30%	$ 7,000,000	$ 7,000,000	$ 228,683
Repayable at maturity in January 2023 and interest due annually with annual interest rate at 1.50%	2,000,000	2,000,000	65,338
Repayable at maturity in January 2022 and interest due annually with annual interest rate at 1.25%	3,700,000	3,700,000	120,876
Repayable at maturity in January 2024 and interest due annually with annual interest rate at 1.45%	4,300,000	4,300,000	140,477
Unsecured convertible overseas bonds			
US$200,000 thousand (linked to New Taiwan dollar)	6,185,600	-	-
	23,185,600	17,000,000	555,374
Less: discounts on bonds payable	42,820	14,064	459
	23,142,780	16,985,936	554,915
Less: current portion	6,161,197	-	-
	$ 16,981,583	$ 16,985,936	$ 554,915

a. In September 2013, ASE offered the third unsecured convertible overseas bonds (the “Bonds”) in US$400,000 thousand. The Bonds are zero coupon bonds with a maturity of 5 years. In 2017, the Bonds holders have exercised the conversion right to convert the Bonds of US$399,600 thousand into ASE’s ordinary shares at conversion prices from NT$27.95 to NT$28.96. Except those have been converted, ASE, based on the board of directors’ resolution, has early redeemed the outstanding Bonds of US$400 thousand in September 2017.

b. In July 2015, ASE offered the forth unsecured convertible overseas bonds (the “Currency Linked Bonds”) in US$200,000 thousand. The Currency Linked Bonds are zero coupon bonds with a maturity of 2.75 years. The Currency Linked Bonds were expired in March 2018 and none has been exercised. ASE redeemed the Currency Linked Bonds in cash in an amount by converting the par value into New Taiwan dollar amount using a fixed exchange rate of US$1 to NT$30.928 and then back to U.S. dollar amount using the applicable prevailing rate at the time of redemption. At the same time, ASE reclassified NT$214,022 thousand from capital surplus arising from equity component of convertible bonds to capital surplus arising from expired share options.

c. To focus on corporate sustainability and to carry out the commitment to environmental protection and energy conservation, Anstock II Limited, a subsidiary the Company 100% owned, offered overseas bonds in US$300,000 thousand with the maturity of 3 years and annual interest rate of 2.125% (the “Green Bonds”) in July 2014. The Green Bonds are unconditionally and irrevocably guaranteed by ASE and the proceeds were used to fund certain eligible projects to promote the Group’s transition to low-carbon and climate resilient growth. The Company’s subsidiary has repaid the Green Bonds in July 2017.

d. In October 2014, SPIL offered the fourth unsecured convertible overseas bonds (the “SPIL Bonds”) in US$400,000 thousand. The SPIL Bonds are zero coupon bonds with a maturity of 5 years. During May 1, 2018 to June 30, 2018, all outstanding SPIL Bonds of US$148,000 thousand were converted into SPIL’s ordinary shares and then such ordinary shares were repurchased by the Company with a total consideration of NT$5,216,985 thousand (US$170,434 thousand) (NT$51.2 (US$1.67) per ordinary share, 0.3% securities transactions tax not yet deducted) pursuant to the supplemental indenture. In addition, capital surplus arising from the difference between consideration received and the carrying amount of the subsidiaries’ net assets during actual disposal or acquisition was decreased by NT$388,491 thousand (US$12,692 thousand).

23. OTHER PAYABLES

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Accrued salary and bonus	$ 7,292,254	$ 10,591,202	$ 346,005
Payables for property, plant and equipment	4,623,268	7,995,634	261,210
Accrued employees’ compensation and remuneration to directors	2,568,880	3,038,417	99,262
Accrued employee insurance	657,176	875,638	28,606
Accrued utilities	417,257	427,106	13,953
Payables for patents and acquired specific technology (Note 37)	93,000	57,590	1,882
Others	5,726,052	8,018,295	261,950
	$ 21,377,887	$ 31,003,882	$ 1,012,868

24. RETIREMENT BENEFIT PLANS

a. Defined contribution plans

1) The pension plan under the R.O.C. Labor Pension Act ("LPA") for the Group's R.O.C. resident employees is a government-managed defined contribution plan. Based on the LPA, the Company and its subsidiaries in Taiwan makes monthly contributions to employees' individual pension accounts at 6% of their monthly salaries.

2) The subsidiaries located in China, U.S.A., Malaysia, Singapore and Mexico also make contributions at various ranges according to relevant local regulations.

b. Defined benefit plans

1) The Company and its subsidiaries in Taiwan joined the defined benefit pension plan under the R.O.C. Labor Standards Law operated by the government. Pension benefits are calculated on the basis of the length of service and average monthly salaries of the last six months before retirement. The Company and its subsidiaries in Taiwan make contributions based on a certain percentage of their domestic employees' monthly salaries to a pension fund administered by the pension fund monitoring committee. Before the end of each year, the Company and its subsidiaries in Taiwan assess the balance in the pension fund. If the amount of the balance in the pension fund is inadequate to pay retirement benefits for employees who conform to retirement requirements in the next year, the Company and its subsidiaries in Taiwan are required to fund the difference in one appropriation that should be made before the end of March of the next year. Pension contributions are deposited in the Bank of Taiwan in the committee's name and are managed by the Bureau of Labor Funds, Ministry of Labor ("the Bureau"); the Company and its subsidiaries in Taiwan have no right to influence the investment policy and strategy.

2) ASE Japan has a pension plan under which eligible employees with more than ten years of service are entitled to receive pension benefits based on their length of service and salaries at the time of termination of employment. ASE Japan makes contributions based on a certain amount of pension cost to employees.

   ASE Korea also has a pension plan under which eligible employees and directors with more than one year of service are entitled to receive a lump-sum payment upon termination of their service with ASE Korea, based on their length of service and salaries at the time of termination. ASE Korea makes contributions based on a certain percentage of pension cost to an external financial institution administered by the management and in the names of employees.

3) ASE, SPIL, ASE Test, Inc. and ASE Electronics Inc. maintain pension plans for executive managers. Pension costs under the plans were NT$6,872 thousand, NT$3,171 thousand and NT$11,137 thousand (US$364 thousand) for the years ended December 31, 2016, 2017 and 2018, respectively. As of December 31, 2017 and 2018, accrued pension liabilities for executive managers were NT$209,637 thousand and NT$320,542 thousand (US$10,472 thousand), respectively.

4) The amounts included in the consolidated balance sheets arising from the Group's obligation in respect of its defined benefit plans excluding those for executive managers were as follows:

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Present value of the defined benefit obligation	$ 7,910,638	$ 10,297,139	$ 336,398
Fair value of the plan assets	(4,341,373)	(5,492,123)	(179,423)

(Continued)

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Present value of unfunded defined benefit obligation	$ 3,569,265	$ 4,805,016	$ 156,975
Recorded under other payables	(24,638)	(18,791)	(614)
Recorded under other current assets	182,421	11,910	389
Net defined benefit liability	$ 3,727,048	$ 4,798,135	$ 156,750

(Concluded)

Movements in net defined benefit liability (asset) were as follows:

	Present Value of the Defined Benefit Obligation	Fair Value of the Plan Assets	Net Defined Benefit Liability (Asset)
	NT$	NT$	NT$
Balance at January 1, 2016	$ 7,973,676	$ (3,973,729)	$ 3,999,947
Service cost			
Current service cost	329,838	-	329,838
Net interest expense (income)	167,111	(109,080)	58,031
Recognized in profit or loss	496,949	(109,080)	387,869
Remeasurement			
Return on plan assets (excluding amounts included in net interest)	-	54,549	54,549
Actuarial loss arising from changes in financial assumptions	156,193	-	156,193
Actuarial loss arising from experience adjustments	200,723	-	200,723
Actuarial loss arising from changes in demographic assumptions	5,716	-	5,716
Recognized in other comprehensive income	362,632	54,549	417,181
Contributions from the employer	-	(807,232)	(807,232)
Benefits paid from the pension fund	(308,471)	308,471	-
Benefits paid from the Group	(36,033)	-	(36,033)
Liabilities assumed in a business combination	535	(535)	-
Exchange differences on foreign plans	(99,404)	110,189	10,785
Balance at December 31, 2016	8,389,884	(4,417,367)	3,972,517
Service cost			
Current service cost	278,412	-	278,412
Past service cost and gain on settlements	(68,979)	-	(68,979)
Net interest expense (income)	157,404	(103,741)	53,663
Recognized in profit or loss	366,837	(103,741)	263,096

(Continued)

	Present Value of the Defined Benefit Obligation	Fair Value of the Plan Assets	Net Defined Benefit Liability (Asset)
	NT$	NT$	NT$
Remeasurement			
Return on plan assets (excluding amounts included in net interest)	$ -	$ 52,124	$ 52,124
Actuarial loss arising from changes in financial assumptions	56,860	-	56,860
Actuarial gain arising from experience adjustments	(315,090)	-	(315,090)
Actuarial loss arising from changes in demographic assumptions	762	-	762
Recognized in other comprehensive income	(257,468)	52,124	(205,344)
Contributions from the employer	-	(484,790)	(484,790)
Benefits paid from the pension fund	(690,830)	690,830	-
Benefits paid from the Group	(96,575)	-	(96,575)
Exchange differences on foreign plans	198,790	(78,429)	120,361
Balance at December 31, 2017	7,910,638	(4,341,373)	3,569,265
Service cost			
Current service cost	224,126	-	224,126
Net interest expense (income)	178,779	(122,709)	56,070
Recognized in profit or loss	402,905	(122,709)	280,196
Remeasurement			
Return on plan assets (excluding amounts included in net interest)	-	(16,589)	(16,589)
Actuarial gain arising from changes in financial assumptions	(8,643)	-	(8,643)
Actuarial loss arising from experience adjustments	302,499	-	302,499
Actuarial loss arising from changes in demographic assumptions	8,190	-	8,190
Actuarial loss arising from changes in other assumptions	22,723	-	22,723
Recognized in other comprehensive income	$ 324,769	$ (16,589)	$ 308,180
Contributions from the employer	-	(364,237)	(364,237)
Benefits paid from the pension fund	(541,989)	541,989	-
Benefits paid from the Group	(295,953)	-	(295,953)
Business combinations	2,522,805	(1,210,524)	1,312,281
Exchange differences on foreign plans	(26,036)	21,320	(4,716)
Balance at December 31, 2018	$ 10,297,139	$ (5,492,123)	$ 4,805,016

(Concluded)

	Present Value of the Defined Benefit Obligation	Fair Value of the Plan Assets	Net Defined Benefit Liability (Asset)
	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)
Balance at January 1, 2018	$ 258,433	$ (141,829)	$ 116,604
Service cost			
Current service cost	7,322	-	7,322
Net interest expense (income)	5,841	(4,009)	1,832
Recognized in profit or loss	13,163	(4,009)	9,154
Remeasurement			
Return on plan assets (excluding amounts included in net interest)	-	(542)	(542)
Actuarial gain arising from changes in financial assumptions	(282)	-	(282)
Actuarial loss arising from experience adjustments	9,882	-	9,882
Actuarial loss arising from changes in demographic assumptions	268	-	268
Actuarial loss arising from changes in other assumptions	742	-	742
Recognized in other comprehensive income	10,610	(542)	10,068
Contributions from the employer	-	(11,899)	(11,899)
Benefits paid from the pension fund	(17,706)	17,706	-
Benefits paid from the Group	(9,669)	-	(9,669)
Business combinations	82,418	(39,547)	42,871
Exchange differences on foreign plans	(851)	697	(154)
Balance at December 31, 2018	$ 336,398	$ (179,423)	$ 156,975

5) The fair value of the plan assets by major categories at each balance sheet date was as follows:

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Cash	$ 2,317,764	$ 2,340,903	$ 76,475
Debt instruments	691,619	902,886	29,497
Equity instruments	1,254,109	2,164,895	70,725
Others	77,881	83,439	2,726
Total	$ 4,341,373	$ 5,492,123	$ 179,423

6) Through the defined benefit plans under the Labor Standards Law of the R.O.C., the Group in Taiwan are exposed to the following risks:

a) Investment risk

The plan assets are invested in equity and debt securities, bank deposits, etc. The investment is conducted at the discretion of the Bureau or under the mandated management. However, in accordance with relevant regulations, the return generated by plan assets should not be below the interest rate for a 2-year time deposit with local banks.

b) Interest risk

A decrease in the government bond interest rate will increase the present value of the defined benefit obligation; however, this will be partially offset by an increase in the return on the plan's debt investments.

c) Salary risk

The present value of the defined benefit obligation is calculated by reference to the future salaries of plan participants. As such, an increase in the salary of the plan participants will increase the present value of the defined benefit obligation.

7) The management of ASE Korea is responsible for the administration of the fund and determination of the investment strategies according to related local regulations. ASE Korea is responsible for the shortfall between the fund and the defined benefit obligation. The plan assets are invested in the certificates of deposits.

8) The present value of the defined benefit obligation and the related current service cost and past service cost were measured using the Projected Unit Credit Method. Except the pension plans for executive managers, the key assumptions used for the actuarial valuations were as follow:

	December 31	
	2017	**2018**
Discount rates (%)	0.06-3.85	0.05-3.02
Expected rates of salary increase (%)	2.00-4.42	1.75-4.06

The sensitivity analysis below has been determined based on reasonably possible changes of the respective assumptions occurring at each balance sheet date, while holding all other assumptions constant.

	December 31		
	2017	**2018**	
	NT$	**NT$**	**US$ (Note 4)**
Discount Rate			
0.5% higher	$ (455,158)	$ (555,181)	$ (18,137)
0.5% lower	$ 461,891	$ 603,089	$ 19,702
Expected rates of salary increase			
0.5% higher	$ 453,792	$ 591,712	$ 19,331
0.5% lower	$ (444,493)	$ (547,522)	$ (17,887)

The sensitivity analysis presented above may not be representative of the actual change in the defined benefit obligation as it is unlikely that the change in assumptions would occur in isolation of one another as some of the assumptions may be correlated.

9) Maturity analysis of undiscounted pension benefit

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
No later than 1 year	$ 291,152	$ 368,592	$ 12,042
Later than 1 year but not later than 5 years	1,551,496	1,886,738	61,638
Later than 5 years	16,507,747	13,322,695	435,240
	$ 18,350,395	$ 15,578,025	$ 508,920

The Group expected to make contributions of NT$272,911 thousand and NT$484,247 thousand (US$15,820 thousand) to the defined benefit plans in the next year starting from January 1, 2018 and 2019, respectively.

As of December 31, 2017 and 2018, the average duration of the defined benefit obligation excluding those for executive managers of the Group was 8 to 14 years and 9 to 15 years, respectively.

25. EQUITY

a. Share capital

Ordinary shares

	December 31	
	2017	2018
Numbers of shares authorized (in thousands)	10,000,000	5,000,000
Numbers of shares reserved (in thousands)		
Employee share options	800,000	400,000
Number of shares issued and fully paid (in thousands)	8,738,079	4,321,714

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Share capital authorized	$ 100,000,000	$ 50,000,000	$ 1,633,453
Share capital reserved			
Employee share options	$ 8,000,000	$ 4,000,000	$ 130,676
Share capital issued and fully paid	$ 87,380,787	$ 43,217,144	$ 1,411,864

As disclosed in Note 1, the Company acquired 100% shareholdings of ASE through share exchange at an exchange ratio of 1 ordinary share of ASE for 0.5 ordinary share of the Company. The holders of issued ordinary shares with par value NT$10 per share are entitled the right to vote and receive dividends, except the shares held by the Group's subsidiaries which are not entitled the right to vote. Before the share exchange, 500,000 thousand ordinary shares included in ASE's authorized shares as of December 31, 2017 were not yet required to complete the share registration process.

In December 2016, ASE's board of directors approved the issuance of 300,000 thousand ordinary shares for cash capital increase at NT$34.3 per share. ASE has completed the registration formalities for the cash capital increase.

As disclosed in Note 22, there were 424,258 thousand ordinary shares issued under the conversion of Bonds in 2017. The record dates of 101,164 thousand and 323,094 thousand ordinary shares were July 13, 2017 and October 13, 2017, respectively. ASE has completed the registration formalities.

American Depositary Receipts

ASE issued ADSs and each ADS represents 5 ordinary shares of ASE. On April 30, 2018, ASE's ADSs were fully exchanged to the Company's ADSs and each of the Company's ADS represents 2 ordinary shares of the Company. As of December 31, 2017 and 2018, 115,261 thousand and 140,042 thousand ADSs were outstanding and represented approximately 576,305 thousand ordinary shares of ASE and 280,085 thousand ordinary shares of the Company, respectively.

b. Capital surplus

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
May be used to offset a deficit, distributed as cash dividends, or transferred to share capital (1)			
Issuance of ordinary shares	$ 21,553,853	$ 12,906,401	$ 421,640
Merger by share exchange	-	117,693,658	3,844,942
Conversion of bonds payable	1,930,066	-	-
Difference between consideration and the carrying amount of the subsidiaries' net assets during actual disposal or acquisition	7,176,958	6,034,102	197,128
	30,660,877	136,634,161	4,463,710
May be used to offset a deficit only			
Changes in percentage of ownership interest in subsidiaries (2)	6,084,895	3,727,336	121,768
Treasury share transactions	1,151,345	182,354	5,957
Exercised employee share options	1,089,178	1,366,480	44,642
Expired share options (Notes 22 and 29)	223,454	645,978	21,103
Share of changes in capital surplus of associates	83,733	87,136	2,847
Dividends that the claim period has elapsed and unclaimed by shareholders	-	872	29
	8,632,605	6,010,156	196,346
May not be used for any purpose			
Employee share options	960,888	583,542	19,064
Equity component of convertible bonds	214,022	-	-
Others (3)	155,936	48,805	1,594
	1,330,846	632,347	20,658
	$ 40,624,328	$ 143,276,664	$ 4,680,714

1) Such capital surplus may be used to offset a deficit; in addition, when the Company has no deficit, such capital surplus may be distributed as cash dividends or transferred to share capital (limited to a certain percentage of the Company's capital surplus and once a year).

2) Such capital surplus arises from the effect of changes in ownership interest in a subsidiary resulted from equity transactions other than actual disposal or acquisition, or from changes in capital surplus of subsidiaries accounted for using the equity method.

3) Such capital surplus represents the excess of the carrying amount of related accounts over the par value due to employee share options exercised and the Company has not completed registration formalities.

As disclosed in Note 1, share exchange between the Company and ASE was deemed as an organization restructure under common control and the Company recorded the same amounts of equity which were related to ASE's assets and liabilities (the "continued equity") and then recognized capital surplus arising from merger by share exchange in the amount of the excess of ASE's total equity over the Company's share capital and the continued equity.

In addition, the Company's special shareholders' meeting held in June 2018 resolved to distribute cash in NT$10,795,980 thousand (US$352,695 thousand) from capital surplus arising from issuance of ordinary shares.

c. Retained earnings and dividend policy

The Articles of Incorporation of the Company (the "Articles") provides that annual net income shall be distributed in the following order:

1) Replenishment of deficits;

2) 10.0% as legal reserve;

3) Special reserve appropriated or reversed in accordance with laws or regulations set forth by the authorities concerned;

4) Addition or deduction of realized gains or losses on equity instruments at fair value through other comprehensive income.

The Articles also provides the policy of the employees' compensation and remuneration of directors, refer to employees' compensation and the remuneration of directors in Note 26(g).

The Company is currently in the mature growth stage. To meet the capital needs for business development now and in the future and satisfy the shareholders' demand for cash inflows, the Company shall use residual dividend policy to distribute dividends, of which the cash dividend is not lower than 30% of the total dividend distribution, with the remainder to be distributed in shares. A distribution plan is also to be made by the board of directors and passed for resolution in the shareholders' meeting.

Appropriation of earnings to legal reserve shall be made until the legal reserve equals the Company's share capital. Legal reserve may be used to offset deficits. If the Company has no deficit and the legal reserve has exceeded 25% of the Company's share capital, the excess may be transferred to capital or distributed in cash.

Items referred to under Rule No. 1010012865 and Rule No. 1010047490 issued by the FSC and in the directive titled "Questions and Answers for Special Reserves Appropriated Following Adoption of IFRSs" should be appropriated to or reversed from a special reserve by the Company.

d. Others equity items

1) Exchange differences on translating foreign operations

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Balance at January 1	$ 4,492,671	$ (1,643,623)	$ (6,733,659)	$ (219,982)
Exchange differences on translating foreign operations	(5,843,856)	(4,952,815)	426,186	13,923
Share from associates and joint venture accounted for using the equity method	(292,438)	(137,221)	136,608	4,463
Disposal of associates and joint venture accounted for using the equity method	-	-	282,291	9,222
Balance at December 31	$(1,643,623)	$(6,733,659)	$(5,888,574)	$ (192,374)

2) Unrealized gain (loss) on available-for-sale financial assets

	For the Year Ended December 31, 2016	For the Year Ended December 31, 2017
	NT$	NT$
Balance at January 1	$ 588,119	$ (197,314)
Unrealized gain (loss) arising on revaluation of available-for-sale financial assets	(257,240)	169,585
Cumulative loss reclassified to profit or loss on impairment of available-for-sale financial assets	-	50,206
Cumulative loss (gain) reclassified to profit or loss on disposal of available-for-sale financial assets	7,512	(1,517)
Share from associates and joint venture accounted for using the equity method	(535,705)	401,610
Balance at December 31	$ (197,314)	$ 422,570

3) Unrealized gain (loss) on financial assets at FVTOCI

	For the Year Ended December 31, 2018	
	NT$	US$ (Note 4)
Balance at January 1 per IAS 39	$ 422,570	$ 13,805
Adjustment on initial application of IFRS 9 (Note 3)	(287,053)	(9,377)
Balance at January 1 per IFRS 9	135,517	4,428
Unrealized gain (loss) recognized during the year		
Debt instruments	(63,076)	(2,061)
Equity instruments	(398,513)	(13,019)

(Continued)

	For the Year Ended December 31, 2018	
	NT$	US$ (Note 4)
Share from associates and joint venture accounted for using the equity method	$ (555,271)	$ (18,140)
Realized loss (gain) recognized during the year		
Disposal of equity instruments and transferred cumulative gain to retained earnings	(1,518)	(50)
Disposal of associates and joint venture accounted for using the equity method	(133,364)	(4,357)
Share from associates and joint venture accounted for using the equity method	1,118	36
Balance at December 31	$(1,015,107)	$ (33,163)

(Concluded)

e. Treasury shares (in thousand shares)

	Balance at January 1	Addition	Decrease	Balance at December 31
2016				
Shares held by subsidiaries	145,883	-	-	145,883
Shares reserved for bonds conversion	120,000	-	-	120,000
	265,883	-	-	265,883
2017				
Shares held by subsidiaries	145,883	-	-	145,883
Shares reserved for bonds conversion	120,000	-	-	120,000
	265,883	-	-	265,883
2018				
Shares held by subsidiaries	145,883	-	(72,942)	72,941
Shares reserved for bonds conversion	120,000	-	(120,000)	-
Shares repurchased from dissenting shareholders in accordance with Business Mergers And Acquisitions Act	-	1,852	(1,852)	-
	265,883	1,852	(194,794)	72,941

The Company's shares held by its subsidiaries at each balance sheet date were as follows:

	Shares Held By Subsidiaries (in thousand shares)	Carrying Amount NT$	Carrying Amount US$ (Note 4)	Fair Value NT$	Fair Value US$ (Note 4)
December 31, 2017					
ASE Test	88,200	$ 1,380,721		$ 3,364,848	
J&R Holding	46,704	381,709		1,781,749	
ASE Test, Inc.	10,979	196,677		418,840	
	145,883	$ 1,959,107		$ 5,565,437	
December 31, 2018					
ASE Test	44,100	$ 1,380,721	$ 45,107	$ 2,571,044	$ 83,994
J&R Holding	23,352	381,709	12,470	1,361,415	44,476
ASE Test, Inc.	5,489	196,677	6,425	320,031	10,455
	72,941	$ 1,959,107	$ 64,002	$ 4,252,490	$ 138,925

Fair values of the Company's shares held by subsidiaries are based on the closing price from an available published price quotation, which is a Level 1 input in terms of IFRS 13, at the balance sheet dates.

In March 2018, ASE's board of directors approved, in accordance with Business Mergers and Acquisitions Act, to repurchase ASE's 1,852 thousand ordinary shares at $38.5 per share held by the shareholders dissenting on the share exchange transaction which has been approved by both of ASE and SPIL's special shareholders' meetings on February 12, 2018. In addition, ASE's board of directors approved a capital reduction in April 2018 to cancel ASE's 121,852 thousand treasury shares and the record date was April 9, 2018. ASE has completed the registration formalities before April 30, 2018.

ASE issued ordinary shares in connection with its merger with its subsidiaries. The shares held by its subsidiaries were reclassified to treasury shares on the proportion owned by ASE. As disclosed in Note 1, ASE's ordinary shares held by subsidiaries were exchanged to the Company's ordinary shares on April 30, 2018 in accordance with the joint share exchange agreement.

The subsidiaries holding the aforementioned treasury shares retain shareholders' rights except the rights to participate in any capital increase by cash and voting.

f. Non-controlling interests

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Balance at January 1	$ 11,492,545	$ 12,000,551	$ 13,190,129	$ 430,909
Adjustment on initial application of IFRS 15 (Note 3)	-	-	5,183	169
Balance at January 1 per IFRS 15	11,492,545	12,000,551	13,195,312	431,078

(Continued)

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Share of profit for the year	$ 1,253,438	$ 1,677,941	$ 1,203,588	$ 39,320
Other comprehensive income (loss)				
Exchange difference on translating foreign operations	(601,787)	(334,920)	(198,365)	(6,480)
Unrealized gain on available-for-sale financial assets	1,129	5,763	-	-
Unrealized loss on equity instruments at FVTOCI	-	-	(23,928)	(782)
Remeasurement on defined benefit plans	8,846	(13,724)	(30,079)	(983)
Non-controlling interests arising from acquisition of subsidiaries (Note 30)	-	-	3,582,866	117,049
Acquisition of non-controlling interests in subsidiaries	42,857	-	(2,492,915)	(81,441)
Partial disposal of subsidiaries (Note 32)	26,436	(3,055)	1,693,064	55,311
Subsidiaries’ buy back of their own outstanding ordinary shares (Note 32)	(912,886)	-	(801,884)	(26,197)
Non-controlling interest relating to outstanding vested employee share options granted by subsidiaries	927,823	263,213	1,936,643	63,268
Non-controlling interest relating to outstanding expired employee share options granted by subsidiaries	-	(159,200)	-	-
Cash dividends to non-controlling interests	(237,850)	(246,440)	(424,815)	(13,878)
Balance at December 31	$ 12,000,551	$ 13,190,129	$ 17,639,487	$ 576,265

(Concluded)

26. PROFIT BEFORE INCOME TAX

a. Other operating income and expenses, net

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Rental income	$ 51,607	$ 131,570	$ 182,411	$ 5,959
Gains (losses) on disposal of property, plant and equipment and other assets	(127,159)	367,110	(14,644)	(479)
Impairment losses on property, plant and equipment and goodwill	(888,231)	(714,675)	(133,071)	(4,347)
Loss on damages and claims	(12,778)	(85,585)	(24,114)	(788)
Others	176,281	410,136	361,001	11,794
	$ (800,280)	$ 108,556	$ 371,583	$ 12,139

b. Other income

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Government subsidy	$ 332,758	$ 341,844	$ 435,950	$ 14,242
Interest income	230,067	306,871	466,211	15,231
Dividends income	26,411	59,039	190,397	6,220
	$ 589,236	$ 707,754	$ 1,092,558	$ 35,693

c. Other gains, net

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Gain on remeasurement of investments accounted for using the equity method (Note 15)	$ -	$ -	$7,421,408	$ 242,451
Net gains on financial assets mandatorily at FVTPL	-	-	3,388,485	110,699
Gain on disposal of subsidiaries (Note 31)	-	5,589,457	-	-
Net gains (losses) arising on financial instruments held for trading	224,446	(3,111,253)	(1,398,995)	(45,704)
Net gains on financial assets designated as at FVTPL	223,113	327,351	-	-
Foreign exchange gains (losses), net	1,928,384	3,502,586	(1,015,615)	(33,180)
Impairment losses on financial assets	(91,886)	(50,206)	(521,010)	(17,021)

(Continued)

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Others	$ (7,513)	$ 1,518	$ -	$ -
	$ 2,276,544	$ 6,259,453	$ 7,874,273	$ 257,245

(Concluded)

d. Finance costs

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Total interest expense for financial liabilities measured at amortized cost	$ 2,510,197	$ 2,016,298	$ 3,597,932	$ 117,541
Less: Amounts included in the cost of qualifying assets				
Inventories related to real estate business	(238,469)	(190,137)	(11,648)	(381)
Property, plant and equipment	(54,191)	(51,262)	(50,309)	(1,643)
Investment properties	-	(13)	(89)	(3)
	2,217,537	1,774,886	3,535,886	115,514
Other finance costs	43,538	24,608	32,355	1,057
	$ 2,261,075	$ 1,799,494	$ 3,568,241	$ 116,571

Information relating to the capitalized borrowing costs was as follows:

	For the Year Ended December 31		
	2016	2017	2018
Annual interest capitalization rates			
Inventories related to real estate business (%)	4.35-6.00	4.35-5.39	4.35
Property, plant and equipment (%)	1.15-4.42	1.26-5.49	1.84-4.52
Investment properties (%)	-	1.26-1.97	1.84-2.23

e. Depreciation and amortization

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Property, plant and equipment	$ 28,961,614	$ 28,625,287	$ 39,893,786	$ 1,303,293
Investment properties	-	122,231	392,667	12,828
Intangible assets	508,823	457,666	2,402,450	78,486
Total	$ 29,470,437	$ 29,205,184	$ 42,688,903	$ 1,394,607

(Continued)

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Summary of depreciation by function				
Operating costs	$ 26,948,106	$ 26,731,714	$ 37,903,050	$ 1,238,257
Operating expenses	2,013,508	2,015,804	2,383,403	77,864
	$ 28,961,614	$ 28,747,518	$ 40,286,453	$ 1,316,121
Summary of amortization by function				
Operating costs	$ 152,987	$ 140,175	$ 1,394,664	$ 45,562
Operating expenses	355,836	317,491	1,007,786	32,924
	$ 508,823	$ 457,666	$ 2,402,450	$ 78,486

(Concluded)

f. Operating expenses directly related to investment properties

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Direct operating expenses of investment properties that generated rental income	$ -	$ 465,458	$1,276,751	$ 41,710

g. Employee benefits expense

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Post-employment benefits				
Defined contribution plans	$ 2,356,416	$ 2,340,826	$ 2,965,054	$ 96,865
Defined benefit plans	394,741	266,267	291,333	9,518
	2,751,157	2,607,093	3,256,387	106,383
Equity-settled share-based payments	470,788	438,765	215,648	7,045
Other employee benefits	49,525,940	51,043,198	63,940,430	2,088,874
	$ 52,747,885	$ 54,089,056	$ 67,412,465	$ 2,202,302
Summary of employee benefits expense by function				
Operating costs	$ 35,588,529	$ 35,978,403	$ 45,363,170	$ 1,481,972
Operating expenses	17,159,356	18,110,653	22,049,295	720,330
	$ 52,747,885	$ 54,089,056	$ 67,412,465	$ 2,202,302

h. Employees' compensation and the remuneration to directors

The Articles stipulates to distribute employees' compensation and remuneration of directors at the rates in 0.01%-1.00% and no higher than 0.75%, respectively, of net profit before income tax, employees' compensation and remuneration of directors. For the period from April 30, 2018 to December 31, 2018, the employees' compensation and the remuneration of directors were NT$45,430 thousand (US$1,484 thousand) and NT$34,073 thousand (US$1,113 thousand) which were accrued based on 0.20% and 0.15%, respectively, of net profit before income tax, employees' compensation and remuneration to directors.

If there is a change in the proposed amounts after the consolidated financial statement authorized for issue, the differences are recorded as a change in accounting estimate and will be adjusted in the following year.

27. INCOME TAX

a. Income tax recognized in profit or loss

The major components of income tax were as follows:

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Current income tax				
In respect of the current year	$ 4,177,900	$ 4,979,766	$ 5,207,309	$ 170,118
Income tax on unappropriated earnings	829,345	1,076,353	(1,022,560)	(33,406)
Changes in estimate for prior years	28,160	(88,162)	(103,822)	(3,392)
	5,035,405	5,967,957	4,080,927	133,320
Deferred income tax				
In respect of the current year	574,541	534,472	(227,327)	(7,426)
Effect of tax rate changes	14,184	-	657,346	21,475
Changes in estimate for prior years	(206,788)	52,872	5,696	186
Effect of foreign currency exchange differences	(26,498)	(31,698)	(3,273)	(107)
	355,439	555,646	432,442	14,128
Income tax expense recognized in profit or loss	$ 5,390,844	$ 6,523,603	$ 4,513,369	$ 147,448

A reconciliation of income tax expense calculated at the statutory rates and income tax expense recognized in profit or loss was as follows:

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Profit before income tax	$ 27,968,705	$ 31,020,663	$ 31,937,678	$ 1,043,374
Income tax expense calculated at the statutory rates	$ 8,634,187	$ 10,890,498	$ 13,540,599	$ 442,359
Nontaxable expense (income) in determining taxable income	(34,954)	483,715	353,019	11,533
Tax-exempt income	(700,274)	(623,566)	(2,515,453)	(82,177)
Additional income tax on unappropriated earnings	829,345	1,076,353	(1,022,560)	(33,406)

(Continued)

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Loss carry-forward and income tax credits currently used	$ (898,700)	$ (1,124,043)	$ (971,124)	$ (31,726)
Remeasurement of deferred income tax assets, net	(2,797,673)	(4,131,473)	(4,776,271)	(156,036)
Changes in estimate for prior periods	28,160	(88,162)	(103,822)	(3,392)
Withholding tax	81,543	40,281	8,981	293
Land value increment tax	249,210	-	-	-
Income tax expense recognized in profit or loss	$ 5,390,844	$ 6,523,603	$ 4,513,369	$ 147,448

(Concluded)

For the years ended December 31, 2016 and 2017, the Group applied a tax rate of 17% for resident entities subject to the Income Tax Law of the R.O.C. In February 2018, the Income Tax Law of the R.O.C. was amended and the corporate income tax rate was adjusted from 17% to 20% effective in 2018. In addition, the rate of the corporate surtax applicable to 2018 unappropriated earnings is reduced from 10% to 5%. The subsidiaries located in China applied tax rate of 25%. For other jurisdictions, the Group measures taxes by using the applicable tax rate for each individual jurisdiction.

b. Income tax recognized directly in equity

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Deferred income tax				
Related to employee share options	$ (204)	$ 262	$ (1,099)	$ (36)

c. Income tax recognized in other comprehensive income

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Deferred income tax				
Related to remeasurement of defined benefit plans	$ 73,637	$ (51,217)	$ 55,346	$ 1,808
Effect of tax rate changes	-	-	70,755	2,312
Income tax recognized in other comprehensive income	$ 73,637	$ (51,217)	$ 126,101	$ 4,120

d. Current tax assets and liabilities

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Current tax assets			
Tax refund receivable	$ 28,458	$ 50,456	$ 1,648

(Continued)

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Prepaid income tax	$ 232,084	$ 473,807	$ 15,479
	$ 260,542	$ 524,263	$ 17,127
Current tax liabilities			
Income tax payable	$ 7,619,328	$ 6,781,136	$ 221,553

(Concluded)

e. Deferred tax assets and liabilities

The Group offset certain deferred tax assets and deferred tax liabilities which met the offset criteria.

The movements of deferred tax assets and deferred tax liabilities were as follows:

For the year ended December 31, 2016

	Balance at January 1	Recognized in Profit or Loss	Recognized in Other Comprehensive Income	Recognized in Equity	Exchange Differences	Acquisitions Through Business Combinations	Balance at December 31
	NT$	NT$	NT$	NT$	NT$	NT$	NT$
Deferred tax assets (liabilities)							
Temporary differences							
Property, plant and equipment	$ (3,504,458)	$ (182,291)	$ -	$ -	$ (72,098)	$ -	$ (3,758,847)
Defined benefit obligation	845,939	(48,601)	73,637	-	2,509	-	873,484
FVTPL financial instruments	(232,198)	212,737	-	-	(1,902)	-	(21,363)
Others	1,384,987	(283,179)	-	(204)	(21,780)	-	1,079,824
	(1,505,730)	(301,334)	73,637	(204)	(93,271)	-	(1,826,902)
Loss carry-forward	1,323,577	(110,967)	-	-	(91,008)	2,939	1,124,541
Investment credits	351,119	56,862	-	-	(25,245)	-	382,736
	$ 168,966	$ (355,439)	$ 73,637	$ (204)	$ (209,524)	$ 2,939	$ (319,625)

For the year ended December 31, 2017

	Balance at January 1	Recognized in Profit or Loss	Recognized in Other Comprehensive Income	Recognized in Equity	Exchange Differences	Acquisitions Through Business Combinations	Balance at December 31
	NT$	NT$	NT$	NT$	NT$	NT$	NT$
Deferred tax assets (liabilities)							
Temporary differences							
Property, plant and equipment	$ (3,758,847)	$ (101,576)	$ -	$ -	$ (18,643)	$ -	$ (3,879,066)
Defined benefit obligation	873,484	(26,736)	(51,217)	-	(15,291)	-	780,240
FVTPL financial instruments	(21,363)	(86,342)	-	-	2,802	-	(104,903)
Others	1,079,824	(22,748)	-	262	(28,929)	-	1,028,409
	(1,826,902)	(237,402)	(51,217)	262	(60,061)	-	(2,175,320)
Loss carry-forward	1,124,541	(456,246)	-	-	13,146	-	681,441
Investment credits	382,736	138,002	-	-	13,475	-	534,213
	$ (319,625)	$ (555,646)	$ (51,217)	$ 262	$ (33,440)	$ -	$ (959,666)

For the year ended December 31, 2018

	Balance at January 1	Adjustment on initial Application of IFRS 15	Recognized in Profit or Loss	Recognized in Other Comprehensive Income	Recognized in Equity	Exchange Differences	Acquisitions Through Business Combinations	Balance at December 31
	NT$	NT$	NT$	NT$	NT$	NT$	NT$	NT$
Deferred tax assets (liabilities)								
Temporary differences								
Property, plant and equipment	$(3,879,066)	$ -	$ (600,229)	$ -	$ -	$ (21,146)	$ (45,873)	$ (4,546,314)
Defined benefit obligation	780,240	-	(131,687)	126,101	-	27,884	262,286	1,064,824

(Continued)

	Balance at January 1	Adjustment on initial Application of IFRS 15	Recognized in Profit or Loss	Recognized in Other Comprehensive Income	Recognized in Equity	Exchange Differences	Acquisitions Through Business Combinations	Balance at December 31
	NT$	NT$	NT$	NT$	NT$	NT$	NT$	NT$
FVTPL financial instruments	$ (104,903)	$ -	$ 284,659	$ -	$ -	$ (137)	$ 27,402	$ 207,021
Others	1,028,409	(97,358)	(26,147)	-	(1,099)	74,327	294,540	1,272,672
	(2,175,320)	(97,358)	(473,404)	126,101	(1,099)	80,928	538,355	(2,001,797)
Loss carry-forward	681,441	-	(50,059)	-	-	28,293	12,600	672,275
Investment credits	534,213	-	91,021	-	-	5,932	-	631,166
	$ (959,666)	$ (97,358)	$ (432,442)	$ 126,101	$ (1,099)	$ 115,153	$ 550,955	$ (698,356)

(Concluded)

	Balance at January 1	Adjustment on initial Application of IFRS 15	Recognized in Profit or Loss	Recognized in Other Comprehensive Income	Recognized in Equity	Exchange Differences	Acquisitions Through Business Combinations	Balance at December 31
	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)
Deferred tax assets (liabilities)								
Temporary differences								
Property, plant and equipment	$ (126,726)	$ -	$ (19,609)	$ -	$ -	$ (691)	$ (1,499)	$ (148,525)
Defined benefit obligation	25,490	-	(4,302)	4,120	-	911	8,569	34,788
FVTPL financial instruments	(3,427)	-	9,300	-	-	(4)	895	6,764
Others	33,597	(3,181)	(854)	-	(36)	2,428	9,622	41,576
	(71,066)	(3,181)	(15,465)	4,120	(36)	2,644	17,587	(65,397)
Loss carry-forward	22,262	-	(1,635)	-	-	924	412	21,963
Investment credits	17,452	-	2,973	-	-	194	-	20,619
	$ (31,352)	$ (3,181)	$ (14,127)	$ 4,120	$ (36)	$ 3,762	$ 17,999	$ (22,815)

f. Items for which no deferred tax assets have been recognized for loss carry-forward, investment credits and deductible temporary differences

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Loss carry-forward	$ 542,054	$ 666,043	$ 21,759
Deductible temporary differences	712,141	332,255	10,854
	$ 1,254,195	$ 998,298	$ 32,613

The unrecognized loss carry-forward will expire through 2030.

g. Information about unused loss carry-forward, unused investment credits, tax-exemption and other tax relief

As of December 31, 2018, the unused loss carry-forward comprised of:

Expiry Year	NT$	US$ (Note 4)
2019	$ 163,916	$ 5,355
2020	290,460	9,489

(Continued)

Expiry Year	NT$	US$ (Note 4)
2021	$ 159,641	$ 5,215
2022	94,287	3,080
2023 and thereafter	630,015	20,582
	$ 1,338,319	$ 43,721

(Concluded)

As of December 31, 2018, unused investment credits comprised of:

Tax Credit Source	Remaining Creditable Amount NT$	Remaining Creditable Amount US$ (Note 4)	Expiry Year
Purchase of machinery and equipment	$ 590,694	$ 19,297	2022
Others	40,472	1,322	2023 and thereafter
	$ 631,166	$ 20,619	

As of December 31, 2018, profits attributable to the following expansion projects were exempted from income tax for a 5-year period:

	Tax-exemption Period
Construction and expansion of 2007 by ASE	2016.01-2020.12
Construction and expansion of 2008 by ASE	2014.01-2018.12
Construction and expansion of 2008 by ASE Test Inc.	2014.01-2018.12
Construction and expansion of 2009 by ASE Test Inc.	2018.01-2022.12
Construction and expansion of 2008 by ASE Electronics Inc.	2016.01-2020.12
Construction and expansion of 2007 by SPIL	2015.01-2019.12

Some China subsidiaries qualified as high technology enterprises were entitled to a reduced income tax rate of 15% and were eligible to deduct certain times of research and development expenses from their taxable income.

h. Unrecognized deferred tax liabilities associated with investments

As of December 31, 2017 and 2018, the taxable temporary differences associated with the investments in subsidiaries for which no deferred tax liabilities have been recognized were NT$16,401,422 thousand and NT$28,810,874 thousand (US$941,224 thousand), respectively.

i. Income tax assessments

The tax returns of the Company’s R.O.C. subsidiaries through 2014 to 2016 have been examined by the tax authorities.

28. EARNINGS PER SHARE

The earnings and weighted average number of ordinary shares outstanding in the computation of earnings per share were as follows:

Net profit for the year

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Profit for the year attributable to owners of the Company	$ 21,324,423	$ 22,819,119	$ 26,220,721	$ 856,606
Effect of potentially dilutive ordinary shares:				
From subsidiaries	(374,359)	(813,627)	(418,295)	(13,665)
From the investments in associates	(494,388)	(367,687)	-	-
From convertible bonds	(1,165,506)	93,781	-	-
Earnings used in the computation of diluted earnings per share	$ 19,290,170	$ 21,731,586	$ 25,802,426	$ 842,941

Weighted average number of ordinary shares outstanding (in thousand shares):

	For the Year Ended December 31				
	2016		2017		
	Before Retrospectively Adjusted	After Retrospectively Adjusted	Before Retrospectively Adjusted	After Retrospectively Adjusted	2018
Weighted average number of ordinary shares in the computation of basic earnings per share	7,662,870	3,831,435	8,160,887	4,080,443	4,245,247
Effect of potentially dilutive ordinary shares:					
From convertible bonds	515,295	257,648	124,911	62,456	-
From employee share options	59,218	29,609	39,868	19,934	5,103
From employees' compensation	46,746	23,373	43,574	21,787	779
Weighted average number of ordinary shares in computation of diluted earnings per share	8,284,129	4,142,065	8,369,240	4,184,620	4,251,129

For purposes of the ADS calculation, the denominator represents the aforementioned weighted average outstanding shares divided by 5 (one ADS represents 5 ordinary shares) for each of the two years in the period ended December 31, 2017 before retrospectively adjusted and by 2 (one ADS represents 2 ordinary shares) for each of the two years in the period ended December 31, 2017 after retrospectively adjusted and the year ended December 31, 2018, respectively. The numerator was the same.

The share exchange between the Company and ASE was deemed as an organization restructure under common control, and the earnings per share of prior periods were calculated based on weighted average number of ordinary shares outstanding retrospectively adjusted in accordance with share exchange ratio stated in the joint share exchange agreement.

The Group is able to settle the employees' compensation by cash or shares. The Group assumed that the entire amount of the compensation would be settled in shares and the resulting potential shares were included in the weighted average number of ordinary shares outstanding used in the computation of diluted earnings per share if the effect is dilutive. Such dilutive effect of the potential shares was included in the computation of diluted earnings per share until the shareholders approve the number of shares to be distributed to employees at their meeting in following year.

The third unsecured convertible overseas bonds issued by ASE were anti-dilutive for the year ended December 31, 2017 and were excluded from the computation of diluted earnings per share for the respective year.

29. SHARE-BASED PAYMENT ARRANGEMENTS

a. Employee share option plans of the Company

The Company's Option Plan

In order to attract, retain and reward employees, the Company has its employee share option plan for full-time employees of the Group and registered 150,000 thousand share options in 2018. Each share option represents the right to purchase one ordinary share of the Company when exercised. Under the terms of the plan, share options are granted at an exercise price equal to or not less than the closing price of the ordinary shares listed on the Taiwan Stock Exchange (the "TSE") at the issue date. The right of those share options granted under the plan is valid for 10 years, non-transferable and exercisable at certain percentages subsequent to the second anniversary of the grant date. For any subsequent changes in the Company's capital structure or when cash dividend per ordinary share exceeds 1.5% of the market price per ordinary share, the exercise price is accordingly adjusted.

ASE's Option Plans

ASE had five employee share option plans for the Group's full-time employees. Each share option represents the right to purchase one ordinary share of ASE when exercised. Under the terms of the plans, share options are granted at an exercise price equal to or not less than the closing price of the ordinary shares listed on the TSE at the issue date. The option rights of these plans are valid for 10 years, non-transferable and exercisable at certain percentages subsequent to the second anniversary of the grant date. For any subsequent changes in ASE's capital structure, the exercise price was accordingly adjusted. As disclosed in Note 1, the Company assumed ASE's obligations of outstanding employee share option plans starting from April 30, 2018 and each share option represents the right to purchase 0.5 ordinary share of the Company with all other terms and conditions held constant.

Information about share options for the years ended December 31, 2016 and 2017 and for the period from January 1, 2018 to April 29, 2018 was as follows:

	For the Year Ended December 31				For the Period from January 1, 2018 to April 29, 2018	
	2016		2017			
	Number of Options (In Thousands)	Weighted Average Exercise Price Per Share (NT$)	Number of Options (In Thousands)	Weighted Average Exercise Price Per Share (NT$)	Number of Options (In Thousands)	Weighted Average Exercise Price Per Share (NT$)
Balance, beginning of period	252,607	$26.6	210,795	$27.3	135,961	$30.2
Options forfeited	(6,056)	34.6	(5,407)	36.3	(1,692)	36.3
Options expired	-	-	(1,790)	21.1	-	-
Options exercised	(35,756)	20.9	(67,637)	21.0	(20,557)	26.0
Options transferred to the Company in accordance with the joint share exchange agreement	-	-	-	-	(113,712)	30.9
Balance, end of period	210,795	27.3	135,961	30.2	-	-
Options exercisable, end of period	123,007	20.8	85,642	26.5	-	-

Starting from April 30, 2018, information about the share option plans that the Company granted and assumed was as follows:

	For the Period from April 30, 2018 to December 31, 2018	
	Number of Options (In Thousands)	**Weighted Average Exercise Price Per Share (NT$)**
Balance, beginning of period	-	$ -
Transferred from ASE	56,856	61.7
Options granted	131,863	56.4
Options forfeited	(1,582)	71.5
Options exercised	(3,323)	43.6
Balance, end of period	183,814	58.1
Options exercisable, end of period	36,354	58.1
Fair value of options granted (NT$)	$ 16.28-19.12	

The weighted average share price at exercise dates of share options for each of the two years in the period ended December 31, 2017, the period from January 1, 2018 to April 29, 2018 and the period from April 30, 2018 to December 31, 2018 was NT$36.2, NT$37.6, NT$41.0 (US$1.3) and NT$68.5 (US$2.2), respectively. The options granted in 2007 were expired in December 2017 and, therefore, NT$47,087 thousand was reclassified from capital surplus arising from employee share options to capital surplus arising from expired share options.

Information about the outstanding share options that the Company granted and assumed at each balance sheet date was as follows:

	Range of Exercise Price Per Share (NT$)	**Weighted Average Remaining Contractual Life (Years)**
December 31, 2017		
ASE 4th share options	$20.4-22.6	2.5
ASE 5th share options	36.5	7.7
December 31, 2018		
ASE 4th share options	40.8-45.2	1.5
ASE 5th share options	73.0	6.7
The Company 1st share options	56.4	9.9

b. Employee share option plans of subsidiaries

ASE Mauritius Inc.'s Option Plan

ASE Mauritius Inc. has an employee share option plan for full-time employees of the Group which granted 30,000 thousand units in December 2007. Under the terms of the plan, each unit represents the right to purchase one ordinary share of ASE Mauritius Inc. when exercised. The option rights of the plan are valid for 10 years, non-transferable and exercisable at certain percentages subsequent to the second anniversary of the grant date. The option rights of the plan was expired in December 2017, of which shares had not been exercised and, therefore, NT$159,200 thousand was reclassified from non-controlling interest to capital surplus arising from expired employee share options.

Information about share options was as follows:

	For the Year Ended December 31			
	2016		2017	
	Number of Options (In Thousands)	Exercise Price Per Share (US$)	Number of Options (In Thousands)	Exercise Price Per Share (US$)
Balance at January 1	28,470	$1.7	28,470	$1.7
Options forfeited	-	-	(250)	1.7
Options expired	-	-	(28,220)	1.7
Balance at December 31	28,470	1.7	-	-
Options exercisable, end of year	28,470	1.7	-	-

USIE's Option Plan

The terms of the plans issued by USIE were the same with those option plans previously granted by ASE.

Information about share options was as follows:

	For the Year Ended December 31					
	2016		2017		2018	
	Number of Options (In Thousands)	Weighted Average Exercise Price Per Share (US$)	Number of Options (In Thousands)	Weighted Average Exercise Price Per Share (US$)	Number of Options (In Thousands)	Weighted Average Exercise Price Per Share (US$)
Balance at January 1	29,695	$2.1	25,933	$2.2	25,556	$2.2
Options exercised	(3,762)	2.0	(377)	1.9	(8,845)	2.2
Balance at December 31	25,933	2.2	25,556	2.2	16,711	2.1
Options exercisable, end of year	25,933	2.2	25,556	2.2	16,711	2.1

Information about USIE's outstanding share options at each balance sheet date was as follows:

	Range of Exercise Price Per Share (US$)	Weighted Average Remaining Contractual Life (Years)
December 31, 2017		
1st share options	$ 1.5	3.0
2nd and 3rd share options	2.4-2.9	2.9
December 31, 2018		
1st share options	1.5	2.0
2nd and 3rd share options	2.4-2.9	2.1

In 2017 and 2018, the Group's shareholdings of USIE decreased because USIE's share options had been exercised. The transaction was accounted for as an equity transaction since the Group did not cease to have control over USIE and, as a result, capital surplus was decreased by NT$52,388 thousand and NT$1,239,456 thousand (US$40,492 thousand) in 2017 and 2018, respectively.

USISH's Option Plans

Each unit represents the right to purchase one ordinary share of USISH when exercised. The options are valid for 10 years, non-transferable and exercisable at certain percentages subsequent to the second anniversary of the grant date incorporated with certain performance conditions. For any subsequent changes in USISH's capital structure, the exercise price is accordingly adjusted.

Information about share options was as follows:

	For the Year Ended December 31					
	2016		2017		2018	
	Number of Options (In Thousands)	Exercise Price Per Share (CNY)	Number of Options (In Thousands)	Exercise Price Per Share (CNY)	Number of Options (In Thousands)	Exercise Price Per Share (CNY)
Balance at January 1	26,627	$15.5	24,997	$15.5	22,341	$15.5
Options forfeited	(1,630)	15.5	(2,656)	15.5	(804)	15.5
Balance at December 31	24,997	15.5	22,341	15.5	21,537	15.5
Options exercisable, end of year	-	-	8,896	15.5	12,884	15.5

As of December 31, 2017 and 2018, the remaining contractual life of the share options were 7.9 years and 6.9 years, respectively.

For the years ended December 31, 2016, 2017 and 2018, employee benefits expense recognized on the aforementioned employee share option plans were NT$470,788 thousand, NT$354,765 thousand and NT$215,648 thousand (US$7,045 thousand), respectively.

c. New shares reserved for subscription by employees under cash capital increase

As disclosed in Note 25, the board of directors of ASE approved the cash capital increase in December 2016 and, as required under the Company Act in the R.O.C., simultaneously granted options to employees to purchase 10% of such newly issued shares. The grant of the options was accounted for as employee options, accordingly a share-based compensation, and was measured at fair value in accordance with IFRS 2. ASE recognized employee benefits expense and capital surplus arising from exercised employee share options of NT$84,000 thousand in full at the grant date (also the vested date), of which 4,836 thousand shares has not been exercised and, therefore, NT$13,541 thousand was reclassified from capital surplus arising from exercised employee share options to capital surplus arising from expired share options.

Information about ASE's employee share options related to the aforementioned newly issued shares was as follows:

	Number of Options (In Thousand)
Options granted for the year ended 2017	30,000
Options exercised for the year ended 2017	25,164
Fair value of options granted (NT$ per share)	$ 2.80

Fair value was measured using the Black-Scholes Option Pricing Model and the inputs to the model were as follows:

Share price at the grant date	NT$36.55 per share
Exercise price	NT$34.30 per share
Expected volatility	27.15%
Expected lives	47 days
Expected dividend yield	-
Risk free interest rate	0.37%

Expected volatility was based on ASE's historical share prices volatility.

d. Fair value of share options granted by the Company in 2018 were measured at the grant date by using the trinomial tree model, and the inputs to the model were as follows:

Share price at the grant date	NT$58.80 per share
Exercise price	NT$56.40 per share
Expected volatility	27.77%-28.86%
Expected lives	4.8 years-7.0 years
Expected dividend yield	-
Risk free interest rate	0.73%-0.80%

Expected volatility was based on the Company's and ASE's historical share prices volatility.

30. BUSINESS COMBINATIONS

Acquisition of TLJ

a. Subsidiary acquired

	Principal Activity	Date of Acquisition	Proportion of Voting Equity Interests Acquired	Cash Consideration NT$
TLJ	Engaged in information software services	May 3, 2016	60%	$ 89,998

In May 2016, the ASE's subsidiary, ASE Test, Inc., acquired 60% shareholdings of TLJ with a total consideration determined primarily based on independent professional appraisal reports. NT$41,739 thousand out of the total consideration was paid to key management personnel and related parties.

b. Assets acquired and liabilities assumed at the date of acquisition

	NT$
Current assets	$ 16,645
Non-current assets	108,486
Current liabilities	(7,599)
Fair value of identifiable net assets acquired	$ 117,532

c. Goodwill recognized on acquisition

	NT$
Consideration transferred (paid in cash)	$ 89,998
Add: Non-controlling interests	42,857
Less: Fair value of identifiable net assets acquired	(117,532)
Goodwill recognized on acquisition	$ 15,323

The non-controlling interest recognized at the acquisition date was measured at its fair value.

The goodwill recognized mainly represents the control premium. In addition, the consideration paid for the acquisition effectively included amounts attributed to the benefits of expected revenue growth and future market development of TLJ. These benefits are not recognized separately from goodwill because they do not meet the recognition criteria for identifiable intangible assets.

The goodwill recognized on acquisition is not expected to be deductible for tax purpose.

d. Net cash outflow on acquisition of subsidiaries

	NT$
Consideration paid in cash	$ 89,998
Less: Cash acquired	(16,561)
	$ 73,437

Acquisition of SPIL

a. Subsidiaries acquired

Subsidiary	Principal Activity	Date of Acquisition	Proportion of Voting Equity Interests Acquired (%)	Consideration Transferred	
				NT$	US$ (Note 4)
SPIL	Engaged in the assembly, testing and turnkey services of integrated circuits.	April 30, 2018	100%	$168,440,585	$ 5,502,796

As disclosed in Note 1, the Company acquired 100% shareholdings of SPIL at NT$51.2 (US$1.7) in cash per SPIL's ordinary share in accordance with the joint share exchange agreements between ASE and SPIL.

b. Assets acquired and liabilities assumed at the date of acquisition

	NT$	US$ (Note 4)
Assets		
Cash and cash equivalents	$ 20,088,970	$ 656,288
Trade and other receivables	15,840,649	517,499
Inventories	5,693,644	186,006

(Continued)

	NT$	US$ (Note 4)
Property, plant and equipment	$ 81,985,622	$ 2,678,393
Intangible assets	31,354,386	1,024,318
Others	24,945,922	814,960
Liabilities		
Trade and other payables	(19,755,598)	(645,396)
Borrowings and bonds payables	(24,157,174)	(789,192)
Others	(3,963,201)	(129,474)
Fair value of identifiable net assets acquired	$ 132,033,220	$ 4,313,402

(Concluded)

c. Goodwill recognized on acquisitions

	NT$	US$ (Note 4)
Total consideration	$ 168,440,585	$ 5,502,796
Add: Non-controlling interests	3,582,866	117,049
Less: Fair value of identifiable net assets acquired	(132,033,220)	(4,313,402)
Goodwill recognized on acquisition	$ 39,990,231	$ 1,306,443

The fair value of non-controlling interests were determined using market approach based on the valuation multiples of comparable companies and the discount rate for lack of marketability. The significant unobservable inputs is the discount rate for lack of marketability of 25%.

The goodwill recognized in the acquisition of SPIL mainly represents the control premium included in the cost of the combination. In addition, the consideration paid for the combination effectively included amounts attributed to the benefits of expected synergies, revenue growth and future market development of SPIL. These benefits are not recognized separately from goodwill because they do not meet the recognition criteria for identifiable intangible assets.

The goodwill recognized on acquisition is not expected to be deductible for tax purpose.

d. Net cash outflow on acquisition of subsidiaries

	NT$	US$ (Note 4)
Total consideration	$ 168,440,585	$ 5,502,796
Less: Payable for consideration representing the ordinary shares originally held by ASE	(53,109,760)	(1,735,046)
Less: Cash and cash equivalent acquired	(20,088,970)	(656,288)
	$ 95,241,855	$ 3,111,462

e. Impact of acquisitions on the results of the Group

As of December 31, 2018, the results of operations from SPIL since the acquisition date were included in the consolidated statements of comprehensive income and were as follows:

	NT$	US$ (Note 4)
Operating revenue	$ 61,247,727	$ 2,000,906
Profit	$ 7,627,382	$ 249,179

Had these business combinations been in effect at the beginning of the annual reporting period and the investments in SPIL originally accounted for using the equity method, as disclosed in Note 15, been remeasured to their fair value on January 1, 2018, the Group's operating revenue for the year ended December 31, 2018 would have been NT$397,261,461 thousand (US$12,978,159 thousand), and profit for the year ended December 31, 2018 would have been NT$25,674,641 thousand (US$838,766 thousand), respectively. This pro forma information is for illustrative purposes only and is not necessarily an indication of the operating revenue and results of operations of the Group that actually would have been achieved had the acquisition been completed on January 1, 2018, nor is it intended to be a projection of future results.

In determining the pro forma operating revenue and profit of the Company had SPIL been acquired at the beginning of the current reporting period, the management:

1) Calculated the depreciation of property, plant and equipment and the amortization of intangible assets acquired on the basis of the fair values at the initial accounting for the business combination rather than the carrying amounts recognized in the respective pre-acquisition financial statements; and

2) Calculated borrowing costs based on the funding status, credit ratings and debt/equity ratios of the Group after the business combination.

31. DISPOSAL OF SUBSIDIARIES

The Group disposed of its subsidiary, Kun Shan Ding Yue Real Estate Development Co., Ltd. ("KSDY"), in June 2017 and, as a result, the Group lost its control over KSDY.

a. Gain on disposal of subsidiaries

	NT$
Total consideration	$ 7,046,464
Net assets disposed of	(1,457,007)
Gain on disposal of KSDY	$ 5,589,457

b. Analysis of assets and liabilities on the date control was lost

	NT$
Current assets	
Cash and cash equivalents	$ 29,133
Inventories related to real estate business	1,427,874
Net assets disposed of	$ 1,457,007

32. EQUITY TRANSACTION WITH NON-CONTROLLING INTERESTS

In February 2016, USIE repurchased its own 4,501 thousand outstanding ordinary shares and, as a result, the Group's shareholdings of USIE increased from 96.7% to 98.8%. The transaction was accounted for as an equity transaction since the Group did not cease to have control over USIE and capital surplus was decreased by NT$1,912,887 thousand in 2016.

In February 2016, the Company disposed 39,603 thousand shares in USI to the Company's subsidiary, UGTW, at NT$20 per share with a total consideration of NT$792,064 thousand and, as a result, the Group's shareholdings of USI decreased from 99.0% to 76.5%. The transaction was accounted for as an equity transaction since the Group did not cease to have control over USI and capital surplus was decreased by NT$20,552 thousand in 2016.

In January 2017, USI completed its cash capital increase of NT$1,000,000 thousand and the Group's shareholdings of USI increased from 75.2% to 75.7% since the Group did not proportionally subscribe for additional new shares. The transaction was accounted for as an equity transaction since the transaction did not change the Company's control over USI and capital surplus was increased by NT$3,055 thousand in 2017.

In January 2018, the shareholders' meeting of USIE resolved to repurchase its own outstanding 3,738 thousand ordinary shares at US$17.49 per share and, as a result, the Group's shareholdings of USIE increased from 96.9% to 98.6%. The transaction was accounted for as an equity transaction since the transaction did not change the Company's control over USIE and capital surplus was decreased by NT$1,127,632 thousand (US$36,839 thousand) in the first quarter of 2018. In February 2018, the board of directors of USIE resolved February 26, 2018 was the record date for capital reduction and then the repurchased ordinary shares were subsequently cancelled.

In March 2018, ASE's board of directors resolved to sign the shares transfer agreement by its subsidiary, J&R Holding, for acquiring shares of ASEN from NXP B.V. at US$127,113 thousand (NT$3,871,862 thousand). As a result, the percentage of ownership in ASEN was increased from 60% to 100%. The transaction was accounted for as an equity transaction since the transaction did not change the Company's control over ASEN and capital surplus was decreased by NT$1,737,315 thousand (US$56,756 thousand) in the third quarter of 2018.

In August 2018, J&R Holding's board of directors further resolved to sell 30% shareholdings of ASEN to Tsinghua Unigroup Ltd. at US$95,335 thousand. As a result, the Group's shareholdings of ASEN was decreased from 100% to 70%. The transaction was accounted for as an equity transaction since the Group also did not cease to have control over ASEN and capital surplus was increased by NT$1,114,504 thousand (US$36,410 thousand) in the fourth quarter of 2018.

In July 2018, ASE and UGTW's board of directors have approved to acquire the outstanding ordinary shares of USIINC and USI at NT$35 (US$1.1) and NT$18 (US$0.6) per ordinary shares, respectively. ASE and UGTW also purchased the ordinary shares from dissenting shareholders in August 2018 and recognized an increase in capital surplus by NT$9,530 thousand (US$311 thousand). ASE has completed the acquisition of USIINC's remaining outstanding ordinary shares and recognized a decrease in capital surplus by NT$28,152 thousand (US$920 thousand).

33. CASH FLOWS INFORMATION

a. Non-cash investing activities

In addition to Notes 22, 25 and 30, the Group entered into the following non-cash investing activities which were not reflected in the consolidated statements of cash flows for the years ended December 31, 2016, 2017 and 2018:

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Payments for property, plant and equipment				
Purchase of property, plant and equipment	$ 27,680,862	$ 23,677,682	$ 39,092,238	$ 1,277,107

(Continued)

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Increase (decrease) in prepayments for property, plant and equipment	$ (89,337)	$ 90,560	$ 402,255	$ 13,141
Decrease (increase) in payables for property, plant and equipment	(823,171)	982,260	1,942,259	63,452
Capitalized borrowing costs	(54,191)	(51,262)	(50,309)	(1,643)
	$ 26,714,163	$ 24,699,240	$ 41,386,443	$ 1,352,057
Proceeds from disposal of property, plant and equipment				
Consideration from disposal of property, plant and equipment	$ 692,826	$ 1,487,334	$ 1,133,435	$ 37,028
Decrease (increase) in other receivables	(22,626)	876	(5,791)	(189)
	$ 670,200	$ 1,488,210	$ 1,127,644	$ 36,839
Payments for investment properties				
Purchase of investment properties	$ -	$ 186,535	$ 125,853	$ 4,112
Capitalized borrowing costs	-	(13)	(89)	(3)
	$ -	$ 186,522	$ 125,764	$ 4,109
Payments for other intangible assets				
Purchase of other intangible assets	$ 675,144	$ 277,825	$ 537,659	$ 17,565
Decrease (increase) in other payables	(120,938)	60,159	40,106	1,310
Increase in other non-current liabilities	(40,313)	-	-	-
	$ 513,893	$ 337,984	$ 577,765	$ 18,875
Net cash inflow from disposal of subsidiaries				
Consideration from disposal of subsidiaries	$ -	$ 7,046,464	$ -	$ -
Increase in other payables	-	3,552	-	-
Cash and cash equivalents disposed of	-	(29,133)	-	-
	$ -	$ 7,020,883	$ -	$ -

(Concluded)

b. Changes in liabilities arising from financing activities

For the year ended December 31, 2017

	Short-term borrowings NT$	Bonds payable NT$	Long-term borrowings NT$	Total NT$
Balance at January 1, 2017	$ 20,955,522	$ 36,999,903	$ 53,115,563	$111,070,988
Financing cash flows	(2,038,993)	(1,123,972)	(16,473,381)	(19,636,346)
Non-cash changes				
Bonds conversion	-	(11,650,369)	-	(11,650,369)
Amortization of issuance cost	-	319,463	5,790	325,253
Effects of exchange rate change	(954,058)	(1,402,245)	(1,241,344)	(3,597,647)
Balance at December 31, 2017	$ 17,962,471	$ 23,142,780	$ 35,406,628	$ 76,511,879

For the year ended December 31, 2018

	Short-term borrowings NT$	Bonds payable NT$	Long-term borrowings NT$	Total NT$
Balance at January 1, 2018	$ 17,962,471	$ 23,142,780	$ 35,406,628	$ 76,511,879
Financing cash flows	22,327,813	(6,185,600)	85,510,959	101,653,172
Non-cash changes				
Acquisition through business combinations (Note 30)	3,619,858	4,457,191	16,080,125	24,157,174
Bonds conversion	-	(4,457,191)	-	(4,457,191)
Reclassification for applying IFRS 9	(1,301,994)	-	-	(1,301,994)
Amortization of issuance cost	-	28,756	188,217	216,973
Effects of foreign currency exchange	655,321	-	712,400	1,367,721
Balance at December 31, 2018	$ 43,263,469	$ 16,985,936	$137,898,329	$198,147,734

	Short-term borrowings US$ (Note 4)	Bonds payable US$ (Note 4)	Long-term borrowings US$ (Note 4)	Total US$ (Note 4)
Balance at January 1, 2018	$ 586,817	$ 756,053	$ 1,156,701	$ 2,499,571
Financing cash flows	729,429	(202,078)	2,793,563	3,320,914
Non-cash changes				
Acquisition through business combinations (Note 30)	118,257	145,612	525,323	789,192
Bonds conversion	-	(145,612)	-	(145,612)
Reclassification for applying IFRS 9	(42,535)	-	-	(42,535)
Amortization of issuance cost	-	940	6,149	7,089
Effects of foreign currency exchange	21,409	-	23,273	44,682
Balance at December 31, 2018	$ 1,413,377	$ 554,915	$ 4,505,009	$ 6,473,301

34. OPERATING LEASE ARRANGEMENTS

a. The Group as lessee

In addition to those disclosed in Note 20, the Company and some of its subsidiary located in R.O.C. lease the land on which their buildings are located under various operating lease agreements with the R.O.C. government expiring through January 2037. The agreements grant these entities the option to renew the leases and reserve the right for the lessor to adjust the lease payments upon an increase in the assessed value of the land and to terminate the leases under certain conditions. In addition, the Group leases buildings, machinery and equipment under operating leases.

The subsidiaries' offices located in U.S.A. and Japan, etc. are leased from third parties and the lease terms will expire through 2019 to 2028 with the option to renew the leases upon expiration.

The Group recognized rental expense of NT$1,411,533 thousand, NT$1,193,477 thousand and NT$ 1,593,315 thousand (US$52,052 thousand) for the years ended December 31, 2016, 2017 and 2018, respectively, from the aforementioned operating lease arrangements and the land use rights disclosed in Note 20.

The future minimum lease payments of non-cancellable operating lease agreements were as follows:

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Less than 1 year	$ 246,026	$ 509,994	$ 16,661
1-5 years	439,408	828,482	27,066
More than 5 years	419,232	1,047,626	34,225
	$ 1,104,666	$ 2,386,102	$ 77,952

b. The Group as lessor

The Group leased out the investment properties under operating lease with leasing periods from 1 to 15 years. The Group granted lessees the option to renew the lease upon expiration and without bargain purchase.

The future minimum lease payments of non-cancellable operating lease agreements were as follows:

	December 31, 2018	
	NT$	US$ (Note 4)
Less than 1 year	$ 916,891	$ 29,954
1-5 years	2,391,843	78,139
More than 5 years	1,157,093	37,801
	$ 4,465,827	$ 145,894

35. CAPITAL MANAGEMENT

The capital structure of the Group consists of debt and equity. The Group manages its capital to ensure that entities in the Group will be able to continue as going concerns while maximizing the return to shareholders through the optimization of the debt and equity balance. Key management personnel of the Group periodically reviews the cost of capital and the risks associated with each class of capital. In order to balance the overall capital structure, the Group may adjust the amount of dividends paid to shareholders, the number of new shares issued or repurchased, and the amount of new debt issued or existing debt redeemed.

The Group is not subject to any externally imposed capital requirements except those discussed in Note 21.

36. FINANCIAL INSTRUMENTS

a. Fair value of financial instruments that are not measured at fair value

1) Fair value of financial instruments not measured at fair value but for which fair value is disclosed

Except bonds payable measured at amortized cost, the management considered that the carrying amounts of financial assets and financial liabilities not measured at fair value approximate their fair values. The carrying amounts and fair value of bonds payable as of December 31, 2017 and 2018, respectively, were as follows:

	Carrying Amount		Fair Value	
	NT$	US$ (Note 4)	NT$	US$ (Note 4)
December 31, 2017	$ 23,142,780		$ 23,247,085	
December 31, 2018	16,985,936	$ 554,915	17,126,752	$ 559,515

2) Fair value hierarchy

The aforementioned fair value hierarchy of bonds payable was Level 3 which was determined based on discounted cash flow analysis with the applicable yield curve for the duration or the latest trading prices. The significant unobservable inputs is discount rates that reflected the credit risk of various counterparties and the latest trading prices.

b. Fair value of financial instruments that are measured at fair value on a recurring basis

1) Fair value hierarchy

	Level 1	Level 2	Level 3	Total
	NT$	NT$	NT$	NT$
December 31, 2017				
Financial assets at FVTPL				
Financial assets designated as at FVTPL				
Private-placement convertible bonds	$ -	$ 100,496	$ -	$ 100,496
Derivative financial assets				
Forward exchange contracts	-	61,325	-	61,325
Swap contracts	-	60,538	-	60,538
Non-derivative financial assets held for trading				
Quoted ordinary shares	4,410,732	-	-	4,410,732
Open-end mutual funds	589,976	-	-	589,976
	$ 5,000,708	$ 222,359	$ -	$ 5,223,067
Available-for-sale financial assets				
Unquoted ordinary shares	$ -	$ -	$ 662,477	$ 662,477
Limited Partnership	-	-	246,072	246,072
Quoted ordinary shares	279,791	-	-	279,791
Open-end mutual funds	23,825	-	-	23,825
	$ 303,616	$ -	$ 908,549	$ 1,212,165

(Continued)

	Level 1	Level 2	Level 3	Total
	NT$	NT$	NT$	NT$
Financial liabilities at FVTPL				
Derivative financial liabilities				
Swap contracts	$ -	$ 652,107	$ -	$ 652,107
Forward exchange contracts	-	25,323	-	25,323
	$ -	$ 677,430	$ -	$ 677,430

(Concluded)

	Level 1		Level 2		Level 3		Total	
	NT$	US$ (Note 4)	NT$	US$ (Note 4)	NT$	US$ (Note 4)	NT$	US$ (Note 4)
December 31, 2018								
Financial assets at FVTPL								
Derivative financial assets								
Swap contracts	$ -	$ -	$ 1,557,714	$ 50,889	$ -	$ -	$ 1,557,714	$ 50,889
Forward exchange contracts	-	-	32,070	1,048	-	-	32,070	1,048
Non-derivative financial assets								
Quoted ordinary shares	5,151,255	168,287	-	-	-	-	5,151,255	168,287
Open-end mutual funds	581,800	19,007	-	-	-	-	581,800	19,007
Unquoted preferred shares	-	-	-	-	275,000	8,984	275,000	8,984
Private-placement funds	-	-	-	-	200,123	6,537	200,123	6,537
Hybrid financial assets								
Private-placement convertible bonds	-	-	100,496	3,283	-	-	100,496	3,283
	$ 5,733,055	$ 187,294	$ 1,690,280	$ 55,220	$ 475,123	$ 15,521	$ 7,898,458	$ 258,035
Financial assets at FVTOCI								
Investments in equity instruments								
Unquoted shares	$ -	$ -	$ -	$ -	$ 540,730	$ 17,665	$ 540,730	$ 17,665
Limited partnership	-	-	-	-	39,669	1,296	39,669	1,296
Investments in debt instruments								
Unsecured subordinate corporate bonds	-	-	-	-	1,016,924	33,222	1,016,924	33,222
	$ -	$ -	$ -	$ -	$ 1,597,323	$ 52,183	$ 1,597,323	$ 52,183
Financial liabilities at FVTPL								
Derivative financial liabilities								
Swap contracts	$ -	$ -	$ 29,058	$ 949	$ -	$ -	$ 29,058	$ 949
Forward exchange contracts	-	-	7,597	248	-	-	7,597	248
	$ -	$ -	$ 36,655	$ 1,197	$ -	$ -	$ 36,655	$ 1,197

For the financial assets and liabilities that were measured at fair value on a recurring basis held for the years ended December 31, 2017 and 2018, there were no transfers between Level 1 and Level 2 of the fair value hierarchy.

2) Reconciliation of Level 3 fair value measurements of financial assets

For the years ended December 31, 2016 and 2017

	For the Year Ended December 31	
	2016	2017
	NT$	NT$
Balance at January 1	$ 741,089	$ 904,790
Purchases	495,928	2,649
Total gain or loss		
In profit or loss	(100,734)	28
In other comprehensive income	(202,565)	17,284
Disposals	(28,928)	(16,202)
Balance at December 31	$ 904,790	$ 908,549

For the year ended December 31, 2018

Financial Assets	FVTPL		FVTOCI				Total	
	Equity Instruments		Equity Instruments		Debt Instruments			
	NT$	US$ (Note 4)	NT$	US$ (Note 4)	NT$	US$ (Note 4)	NT$	US$ (Note 4)
Balance at January 1(Note 3)	$ -	$ -	$ 908,549	$ 29,681	$1,080,000	$ 35,283	$ 1,988,549	$ 64,964
Recognized in profit or loss	(2,313)	(76)	-	-	-	-	(2,313)	(76)
Recognized in other comprehensive income (included in unrealized losses on financial assets at FVTOCI)	-	-	(224,172)	(7,323)	(63,076)	(2,061)	(287,248)	(9,384)
Purchases	477,436	15,597	105,000	3,430	-	-	582,436	19,027
Disposals	-	-	(208,978)	(6,827)	-	-	(208,978)	(6,827)
Balance at December 31	$ 475,123	$ 15,521	$ 580,399	$ 18,961	$ 1,016,924	$ 33,222	$ 2,072,446	$ 67,704

3) Valuation techniques and assumptions applied for the purpose of measuring fair value

a) Valuation techniques and inputs applied for the purpose of measuring Level 2 fair value measurement

Financial Instruments	Valuation Techniques and Inputs
Derivatives - swap contracts and forward exchange contracts	Discounted cash flows - Future cash flows are estimated based on observable forward exchange rates at balance sheet dates and contract forward exchange rates, discounted at rates that reflected the credit risk of various counterparties.
Private-placement convertible bonds	Discounted cash flows - Future cash flows are estimated based on observable stock prices at balance sheet dates and contract conversion prices, discounted at rates that reflected the credit risk of various counterparties.

b) Valuation techniques and inputs applied for the purpose of measuring Level 3 fair value measurement

The fair value of unquoted ordinary shares and private-placement funds were determined using market approach and asset-based approach. The significant unobservable inputs is the discount for lack of marketability of 20% to 30%. If the discount for lack of marketability to the valuation model were increased by 1% to reflect reasonably possible alternative assumptions while all the other variables were held constant, the fair value of unquoted shares would have decreased approximately by NT$7,700 thousand (US$252 thousand).

The fair values of investments in limited partnership are measured by estimating future cash inflows from disposal (net of transaction cost).

The fair values of the unsecured subordinate corporate bonds were determined using income approach based on a discounted cash flow analysis. The significant unobservable input is the discount rate that reflects the credit risk of the counterparty. If the discount rate was increased by 0.1% while all the other variables were held constant, the fair value of the bonds would have decreased approximately by NT$7,000 thousand (US$229 thousand).

c. Categories of financial instruments

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Financial assets			
FVTPL			
Designated as at FVTPL	$ 100,496	$ -	$ -
Held for trading	5,122,571	-	-
Mandatorily at FVTPL	-	7,898,458	258,035
Available-for-sale financial assets	1,212,165	-	-
Loans and receivables (Note 1)	103,973,567	-	-
Measured at amortized cost (Note 1)	-	139,866,736	4,569,314
FVTOCI			
Equity instruments	-	580,399	18,961
Debt instruments	-	1,016,924	33,222
Financial liabilities			
FVTPL			
Held for trading	677,430	36,655	1,197
Financial liabilities for hedging	-	3,899,634	127,397
Measured at amortized cost (Note 2)	139,561,999	286,035,732	9,344,520

Note 1: The balances included financial assets measured at amortized cost which comprise cash and cash equivalents, trade and other receivables and other financial assets.

Note 2: The balances included financial liabilities measured at amortized cost which comprise short-term borrowings, trade and other payables, bonds payable and long-term borrowings.

d. Financial risk management objectives and policies

The derivative instruments used by the Group are to mitigate risks arising from ordinary business operations. All derivative transactions entered into by the Group are designated as either hedging or trading. Derivative transactions entered into for hedging purposes must hedge risk against fluctuations in foreign exchange rates and interest rates arising from operating activities. The currencies and the amount of derivative instruments held by the Group must match its hedged assets and liabilities denominated in foreign currencies.

The Group's risk management department monitors risks to mitigate risk exposures, reports unsettled position, transaction balances and related gains or losses to the Group's chief financial officer on monthly basis.

1) Market risk

The Group's activities exposed it primarily to the financial risks of changes in foreign currency exchange rates and interest rates. Gains or losses arising from fluctuations in foreign currency exchange rates of a variety of derivative financial instruments were approximately offset by those of hedged items. Interest rate risk was not significant due to the cost of capital was expected to be fixed.

There had been no change to the Group's exposure to market risks or the manner in which these risks were managed and measured.

a) Foreign currency exchange rate risk

The Group had sales and purchases as well as financing activities denominated in foreign currency which exposed the Group to foreign currency exchange rate risk. The Group entered into a variety of derivative financial instruments to hedge foreign currency exchange rate risk to minimize the fluctuations of assets and liabilities denominated in foreign currencies.

The carrying amounts of the Group's foreign currency denominated monetary assets and liabilities (including those eliminated upon consolidation) as well as derivative instruments which exposed the Group to foreign currency exchange rate risk at each balance sheet date are presented in Note 40.

The Group was principally subject to the impact to exchange rate fluctuation in US$ and JPY against NT$ or CNY. 1% is the sensitivity rate used when reporting foreign currency exchange rate risk internally to key management personnel and represents management's assessment of the reasonably possible change in foreign currency exchange rates. The sensitivity analysis included financial assets and liabilities and inter-company receivables and payables within the Group. The changes in profit before income tax due to a 1% change in U.S. dollars and Japanese yen both against NT$ and CNY would be NT$69,000 thousand, NT$101,000 thousand and NT$129,000 thousand (US$4,214 thousand) for the years ended December 31, 2016, 2017 and 2018, respectively. Hedging contracts and hedged items have been taken into account while measuring the changes in profit before income tax. The abovementioned sensitivity analysis mainly focused on the foreign currency monetary items at the end of the year. As the year-end exposure did not reflect the exposure for the years ended December 31, 2016, 2017 and 2018, the abovementioned sensitivity analysis was unrepresentative of those years.

<u>Hedge accounting-2018</u>

The Group's hedging strategy is to lift foreign currency borrowings to avoid 100% exchange rate exposure of its foreign currency equity instruments, which is designated as fair value hedges. Hedge adjustments are made when the foreign currency equity instruments were evaluated based on the exchange rates on each balance sheet date, the foreign exchange gains (losses) will be totally offset.

The source of hedge ineffectiveness in these hedging relationships is the material difference between the notional amounts of foreign currency borrowings and foreign currency equity instruments. No other sources of ineffectiveness is expected to emerge from these hedging relationships.

b) Interest rate risk

Except a portion of long-term borrowings and bonds payable at fixed interest rates, the Group was exposed to interest rate risk because group entities borrowed funds at floating interest rates. Changes in market interest rates will lead to variances in effective interest rates of borrowings from which the future cash flow fluctuations arise. The Group uses financing tool with low interest rate and favorable term so as to maintain low financing cost, adequate banking facilities, as well as to hedge interest rate risk.

The carrying amounts of the Group's financial assets and financial liabilities with exposure to interest rates at each balance sheet date were as follows:

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Fair value interest rate risk			
Financial liabilities	$ 17,552,955	$ 17,485,561	$ 571,237
Cash flow interest rate risk			
Financial assets	39,880,736	32,942,747	1,076,209
Financial liabilities	42,270,321	172,737,393	5,643,169

For assets and liabilities with floating interest rates, a 100 basis point increase or decrease was used when reporting interest rate risk internally to key management personnel. If interest rates had been 100 basis points (1%) higher or lower and all other variables held constant, the Group's profit before income tax for the years ended December 31, 2016, 2017 and 2018 would have decreased or increased approximately by NT$358,000 thousand, NT$24,000 thousand and NT$1,398,000 thousand (US$45,671 thousand), respectively. Hedging contracts and hedged items have been taken into account while measuring the changes in profit before income tax. The abovementioned sensitivity analysis mainly focused on the interest rate items at the end of the reporting period. As the year-end exposure did not reflect the exposure for the years ended December 31, 2016, 2017 and 2018, the abovementioned sensitivity analysis was unrepresentative of those periods.

c) Other price risk

The Group was exposed to equity or bond price risk through its investments in financial assets at FVTPL (included quoted ordinary shares, open-end mutual funds, unquoted preferred shares, private-placement funds and private-placement convertible bonds) and financial assets at FVTOCI for the year ended December 31, 2018. If equity and bond prices were 1% higher or lower, profit before income tax for the year ended December 31, 2018 would have increased or decreased approximately by NT$64,000 thousand (US$2,091 thousand) and other comprehensive income before income tax for the year ended December 31, 2018 would have increased or decreased approximately by NT$16,000 thousand (US$523 thousand).

ASE and its subsidiaries were exposed to equity or debt price risk through its investments in financial assets at FVTPL (including private-placement convertible bonds, quoted shares and open-end mutual funds) and available-for-sale financial assets for the years ended December 31, 2016 and 2017. If equity or debt prices were 1% higher or lower, profit before income tax for the years ended December 31, 2016 and 2017 would have increased or decreased approximately by NT$26,000 thousand and NT$52,000 thousand, respectively, and other comprehensive income before income tax for the years ended December 31, 2016 and 2017 would have both increased or decreased approximately by NT$13,000 thousand.

In addition, ASE was also exposed to its ordinary share price risk through conversion option, redemption option and put option of Bonds which was recognized as financial liabilities held for trading as of December 31, 2016. 7% is the sensitivity rate used when reporting price risk internally to key management personnel. If the ASE's ordinary share price increased or decreased by 7%, profit before income tax for the year ended December 31, 2016 would have decreased approximately by NT$510,000 thousand or increased approximately by NT$445,000 thousand.

2) Credit risk

Credit risk refers to the risk that counterparty will default on its contractual obligations resulting in financial loss to the Group. The Group's credit risk arises from cash and cash equivalents, trade and other receivables and other financial assets. The Group's maximum exposure to credit risk was the carrying amounts of financial assets in the consolidated balance sheets.

As of December 31, 2017 and 2018, the Group's five largest customers accounted for 33% and 36% of trade receivables, respectively. The Group transacts with a large number of unrelated customers and, thus, no concentration of credit risk was observed.

3) Liquidity risk

The Group manages liquidity risk by maintaining adequate working capital and banking facilities to fulfill the demand for cash flow used in the Group's operation and capital expenditure. The Group also monitors its compliance with all the loan covenants. Liquidity risk is not considered to be significant.

In the table below, financial liabilities with a repayment on demand clause were included in the earliest time band regardless of the probability of counter-parties choosing to exercise their rights. The maturity dates for other non-derivative financial liabilities were based on the agreed repayment dates.

To the extent that interest flows are floating rate, the undiscounted amounts were derived from the interest rates at each balance sheet date.

	On Demand or Less than 1 Month	1 to 3 Months	3 Months to 1 Year	1 to 5 Years	More than 5 Years
	NT$	NT$	NT$	NT$	NT$
December 31, 2017					
Non-derivative financial liabilities					
Non-interest bearing	$ 30,695,797	$ 18,387,296	$ 4,549,468	$ 2,807	$ 176,199
Floating interest rate liabilities	6,641,541	4,153,830	5,101,178	27,196,245	900,310
Fixed interest rate liabilities	8,522,765	7,526,270	1,526,449	11,902,335	6,462,396
	$ 45,860,103	$ 30,067,396	$ 11,177,095	$ 39,101,387	$ 7,538,905
December 31, 2018					
Non-derivative financial liabilities					
Non-interest bearing	$ 33,156,044	$ 34,493,000	$ 6,899,093	$ 57,375	$ 196,523
Floating interest rate liabilities	15,762,004	7,127,606	25,510,718	131,014,040	-
Fixed interest rate liabilities	7,677,097	4,811,536	242,461	13,621,814	4,367,546
	$ 56,595,145	$ 46,432,142	$ 32,652,272	$144,693,229	$ 4,564,069

	On Demand or Less than 1 Month	1 to 3 Months	3 Months to 1 Year	1 to 5 Years	More than 5 Years
	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)
December 31, 2018					
Non-derivative financial liabilities					
Non-interest bearing	$ 1,083,177	$ 1,126,854	$ 225,387	$ 1,874	$ 6,420
Floating interest rate liabilities	514,930	232,852	833,411	4,280,106	-
Fixed interest rate liabilities	250,804	157,188	7,921	445,012	142,684
	$ 1,848,911	$ 1,516,894	$ 1,066,719	$ 4,726,992	$ 149,104

The amounts included above for floating interest rate instruments for non-derivative financial liabilities was subject to change if changes in floating interest rates differ from those estimates of interest rates determined at each balance sheet date.

The following table detailed the Group's liquidity analysis for its derivative financial instruments. The table was based on the undiscounted contractual net cash inflows and outflows on derivative instruments that settle on a net basis, and the undiscounted gross cash inflows and outflows on those derivatives that require gross settlement. When the amounts payable or receivable are not fixed, the amounts disclosed have been determined by reference to the projected interest rates as illustrated by the yield curves at each balance sheet date.

	On Demand or Less than 1 Month	1 to 3 Months	3 Months to 1 Year
	NT$	NT$	NT$
December 31, 2017			
Net settled			
Forward exchange contracts	$ (8,820)	$ -	$ -
Gross settled			
Forward exchange contracts			
Inflows	$ 3,711,302	$ 2,169,093	$ 390,379
Outflows	(3,679,154)	(2,138,635)	(386,880)
	32,148	30,458	3,499
Swap contracts			
Inflows	12,116,531	14,434,880	36,676,224
Outflows	(12,189,576)	(14,629,738)	(36,452,398)
	(73,045)	(194,858)	223,826
	$ (40,897)	$ (164,400)	$ 227,325
December 31, 2018			
Net settled			
Forward exchange contracts	$ 2,040	$ 1,620	$ -
Gross settled			
Forward exchange contracts			
Inflows	$ 2,580,194	$ 466,489	$ -
Outflows	(2,556,607)	(460,725)	-
	23,587	5,764	-
Swap contracts			
Inflows			
Outflows	14,136,620	9,214,500	38,160,316
	(13,946,583)	(8,650,320)	(36,596,419)
	190,037	564,180	1,563,897
	$ 213,624	$ 569,944	$ 1,563,897

	On Demand or Less than 1 Month	1 to 3 Months	3 Months to 1 Year
	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)
December 31, 2018			
Net settled			
Forward exchange contracts	$ 67	$ 53	$ -

(Continued)

	On Demand or Less than 1 Month		1 to 3 Months		3 Months to 1 Year	
	US$ (Note 4)		US$ (Note 4)		US$ (Note 4)	
Gross settled						
Forward exchange contracts						
Inflows	$	84,293	$	15,240	$	-
Outflows		(83,522)		(15,052)		-
		771		188		-
Swap contracts						
Inflows		461,830		301,029		1,246,662
Outflows		(455,622)		(282,598)		(1,195,571)
		6,208		18,431		51,091
	$	6,979	$	18,619	$	51,091

(Concluded)

37. RELATED PARTY TRANSACTIONS

Balances and transactions within the Group had been eliminated upon consolidation. Details of transactions between the Group and other related parties were disclosed as follows:

a. Related parties

In addition to those disclosed in Note 15, the related parties were as follows:

Related Parties	Relationship with the Company
ASE Cultural and Educational Foundation	Substantial related party
Fu Hwa Construction Co., Ltd.	Associate's subsidiary

b. The Group contributed NT$100,000 thousand (US$3,267 thousand) to ASE Cultural and Educational Foundation in 2016, 2017 and 2018, respectively, for environmental charity in promoting the related domestic environmental protection and public service activities (Note 39).

c. In the third quarter of 2016, the Group acquired patents and specific technology from DECA at NT$403,543 thousand, which was primarily based on independent professional appraisal reports. As of December 31, 2017 and 2018, NT$93,000 thousand and NT$57,590 thousand (US$1,881 thousand) have not been paid and were accrued under the line item of other payables, respectively.

d. The Group contracted with Fu Hwa Construction Co., Ltd. to construct a female employee dormitory on current leased land. Total consideration was primarily based on independent professional appraisal reports. During 2016, the employee dormitory has been capitalized for NT$875,000 thousand. The female employee dormitory has been completely constructed in 2016. As of December 31, 2016, NT$228,500 thousand has not been paid and was accrued under the line item of other payables, which was fully repaid in March 2017.

e. In February 2016, USIE repurchased 1,801 thousand shares of USIE's outstanding ordinary shares from the Group's key management personnel with approximately NT$1,130,650 thousand.

f. As disclosed in Note 32, the Company's subsidiary, USIE, repurchased its own 1,283 thousand ordinary shares from the Group's key management personnel in February 2018 with approximately NT$ 653,244 thousand (US$21,341 thousand).

g. Compensation to key management personnel

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Short-term employee benefits	$ 790,460	$ 860,631	$ 1,041,216	$ 34,015
Post-employment benefits	4,790	2,858	3,884	127
Share-based payments	11,547	-	9,145	299
	$ 806,797	$ 863,489	$ 1,054,245	$ 34,441

The compensation to the Group's key management personnel is determined according to personal performance and market trends.

38. ASSETS PLEDGED AS COLLATERAL OR FOR SECURITY

The following assets were provided as collateral for bank borrowings and the tariff guarantees of imported raw materials:

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Inventories related to real estate business	$ 4,822,043	$ 4,796,126	$ 156,685
Investment properties	7,151,382	6,680,017	218,230
Land use rights (long-term prepayments for lease)	6,813,751	6,515,576	212,858
Other financial assets (including current and non-current)	66,726	496,902	16,233
	$ 18,853,902	$ 18,488,621	$ 604,006

39. SIGNIFICANT CONTINGENT LIABILITIES AND UNRECOGNIZED COMMITMENTS

In addition to those disclosed in other notes, significant commitments and contingencies of the Group as of each balance sheet date were as follows:

a. As of December 31, 2017 and 2018, unused letters of credit of the Group were approximately NT$20,000 thousand and NT$634,000 thousand (US$20,712 thousand), respectively.

b. As of December 31, 2017 and 2018, outstanding commitments to purchase property, plant and equipment of the Group were approximately NT$7,019,377 thousand and NT$17,039,458 thousand (US$556,663 thousand), respectively, of which NT$294,194 thousand and NT$2,339,308 thousand (US$76,423 thousand) had been prepaid, respectively. As of December 31, 2017 and 2018, the commitment that the Group has contracted for the construction related to our real estate business were approximately NT$1,548,806 thousand and NT$888,052 thousand (US$29,012 thousand), respectively.

c. In consideration of corporate social responsibility for environmental protection, the Group's board of directors, in December 2013, approved contributions to be made in the next 30 years, at a total amount of NT$3,000,000 thousand, at the minimum, to environmental protection efforts in Taiwan.

   In February 2019, the Group's board of directors approved to contribute NT$100,000 thousand (US$3,267 thousand) to ASE Cultural & Educational Foundation for environmental charity in promoting the related domestic environmental protection and public service activities continuously.

40. SIGNIFICANT SUBSEQUENT EVENTS

On March 28, 2019, the Company's board of directors resolved to issue ordinary shares in the way of cash capital increase in an amount up to NT$3,000,000 thousand (US$98,007 thousand) with par value NT$10 (US$0.3) per share. The Company's board of directors also resolved to issue unsecured domestic bonds that were approved by the Taipei Exchange. These bonds will be issued in the amounts of NT$6,500,000 thousand (US$212,349 thousand) and NT$3,500,000 thousand (US$114,342 thousand) with annual interest rates of 0.9% and 1.03%, respectively, and with maturity of 5 and 7 years, respectively.

41. SIGNIFICANT ASSETS AND LIABILITIES DENOMINATED IN FOREIGN CURRENCIES

The following information was aggregated by the foreign currencies other than functional currencies of the group entities and the exchange rates between foreign currencies and respective functional currencies were disclosed. The significant financial assets and liabilities denominated in foreign currencies were as follows:

	Foreign Currencies (In Thousand)	Exchange Rate	Carrying Amount (In Thousand)
December 31, 2017			
Monetary financial assets			
US$	$ 3,065,296	US$1=NT$29.76	$ 91,223,195
US$	1,193,369	US$1=CNY6.5342	35,514,653
JPY	5,005,435	JPY1=NT$0.2642	1,322,436
JPY	8,113,284	JPY1=US$0.0089	2,143,530
Monetary financial liabilities			
US$	2,902,995	US$1=NT$29.76	86,393,137
US$	1,007,629	US$1=CNY6.5342	29,987,042
JPY	5,415,677	JPY1=NT$0.2642	1,430,822
JPY	8,598,832	JPY1=US$0.0089	2,271,811
December 31, 2018			
Monetary financial assets			
US$	3,730,484	US$1=NT$30.715	114,581,814
US$	1,299,391	US$1=CNY6.8632	39,910,801
JPY	4,412,591	JPY1=NT$0.2782	1,227,583
JPY	6,568,657	JPY1=US$0.0091	1,827,400
Monetary financial liabilities			
US$	3,361,523	US$1=NT$30.715	103,249,185
US$	1,216,654	US$1=CNY6.8632	37,369,521
JPY	7,401,621	JPY1=NT$0.2782	2,059,131
JPY	7,035,704	JPY1=US$0.0091	1,957,333

The significant realized and unrealized foreign exchange gain (loss) were as follows:

	For the Year Ended December 31						
	2016		2017		2018		
Functional Currencies	Exchange Rate	Net Foreign Exchange Gain	Exchange Rate	Net Foreign Exchange Gain (Loss)	Exchange Rate	Net Foreign Exchange Loss	
		NT$		NT$		NT$	US$ (Note 4)
NT$		$ 1,494,044		$ 4,130,243		$ (849,234)	$ (27,744)
US$	US$1=NT$32.25	203,258	US$1=NT$29.76	(244,802)	US$1=NT$30.715	(67,476)	(2,204)
CNY	CNY1=NT$4.649	224,393	CNY1=NT$4.5545	(337,630)	CNY1=NT$4.4753	(120,005)	(3,920)
		$ 1,921,695		$ 3,547,811		$ (1,036,715)	$ ($33,868)

42. OTHERS

On December 20, 2013, the Kaohsiung Environmental Protection Bureau ("KEPB") imposed a fine of NT$102,014 thousand ("the Administrative Fine") upon the Company for the violation of the Water Pollution Control Act. The Company filed an administrative appeal to nullify the Administrative Fine, which, however, was dismissed by the Kaohsiung City Government. The Company then filed a lawsuit with the Kaohsiung High Administrative Court seeking to revoke the dismissal decision made by the Kaohsiung City Government (the "Administrative Appeal Decision") and the Administrative Fine, and to demand a refund of the fine paid by the Company. The judgment of the Kaohsiung High Administrative Court was rendered on March 22, 2016, ruling to revoke the Administrative Appeal Decision and the Administrative Fine, and to dismiss the other complaint filed by the Company (i.e., to demand a refund of the fine paid by the Company). The Company appealed against the unfavorable ruling on April 14, 2016. On June 8, 2017, the Supreme Administrative Court handed down a final and unappealable judgment which is in favor of the Company and ordered KEPB to return to the Company the fine already paid by the Company.

43. OPERATING SEGMENTS INFORMATION

The Group has the following reportable segments: Packaging, Testing and EMS. The Group packages bare semiconductors into finished semiconductors with enhanced electrical and thermal characteristics; provides testing services, including front-end engineering testing, wafer probing and final testing services; engages in the designing, assembling, manufacturing and sale of electronic components and telecommunications equipment motherboards. Information about other business activities and operating segments that are not reportable are combined and disclosed in "Others." The Group engages in other activities such as substrate production as well as sale and leasing of real estate properties.

The accounting policies for segments are the same as those described in Note 4. The measurement basis for resources allocation and performance evaluation is based on profit before income tax.

Segment information for the years ended December 31, 2016, 2017 and 2018 was as follows:

a. Segment revenues and operation results

	Packaging	Testing	EMS	Others	Adjustments and Eliminations	Total
	NT$	NT$	NT$	NT$	NT$	NT$
For the year ended December 31, 2016						
Revenue from external customers	$ 125,282,829	$ 27,031,750	$ 115,395,130	$ 7,174,398	$ -	$ 274,884,107
Inter-segment revenue (Note 1)	4,929,897	243,980	47,721,424	9,186,359	(62,081,660)	-
Segment revenue	130,212,726	27,275,730	163,116,554	16,360,757	-	336,965,767
Interest income	32,499	41,405	130,659	37,297	(11,793)	230,067
Interest expense	(1,727,127)	(5,980)	(44,433)	(451,790)	11,793	(2,217,537)
Depreciation and amortization	(18,706,891)	(6,566,936)	(2,759,298)	(1,437,312)	-	(29,470,437)
Share of the profit of associates and joint ventures	1,513,394	(9,484)	-	-	-	1,503,910
Impairment loss	(974,095)	(4,136)	(1,886)	-	-	(980,117)
Segment profit before income tax	13,921,640	7,226,531	4,626,263	2,194,271	-	27,968,705
Expenditures for segment assets	17,561,135	8,247,003	906,042	966,682	-	27,680,862
December 31, 2016						
Investments accounted for using the equity method	49,597,195	227,495	-	-	-	49,824,690
For the year ended December 31, 2017						
Revenue from external customers	126,225,119	26,157,277	133,948,016	4,110,796	-	290,441,208
Inter-segment revenue (Note 1)	4,911,026	184,707	47,119,404	8,383,640	(60,598,777)	-
Segment revenue	131,136,145	26,341,984	181,067,420	12,494,436	-	351,039,985
Interest income	43,744	48,532	269,640	214,265	(269,310)	306,871
Interest expense	(1,969,562)	(11,920)	-	(62,714)	269,310	(1,774,886)
Depreciation and amortization	(19,105,457)	(6,476,743)	(2,133,253)	(1,489,731)	-	(29,205,184)
Share of the profit or loss of associates and joint ventures	568,291	(42,509)	-	-	-	525,782
Impairment loss	(218,214)	(72,798)	-	(473,869)	-	(764,881)
Segment profit before income tax	12,065,304	6,904,067	6,883,327	5,167,965	-	31,020,663
Expenditures for segment assets	17,769,612	4,507,097	850,235	550,738	-	23,677,682
December 31, 2017						
Investments accounted for using the equity method	48,566,333	187,418	-	-	-	48,753,751

	Packaging	Testing	EMS	Others	Adjustments and Eliminations	Total
	NT$	NT$	NT$	NT$	NT$	NT$
For the year ended December 31, 2018						
Revenue from external customers	$ 178,308,222	$ 35,903,202	$ 151,890,384	$ 4,990,613	$ -	$ 371,092,421
Inter-segment revenues (Note 1)	3,531,431	212,310	58,836,465	7,637,053	(70,217,259)	-
Segment revenues	181,839,653	36,115,512	210,726,849	12,627,666	-	441,309,680
Interest income	166,761	55,108	354,343	352,232	(462,233)	466,211
Interest expense	(3,647,601)	(101,338)	-	(249,180)	462,233	(3,535,886)
Depreciation and amortization	(29,491,977)	(9,560,610)	(2,065,590)	(1,570,726)	-	(42,688,903)
Share of the profit or loss of associates and joint ventures	(456,846)	(23,398)	-	-	-	(480,244)
Impairment loss	(654,081)	-	-	-	-	(654,081)
Segment profit before income tax	17,866,431	7,952,484	6,225,984	(107,221)	-	31,937,678
Expenditures for segment assets	22,787,190	12,991,023	2,529,771	784,254	-	39,092,238
December 31, 2018						
Investments accounted for using the equity method	9,152,290	160,018	-	-	-	9,312,308
Contract assets	3,488,372	1,000,128	-	-	-	4,488,500

	Packaging	Testing	EMS	Others	Adjustments and Eliminations	Total
	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)	US$ (Note 4)
For the year ended December 31, 2018						
Revenue from external customers	$ 5,825,163	$ 1,172,924	$ 4,962,116	$ 163,039	$ -	$ 12,123,242
Inter-segment revenues (Note 1)	115,369	6,936	1,922,132	249,495	(2,293,932)	-
Segment revenues	5,940,532	1,179,860	6,884,248	412,534	-	14,417,174
Interest income	5,448	1,801	11,576	11,507	(15,101)	15,231
Interest expense	(119,164)	(3,311)	-	(8,140)	15,101	(115,514)
Depreciation and amortization	(963,475)	(312,336)	(67,481)	(51,315)	-	(1,394,607)
Share of the profit or loss of associates and joint ventures	(14,925)	(764)	-	-	-	(15,689)
Impairment loss	(21,368)	-	-	-	-	(21,368)
Segment profit before income tax	583,680	259,800	203,397	(3,503)	-	1,043,374
Expenditures for segment assets	744,436	424,404	82,645	25,621	-	1,277,106
December 31, 2018						
Investments accounted for using the equity method	298,996	5,228	-	-	-	304,224
Contract assets	113,962	32,673	-	-	-	146,635

Note 1: Inter-segment revenues were eliminated upon consolidation.

Note 2: Refer to the table above for information about disaggregation of revenue.

b. Revenue from major products and services

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
Packaging service	$ 125,282,829	$ 126,225,119	$ 178,308,222	$ 5,825,163
Testing service	27,031,750	26,157,277	35,903,202	1,172,924
Electronic components manufacturing service	115,395,130	133,948,016	151,890,384	4,962,116
Others	7,174,398	4,110,796	4,990,613	163,039
	$ 274,884,107	$ 290,441,208	$ 371,092,421	$ 12,123,242

c. Geographical information

Geographical information about revenue from external customers and noncurrent assets are reported based on the country where the external customers are headquartered and noncurrent assets are located, respectively.

1) Net revenues from external customers

	For the Year Ended December 31			
	2016	2017	2018	
	NT$	NT$	NT$	US$ (Note 4)
United States	$ 180,745,837	$ 196,462,345	$ 230,791,164	$ 7,539,731
Taiwan	38,868,679	35,413,647	45,630,792	1,490,715
Asia	29,896,304	30,201,332	56,031,108	1,830,484
Europe	23,275,732	26,445,240	36,844,258	1,203,668
Others	2,097,555	1,918,644	1,795,099	58,644
	$ 274,884,107	$ 290,441,208	$ 371,092,421	$ 12,123,242

2) Non-current assets, excluding financial instruments, post-employment benefit assets and deferred tax assets

	December 31		
	2017	2018	
	NT$	NT$	US$ (Note 4)
Taiwan	$ 93,350,839	$ 229,944,505	$ 7,512,071
China	45,376,164	59,058,239	1,929,377
Others	25,025,498	25,686,256	839,146
	$ 163,752,501	$ 314,689,000	$ 10,280,594

d. Major customers

Except one customer from which the operating revenues generated from packaging and EMS segments was NT$66,554,659 thousand, NT$83,873,393 thousand and NT$92,117,839 thousand (US$3,009,403 thousand) in 2016, 2017 and 2018, respectively, the Group did not have other single customer to which the operating revenues exceeded 10% of operating revenues for the years ended December 31, 2016, 2017 and 2018.