Chunghwa Telecom Co., Ltd. and Subsidiaries

Consolidated Financial Statements as of December 31, 2018 and 2019 and for Each of the Three Years in the Period Ended December 31, 2019 and Report of Independent Registered Public Accounting Firm

Deloitte.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Chunghwa Telecom Co., Ltd.

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Chunghwa Telecom Co., Ltd. and subsidiaries (the "Company") as of December 31, 2018 and 2019, 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, 2019, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board.

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 6 to the consolidated financial statements. Such U.S. dollar amounts are presented solely for the convenience of readers outside Taiwan.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, 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 17, 2020, expressed an unqualified opinion on the Company's internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 3 to the consolidated financial statements, the Company changed its methods of accounting for financial instruments and revenue from contracts with customers in 2018 due to the adoption of IFRS 9 and IFRS 15. And as discussed in Note 5 to the consolidated financial statements, the Company changed its method of accounting for leases in 2019 due to the adoption of IFRS 16.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company'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 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 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 provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current-period audit of the financial statements that were communicated or required to be communicated to the audit committee and that (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Revenue Recognition on Mobile Service – Refer to Notes 3 and 29 to the consolidated financial statements

Critical Audit Matter Description

The Company's mobile service revenue consists of subscriber-based charges made up of a significant volume of low-dollar transactions. Because of the complexity and a variety of subscriber-based charges as well as a large number of transactions, the Company uses highly automated systems to process and record its revenue transactions.

Given the Company's systems to process and record revenue are highly automated, auditing revenue was complex and challenging due to the extent of audit effort required and involvement of professionals with expertise in information technology (IT) necessary for us to identify, test, and evaluate the Company's IT systems.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the Company's systems to process revenue transactions included the following, among others:

- With the assistance of our IT specialists, we:
  - Identified the significant systems used to process revenue transactions and tested the general IT controls over each of these systems, including testing of user access controls and change management controls.
  - Performed testing of system interface controls and automated controls within the relevant revenue streams, as well as the controls designed to ensure the accuracy and completeness of revenue.
- We tested internal controls within the relevant revenue business processes, including those in place to reconcile the various systems to the Company's accounting system.
- We selected samples from mobile service revenue and agreed to customer contracts and records of cash receipts.

Revenue Recognition on Project Business – Refer to Notes 3 and 4 to the consolidated financial statements

Critical Audit Matter Description

The Company's project business is highly customized and mainly provides customers with combinations of various equipment and/or services. Project business contracts may likely outsource partial or substantial part of the obligations or services to third parties. The accounting for these contracts requires judgement, particularly as it relates to the determination of the Company acting as a principal or an agent.

Given the judgments on whether the Company is acting as a principal or an agent is required in order to determine if revenue should be recognized gross as principal versus net as agent, auditing such revenue required extensive audit effort due to the volume of contracts and involved a high degree of judgment when performing audit procedures and evaluating the result of these procedures.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to management's revenue recognition on project business included the following, among others:

- We tested the effectiveness of controls over project business revenue, including those over principal-versus-agent considerations and revenue recognition.
- We performed the following audit procedures on a sample basis:
  - Obtained project business contracts and the evaluation documentation prepared by management and determined the reasonableness of management's judgement on whether the Company is acting as a principal or an agent after considering whether the Company is the primary obligation provider, its exposures to inventory risks and the discretion in establishing the prices by reviewing the contractual terms, comparing to the business substance and evaluating if it is consistent with relevant accounting standards.
  - Performed detail transaction testing by agreeing the amounts recognized to source documents and testing the mathematical accuracy of the recorded revenue.
  - Confirmed project business contract terms with customers.

Deloitte & Touche

Deloitte & Touche
Taipei, Taiwan
Republic of China

April 17, 2020

We have served as the Company's auditor since 1998.

CHUNGHWA TELECOM CO., LTD. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS
December 31, 2018 and 2019
(In Millions of New Taiwan or U.S. Dollars)

ASSETS	Notes	2018 NT$	2019 NT$	2019 US$ (Note 6)
CURRENT ASSETS				
Cash and cash equivalents	3, 7	$ 27,645	$ 34,050	$ 1,138
Financial assets at fair value through profit or loss	3, 4, 8	-	1	-
Hedging financial assets	3, 21	1	-	-
Contract assets	3, 29	4,869	4,441	148
Trade notes and accounts receivable, net	3, 4, 10, 29	30,076	26,408	883
Receivables from related parties	38	24	17	1
Inventories	3, 4, 11, 39	15,121	17,344	580
Prepayments	5, 12, 38	1,873	1,883	63
Other current monetary assets	13, 27	9,504	7,498	251
Other current assets	20, 31, 39	2,576	2,430	81
Total current assets		91,689	94,072	3,145
NONCURRENT ASSETS				
Financial assets at fair value through profit or loss	3, 4, 8	517	778	26
Financial assets at fair value through other comprehensive income	3, 4, 9, 41	6,933	7,154	239
Investments accounted for using equity method	3, 15	2,732	7,139	239
Contract assets	3, 29	2,344	2,601	87
Property, plant and equipment	3, 4, 5, 16, 38, 39	288,914	283,694	9,484
Right-of-use assets	3, 4, 5, 17	-	11,364	380
Investment properties	3, 4, 18	8,287	8,169	273
Intangible assets	3, 4, 19	50,944	47,047	1,573
Deferred income tax assets	3, 5, 31	3,554	3,259	109
Incremental costs of obtaining a contract	3, 29	1,335	943	32
Net defined benefit assets	3, 4, 27	1,164	2,128	71
Prepayments	5, 12, 38	3,463	2,679	90
Other noncurrent assets	20, 39	5,180	6,101	204
Total noncurrent assets		375,367	383,056	12,807
TOTAL		$ 467,056	$ 477,128	$ 15,952

LIABILITIES AND EQUITY	Notes	2018 NT$	2019 NT$	2019 US$ (Note 6)
CURRENT LIABILITIES				
Short-term loans	22	$ 100	$ 90	$ 3
Financial liabilities at fair value through profit or loss	3, 4, 8	1	-	-
Contract liabilities	3, 5, 29	10,688	16,840	563
Trade notes and accounts payable	24	20,465	15,312	512
Payables to related parties	38	918	654	22
Current tax liabilities	3, 31	6,221	5,812	194
Lease liabilities	3, 4, 5, 17, 34, 38	-	3,291	110
Other payables	5, 25	23,315	22,953	767
Provisions	3, 26	128	207	7
Other current liabilities	5	1,382	984	33
Total current liabilities		63,218	66,143	2,211
NONCURRENT LIABILITIES				
Contract liabilities	3, 5, 29	2,595	6,841	229
Long-term loans	23, 39	1,600	1,600	53
Deferred income tax liabilities	3, 5, 31	1,992	1,912	64
Provisions	3, 26	79	97	3
Lease liabilities	3, 4, 5, 17, 34, 38	-	6,467	216
Customers' deposits	38	4,716	4,748	159
Net defined benefit liabilities	3, 4, 27	3,534	3,505	117
Other noncurrent liabilities	5	4,793	1,543	52
Total noncurrent liabilities		19,309	26,713	893
Total liabilities		82,527	92,856	3,104
EQUITY ATTRIBUTABLE TO STOCKHOLDERS OF THE PARENT				
Common stocks		77,574	77,574	2,594
Additional paid-in capital		149,762	149,762	5,007
Retained earnings				
Legal reserve		77,574	77,574	2,594
Special reserve		2,676	2,676	89
Unappropriated earnings		66,626	65,984	2,206
Total retained earnings		146,876	146,234	4,889
Other adjustments		460	587	20
Total equity attributable to stockholders of the parent	5, 14, 28	374,672	374,157	12,510
NONCONTROLLING INTERESTS	5, 14, 28	9,857	10,115	338
Total equity		384,529	384,272	12,848
TOTAL		$ 467,056	$ 477,128	$ 15,952

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

CHUNGHWA TELECOM CO., LTD. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
YEARS ENDED DECEMBER 31, 2017, 2018 and 2019
(In Millions of New Taiwan or U.S. Dollars, Except Earnings Per Share That Are in New Taiwan or U.S. Dollars)

		2017	2018	2019	
	Notes	**NT$**	**NT$**	**NT$**	**US$ (Note 6)**
REVENUES	3, 29, 38, 41	$ 227,514	$ 215,483	$ 207,520	$ 6,938
OPERATING COSTS	3, 11, 27, 29, 30, 38, 41	146,837	139,545	135,953	4,545
GROSS PROFIT		80,677	75,938	71,567	2,393
OPERATING EXPENSES					
Marketing		25,357	23,170	22,220	743
General and administrative		4,626	4,589	4,758	159
Research and development		3,886	3,725	3,941	132
Expected credit loss (reversal of credit loss)		-	920	(125)	(4)
Total operating expenses	3, 10, 27, 30, 38, 41	33,869	32,404	30,794	1,030
OTHER INCOME AND EXPENSES	16, 18, 19, 30, 41	(105)	110	(127)	(4)
INCOME FROM OPERATIONS		46,703	43,644	40,646	1,359
NON-OPERATING INCOME AND EXPENSES					
Interest income	41	205	197	251	8
Other income	9, 30, 38	836	700	531	18
Other gains and losses	15, 30, 36, 38	(132)	(46)	84	3
Interest expenses	17, 30, 38, 41	(22)	(18)	(104)	(3)
Share of the profits of associates and joint ventures accounted for using equity method	15, 41	419	509	459	15
Total non-operating income and expenses		1,306	1,342	1,221	41
INCOME BEFORE INCOME TAX		48,009	44,986	41,867	1,400
INCOME TAX EXPENSE	3, 31	7,849	6,405	7,946	266
NET INCOME		40,160	38,581	33,921	1,134
TOTAL OTHER COMPREHENSIVE INCOME (LOSS)					
Items that will not be reclassified to profit or loss:					
Remeasurements of defined benefit pension plans	27	(2,024)	(1,215)	1,527	50
Unrealized gain or loss on investments in equity instruments at fair value through other comprehensive income	3, 36	-	(346)	171	6
Gain or loss on hedging instruments subject to basis adjustment	3, 21	-	2	(1)	-

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CHUNGHWA TELECOM CO., LTD. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
YEARS ENDED DECEMBER 31, 2017, 2018 and 2019
(In Millions of New Taiwan or U.S. Dollars, Except Earnings Per Share That Are in New Taiwan or U.S. Dollars)

	Notes	2017 NT$	2018 NT$	2019 NT$	2019 US$ (Note 6)
Share of remeasurements of defined benefit pension plans of associates and joint ventures	15	$ 1	$ 2	$ (2)	$ -
Income tax relating to items that will not be reclassified to profit or loss	31	344	450	(305)	(10)
		(1,679)	(1,107)	1,390	46
Items that may be reclassified subsequently to profit or loss:					
Exchange differences arising from the translation of the foreign operations		(229)	90	(61)	(2)
Unrealized gain or loss on available-for-sale financial assets	30	605	-	-	-
Cash flow hedges	21, 30	(1)	-	-	-
Share of exchange differences arising from the translation of the foreign operations of associates	15	(5)	3	(1)	-
Income tax relating to items that may be reclassified subsequently	31	3	-	-	-
		373	93	(62)	(2)
Total other comprehensive income (loss), net of income tax		(1,306)	(1,014)	1,328	44
TOTAL COMPREHENSIVE INCOME		$ 38,854	$ 37,567	$ 35,249	$ 1,178
NET INCOME ATTRIBUTABLE TO					
Stockholders of the parent		$ 38,988	$ 37,557	$ 32,947	$ 1,102
Noncontrolling interests		1,172	1,024	974	32
		$ 40,160	$ 38,581	$ 33,921	$ 1,134
COMPREHENSIVE INCOME ATTRIBUTABLE TO					
Stockholders of the parent		$ 37,705	$ 36,552	$ 34,282	$ 1,146
Noncontrolling interests		1,149	1,015	967	32
		$ 38,854	$ 37,567	$ 35,249	$ 1,178
EARNINGS PER SHARE	32				
Basic		$5.03	$4.84	$4.25	$0.14
Diluted		$5.02	$4.83	$4.24	$0.14
EARNINGS PER EQUIVALENT ADS					
Basic		$50.26	$48.41	$42.47	$1.42
Diluted		$50.19	$48.35	$42.42	$1.42

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

CHUNGHWA TELECOM CO., LTD. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
YEARS ENDED DECEMBER 31, 2017, 2018 and 2019
(In Millions of New Taiwan or U.S. Dollars)

	Equity Attributable to Stockholders of the Parent														
			Retained Earnings				Other Adjustments								
	Common Stocks NT$	Additional Paid-in Capital NT$	Legal Reserve NT$	Special Reserve NT$	Unappropriated Earnings NT$	Total Retained Earnings NT$	Exchange Differences Arising from the Translation of the Foreign Operations NT$	Unrealized Gain or Loss on Available-for-sale Financial Assets NT$	Unrealized Gain or Loss on Financial Assets at Fair Value through Other Comprehensive Income NT$	Cash Flow Hedges NT$	Gain or Loss on Hedging Instruments NT$	Total Other Adjustments NT$	Total Equity Attributable to Stockholders of the Parent NT$	Noncontrolling Interests NT$	Total Equity NT$
BALANCE, JANUARY 1, 2017	$ 77,574	$ 147,180	$ 77,574	$ 2,676	$ 55,657	$ 135,907	$ 46	$ (51)	$ -	$ -	$ -	$ (5)	$ 360,656	$ 6,272	$ 366,928
Appropriation of 2016 earnings															
Provision for special reserve	-	-	-	5	(5)	-	-	-	-	-	-	-	-	-	-
Cash dividends paid by Chunghwa	-	-	-	-	(38,336)	(38,336)	-	-	-	-	-	-	(38,336)	-	(38,336)
Cash dividends distributed by subsidiaries	-	-	-	-	-	-	-	-	-	-	-	-	-	(942)	(942)
Unclaimed dividend	-	3	-	-	-	-	-	-	-	-	-	-	3	-	3
Change in additional paid-in capital from investments in associates and joint ventures accounted for using equity method	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Partial disposal of interests in subsidiaries	-	77	-	-	-	-	-	-	-	-	-	-	77	29	106
Change in additional paid-in capital for not participating proportionately in the capital increase of subsidiaries	-	802	-	-	-	-	-	-	-	-	-	-	802	1,750	2,552
Other changes in additional paid-in capital of subsidiaries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net income for the year ended December 31, 2017	-	-	-	-	38,988	38,988	-	-	-	-	-	-	38,988	1,172	40,160
Other comprehensive income (loss) for the year ended December 31, 2017	-	-	-	-	(1,671)	(1,671)	(220)	609	-	(1)	-	388	(1,283)	(23)	(1,306)
Total comprehensive income (loss) for the year ended December 31, 2017	-	-	-	-	37,317	37,317	(220)	609	-	(1)	-	388	37,705	1,149	38,854
Share-based payment transactions of subsidiaries	-	2	-	-	-	-	-	-	-	-	-	-	2	20	22
Net increase in noncontrolling interests	-	27	-	-	-	-	-	-	-	-	-	-	27	196	223
BALANCE, DECEMBER 31, 2017	77,574	148,091	77,574	2,681	54,633	134,888	(174)	558	-	(1)	-	383	360,936	8,474	369,410
Effect of retrospective application of IFRS 9 and IFRS 15	-	-	-	-	12,393	12,393	-	(558)	883	1	(1)	325	12,718	(4)	12,714
BALANCE, JANUARY 1, 2018 AS ADJUSTED	77,574	148,091	77,574	2,681	67,026	147,281	(174)	-	883	-	(1)	708	373,654	8,470	382,124
Appropriation of 2017 earnings															
Reversal of special reserve	-	-	-	(5)	5	-	-	-	-	-	-	-	-	-	-
Cash dividends paid by Chunghwa	-	-	-	-	(37,205)	(37,205)	-	-	-	-	-	-	(37,205)	-	(37,205)
Cash dividends distributed by subsidiaries	-	-	-	-	-	-	-	-	-	-	-	-	-	(958)	(958)
Unclaimed dividend	-	2	-	-	-	-	-	-	-	-	-	-	2	-	2
Partial disposal of interests in subsidiaries	-	826	-	-	-	-	-	-	-	-	-	-	826	349	1,175
Change in additional paid-in capital for not participating proportionately in the capital increase of subsidiaries	-	777	-	-	-	-	-	-	-	-	-	-	777	700	1,477
Net income for the year ended December 31, 2018	-	-	-	-	37,557	37,557	-	-	-	-	-	-	37,557	1,024	38,581
Other comprehensive income (loss) for the year ended December 31, 2018	-	-	-	-	(757)	(757)	95	-	(345)	-	2	(248)	(1,005)	(9)	(1,014)
Total comprehensive income (loss) for the year ended December 31, 2018	-	-	-	-	36,800	36,800	95	-	(345)	-	2	(248)	36,552	1,015	37,567
Share-based payment transactions of subsidiaries	-	11	-	-	-	-	-	-	-	-	-	-	11	42	53
Net increase in noncontrolling interests	-	55	-	-	-	-	-	-	-	-	-	-	55	239	294
BALANCE, DECEMBER 31, 2018	77,574	149,762	77,574	2,676	66,626	146,876	(79)	-	538	-	1	460	374,672	9,857	384,529
Effect of retrospective application of IFRS 16 (Note 5)	-	-	-	-	(51)	(51)	-	-	-	-	-	-	(51)	(20)	(71)
BALANCE, JANUARY 1, 2019 AS ADJUSTED	77,574	149,762	77,574	2,676	66,575	146,825	(79)	-	538	-	1	460	374,621	9,837	384,458
Appropriation of 2018 earnings															
Cash dividends distributed by Chunghwa	-	-	-	-	(34,746)	(34,746)	-	-	-	-	-	-	(34,746)	-	(34,746)
Cash dividends distributed by subsidiaries	-	-	-	-	-	-	-	-	-	-	-	-	-	(710)	(710)
Unclaimed dividend	-	1	-	-	-	-	-	-	-	-	-	-	1	-	1
Net income for the year ended December 31, 2019	-	-	-	-	32,947	32,947	-	-	-	-	-	-	32,947	974	33,921
Other comprehensive income (loss) for the year ended December 31, 2019	-	-	-	-	1,208	1,208	(69)	-	197	-	(1)	127	1,335	(7)	1,328
Total comprehensive income (loss) for the year ended December 31, 2019	-	-	-	-	34,155	34,155	(69)	-	197	-	(1)	127	34,282	967	35,249
Share-based payment transactions of subsidiaries	-	(1)	-	-	-	-	-	-	-	-	-	-	(1)	22	21
Net decrease in noncontrolling interests	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	(1)
BALANCE, DECEMBER 31, 2019	$ 77,574	$ 149,762	$ 77,574	$ 2,676	$ 65,984	$ 146,234	$ (148)	$ -	$ 735	$ -	$ -	$ 587	$ 374,157	$ 10,115	$ 384,272
BALANCE, DECEMBER 31, 2019 (IN MILLIONS OF US$ - Note 6)	$ 2,594	$ 5,007	$ 2,594	$ 89	$ 2,206	$ 4,889	$ (5)	$ -	$ 25	$ -	$ -	$ 20	$ 12,510	$ 338	$ 12,848

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

CHUNGHWA TELECOM CO., LTD. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS
YEARS ENDED DECEMBER 31, 2017, 2018 and 2019
(In Millions of New Taiwan or U.S. Dollars)

	2017	2018	2019	
	NT$	NT$	NT$	US$ (Note 6)
CASH FLOWS FROM OPERATING ACTIVITIES				
Income before income tax	$ 48,009	$ 44,986	$ 41,867	$ 1,400
Adjustments to reconcile income before income tax to net cash provided by operating activities:				
Depreciation	28,164	27,482	30,923	1,034
Amortization	3,766	4,386	4,253	142
Amortization of incremental costs of obtaining contracts	-	1,941	1,173	39
Expected credit loss (reversal of credit loss)	-	920	(125)	(4)
Provision for doubtful accounts	643	-	-	-
Interest expenses	22	18	104	3
Interest income	(205)	(197)	(251)	(8)
Dividend income	(328)	(396)	(296)	(10)
Compensation cost of share-based payment transactions	22	17	2	-
Share of profits of associates and joint ventures accounted for using equity method	(419)	(509)	(459)	(15)
Loss (gain) on disposal of property, plant and equipment	107	(142)	38	1
Property, plant and equipment transferred to expenses	3	-	-	-
Loss on disposal of intangible assets	-	-	-	-
Gain on disposal of financial instruments	(3)	(6)	(4)	-
Gain on disposal of investments accounted for using equity method	-	-	(151)	(5)
Provision for inventory and obsolescence	52	365	475	16
Impairment loss on property, plant and equipment	-	-	93	4
Reversal of impairment loss on investment properties	(11)	(19)	(57)	(2)
Impairment loss on intangible assets	9	51	9	-
Impairment loss on other assets	-	-	44	1
Valuation loss (gain) on financial assets and liabilities at fair value through profit or loss, net	(1)	21	38	1
Others	83	(17)	(26)	(2)
Changes in operating assets and liabilities:				
Decrease (increase) in:				
Financial assets mandatorily measured at fair value through profit or loss	-	63	-	-
Contract assets	-	2,751	173	6
Trade notes and accounts receivable	(1,191)	1,354	4,039	135
Receivables from related parties	(36)	25	7	-
Inventories	(1,469)	(6,778)	(2,698)	(90)
Prepayments	458	418	115	4
Other current monetary assets	(81)	(173)	(155)	(5)
Other current assets	(61)	(261)	146	5
Incremental cost of obtaining a contract	-	(802)	(781)	(26)
Increase (decrease) in:				
Contract liabilities	-	2,653	6,701	224
Trade notes and accounts payable	587	1,065	(5,152)	(172)
Payables to related parties	(78)	234	(264)	(9)
Other payables	(691)	(1,089)	697	23
Provisions	82	27	97	3
Advance receipts	(728)	-	-	-
Other operating liabilities	(76)	422	(159)	(5)
Deferred revenue	66	-	-	-
Net defined benefit plans	49	(1,535)	534	18
Cash generated from operations	76,744	77,275	80,950	2,706

(Continued)

CHUNGHWA TELECOM CO., LTD. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS
YEARS ENDED DECEMBER 31, 2017, 2018 and 2019
(In Millions of New Taiwan or U.S. Dollars)

	2017	2018	2019	
	NT$	NT$	NT$	US$ (Note 6)
Interest paid	$ (22)	$ (18)	$ (104)	$ (4)
Income tax paid	(5,790)	(10,891)	(8,419)	(281)
Net cash provided by operating activities	70,932	66,366	72,427	2,421
CASH FLOWS FROM INVESTING ACTIVITIES				
Acquisition of financial assets at fair value through other comprehensive income	-	(290)	(60)	(2)
Proceeds from return of financial assets at fair value through other comprehensive income	-	7	9	-
Acquisition of financial assets at fair value through profit or loss	-	-	(443)	(15)
Proceeds from disposal of financial assets at fair value through profit or loss	-	-	146	5
Acquisition of available-for-sale financial assets	(400)	-	-	-
Proceeds from disposal of available-for-sale financial assets	9	-	-	-
Proceeds from capital reduction of available-for-sale financial assets	12	-	-	-
Acquisition of time deposits and negotiable certificates of deposit with maturities of more than three months	(6,231)	(9,720)	(14,381)	(481)
Acquisition of repurchase agreement collateralized by bonds with maturities of more than three months	-	-	(15)	(1)
Proceeds from disposal of time deposits and negotiable certificates of deposit with maturities of more than three months	5,650	5,655	16,520	552
Proceeds from disposal of held-to-maturity financial assets	2,140	-	-	-
Acquisition of investments accounted for using equity method	-	(205)	(4,190)	(140)
Proceeds from disposal of investments accounted for using equity method	-	3	32	1
Proceeds from capital reduction of investments accounted for using equity method	-	19	-	-
Acquisition of property, plant and equipment	(26,875)	(28,550)	(24,166)	(807)
Proceeds from disposal of property, plant and equipment	159	264	48	2
Acquisition of intangible assets	(11,305)	(498)	(363)	(12)
Acquisition of investment properties	-	(6)	(1)	-
Increase in other noncurrent assets	(788)	(80)	(1,122)	(38)
Interest received	233	187	257	9
Cash dividends received	675	600	602	20
Net cash used in investing activities	(36,721)	(32,614)	(27,127)	(907)
CASH FLOWS FROM FINANCING ACTIVITIES				
Proceeds from short-term loans	6,952	360	575	19
Repayment of short-term loans	(7,020)	(330)	(585)	(20)
Increase (decrease) in customers' deposits	(111)	31	8	-
Payments for the principal of lease liabilities	-	-	(3,728)	(124)
Increase (decrease) in other noncurrent liabilities	(37)	84	233	8
Cash dividends paid	(38,336)	(37,205)	(34,746)	(1,162)
Partial disposal of interests in subsidiaries without losing control	106	1,175	-	-
Cash dividends distributed to noncontrolling interests	(942)	(958)	(710)	(24)

(Continued)

CHUNGHWA TELECOM CO., LTD. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS
YEARS ENDED DECEMBER 31, 2017, 2018 and 2019
(In Millions of New Taiwan or U.S. Dollars)

	2017	2018	2019	
	NT$	NT$	NT$	US$ (Note 6)
Change in other noncontrolling interests	$ 2,777	$ 1,806	$ 18	$ 1
Unclaimed dividend	3	2	1	-
Net cash used in financing activities	(36,608)	(35,035)	(38,934)	(1,302)
EFFECT OF EXCHANGE RATE CHANGES ON CASH AND CASH EQUIVALENTS	122	103	39	2
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	(2,275)	(1,180)	6,405	214
CASH AND CASH EQUIVALENTS, BEGINNING OF THE YEAR	31,100	28,825	27,645	924
CASH AND CASH EQUIVALENTS, END OF THE YEAR	$ 28,825	$ 27,645	$ 34,050	$ 1,138

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

1. GENERAL

Chunghwa Telecom Co., Ltd. ("Chunghwa") was incorporated on July 1, 1996 in the Republic of China ("ROC") pursuant to the Article 30 of the Telecommunications Act. Chunghwa is a company limited by shares and, prior to August 2000, was wholly owned by the Ministry of Transportation and Communications ("MOTC"). Prior to July 1, 1996, the current operations of Chunghwa were carried out under the Directorate General of Telecommunications ("DGT"). The DGT was established by the MOTC in June 1943 to take primary responsibility in the development of telecommunications infrastructure and to formulate policies related to telecommunications. On July 1, 1996, the telecom operations of the DGT were spun-off as Chunghwa which continues to carry out the business and the DGT continues to be the industry regulator.

Effective August 12, 2005, the MOTC completed the process of privatizing Chunghwa by reducing the government ownership to below 50% in various stages. In July 2000, Chunghwa received approval from the Securities and Futures Commission (the "SFC") for a domestic initial public offering and its common stocks were listed and traded on the Taiwan Stock Exchange (the "TWSE") on October 27, 2000. Certain of Chunghwa's common stocks were sold, in connection with the foregoing privatization plan, in domestic public offerings at various dates from August 2000 to July 2003. Certain of Chunghwa's common stocks were also sold in an international offering of securities in the form of American Depository Shares ("ADS") on July 17, 2003 and were listed and traded on the New York Stock Exchange (the "NYSE"). The MOTC sold common stocks of Chunghwa by auction in the ROC on August 9, 2005 and completed the second international offering on August 10, 2005. Upon completion of the share transfers associated with these offerings on August 12, 2005, the MOTC owned less than 50% of the outstanding shares of Chunghwa and completed the privatization plan.

Chunghwa together with its subsidiaries are hereinafter referred to collectively as "the Company".

2. APPROVAL OF FINANCIAL STATEMENTS

The consolidated financial statements were authorized for issue by the management on March 31, 2020.

3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The Company initial applied IFRS 9 "Financial Instruments" and IFRS 15 "Revenue from Contracts with Customers" on January 1, 2018 and IFRS 16 "Leases" on January 1, 2019 and elected not to reflect the figures on a retrospective basis in comparative periods. Different accounting policies for each accounting period as a result of the application of new accounting standards are listed by year separately.

Statement of Compliance

The accompanying consolidated financial statements have been prepared in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board (collectively, "IFRSs").

Basis of Preparation

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

Current and Noncurrent Assets and Liabilities

Current assets include:

a. Assets held primarily for the purpose of trading;

b. Assets expected to be realized within twelve months after the reporting period; and

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

Current liabilities include:

a. Liabilities held primarily for the purpose of trading;

b. Liabilities due to be settled within twelve months after the reporting period; and

c. Liabilities for which the Company does not have an unconditional right to defer settlement for at least twelve months after the reporting period.

Assets and liabilities that are not classified as current are classified as noncurrent.

Light Era Development Co., Ltd. (LED) engages mainly in development of property for rent and sale. The assets and liabilities of LED related to property development within its operating cycle, which is over one year, are classified as current items.

Basis of Consolidation

a. Principles for preparing consolidated financial statements

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

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

   All inter-company transactions, balances, income and expenses are eliminated in full upon consolidation.

   <u>Attribution of total comprehensive income to noncontrolling interests</u>

   Total comprehensive income of subsidiaries is attributed to the stockholders of the parent and to the noncontrolling interests even if it results in the noncontrolling interests having a deficit balance.

   <u>Changes in the Company's ownership interests in subsidiaries</u>

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

b. The subsidiaries in the consolidated financial statements

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

Name of Investor	Name of Investee	Main Businesses and Products	Percentage of Ownership December 31 2018	2019	Note
Chunghwa Telecom Co., Ltd.	Senao International Co., Ltd. ("SENAO")	Handset and peripherals retailer, sales of CHT mobile phone plans as an agent	28	28	a)
	Light Era Development Co., Ltd. ("LED")	Planning and development of real estate and intelligent buildings, and property management	100	100	
	Donghwa Telecom Co., Ltd. ("DHT")	International private leased circuit, IP VPN service, and IP transit services	100	100	
	Chunghwa Telecom Singapore Pte., Ltd. ("CHTS")	International private leased circuit, IP VPN service, and IP transit services	100	100	
	Chunghwa System Integration Co., Ltd. ("CHSI")	Providing system integration services and telecommunications equipment	100	100	
	Chunghwa Investment Co., Ltd. ("CHI")	Investment	89	89	
	CHIEF Telecom Inc. ("CHIEF")	Network integration, internet data center ("IDC"), communications integration and cloud application services	57	57	b)
	CHYP Multimedia Marketing & Communications Co., Ltd. ("CHYP")	Digital information supply services and advertisement services	100	100	
	Prime Asia Investments Group Ltd. (B.V.I.) ("Prime Asia")	Investment	100	100	
	Spring House Entertainment Tech. Inc. ("SHE")	Software design services, internet contents production and play, and motion picture production and distribution	56	56	c)
	Chunghwa Telecom Global, Inc. ("CHTG")	International private leased circuit, internet services, and transit services	100	100	
	Chunghwa Telecom Vietnam Co., Ltd. ("CHTV")	Intelligent energy saving solutions, international circuit, and information and communication technology ("ICT") services	100	100	
	Smartfun Digital Co., Ltd. ("SFD")	Providing diversified family education digital services	65	65	
	Chunghwa Telecom Japan Co., Ltd. ("CHTJ")	International private leased circuit, IP VPN service, and IP transit services	100	100	
	Chunghwa Sochamp Technology Inc. ("CHST")	Design, development and production of Automatic License Plate Recognition software and hardware	51	51	
	Honghwa International Co., Ltd. ("HHI")	Telecommunications engineering, sales agent of mobile phone plan application and other business services, etc.	100	100	
	Chunghwa Leading Photonics Tech Co., Ltd. ("CLPT")	Production and sale of electronic components and finished products	75	75	
	Chunghwa Telecom (Thailand) Co., Ltd. ("CHTT")	International private leased circuit, IP VPN service, ICT and cloud VAS services	100	100	d)
	CHT Security Co., Ltd. ("CHTSC")	Computing equipment installation, wholesale of computing and business machinery equipment and software, management consulting services, data processing services, digital information supply services and internet identify services	80	80	

(Continued)

Name of Investor	Name of Investee	Main Businesses and Products	Percentage of Ownership December 31 2018	2019	Note
Senao International Co., Ltd.	Senao International (Samoa) Holding Ltd. ("SIS")	International investment	100	100	
	Youth Co., Ltd. ("Youth")	Sale of information and communication technologies products	93	93	e)
	Aval Technologies Co., Ltd. ("Aval")	Sale of information and communication technologies products	100	100	
	Senyoung Insurance Agent Co., Ltd. ("SENYOUNG")	Property and liability insurance agency	100	100	
Youth Co., Ltd.	ISPOT Co., Ltd. ("ISPOT")	Sale of information and communication technologies products	100	100	
	Youyi Co., Ltd. ("Youyi")	Maintenance of information and communication technologies products	100	100	
Aval Technologies Co., Ltd. ("Aval")	Wiin Technology Co., Ltd. ("Wiin")	Sale of information and communication technologies products	-	100	f)
Senyoung Insurance Agent Co., Ltd.	Senaolife Insurance Agent Co., Ltd. ("Senaolife")	Life insurance services	-	100	g)
Light Era Development Co., Ltd.	Taoyuan Asia Silicon Valley Innovation Co., Ltd. ("TASVI")	Development of real estate	60	-	h)
CHIEF Telecom Inc.	Unigate Telecom Inc. ("Unigate")	Telecommunications and internet service	100	100	
	Chief International Corp. ("CIC")	Telecommunications and internet service	100	100	
	Shanghai Chief Telecom Co., Ltd. ("SCT")	Telecommunications and internet service	49	49	
Chunghwa System Integration Co., Ltd.	Concord Technology Co., Ltd. ("Concord")	Investment	-	-	i)
Chunghwa Investment Co., Ltd.	Chunghwa Precision Test Tech. Co., Ltd. ("CHPT")	Production and sale of semiconductor testing components and printed circuit board	34	34	j)
Chunghwa Precision Test Tech. Co., Ltd.	Chunghwa Precision Test Tech. USA Corporation ("CHPT (US)")	Design and after-sale services of semiconductor testing components and printed circuit board	100	100	
	CHPT Japan Co., Ltd. ("CHPT (JP)")	Related services of electronic parts, machinery processed products and printed circuit board	100	100	
	Chunghwa Precision Test Tech. International, Ltd. ("CHPT (International)")	Wholesale and retail of electronic materials, and investment	100	100	
Senao International (Samoa) Holding Ltd.	Senao International HK Limited ("SIHK")	International investment	100	100	
Senao International HK Limited	Senao Trading (Fujian) Co., Ltd. ("STF")	Sale of information and communication technologies products	100	-	k)
	Senao International Trading (Shanghai) Co., Ltd. ("SITS")	Sale of information and communication technologies products	100	100	
	Senao International Trading (Shanghai) Co., Ltd. ("SEITS")	Maintenance of information and communication technologies products	-	-	l)
	Senao International Trading (Jiangsu) Co., Ltd. ("SITJ")	Sale of information and communication technologies products	100	-	m)
Prime Asia Investments Group Ltd. (B.V.I.)	Chunghwa Hsingta Co., Ltd. ("CHC")	Investment	100	100	

(Continued)

Name of Investor	Name of Investee	Main Businesses and Products	Percentage of Ownership December 31 2018	Percentage of Ownership December 31 2019	Note
Chunghwa Hsingta Co., Ltd. ("CHC")	Chunghwa Telecom (China) Co., Ltd. ("CTC")	Integrated information and communication solution services for enterprise clients, and intelligent energy network service	100	100	
	Jiangsu Zhenhua Information Technology Company, LLC. ("JZIT")	Providing intelligent energy saving solution and intelligent buildings services	-	-	n)
Chunghwa Precision Test Tech. International, Ltd.	Shanghai Taihua Electronic Technology Limited ("STET")	Design of printed circuit board and related consultation service	100	100	
	Su Zhou Precision Test Tech. Ltd. ("SZPT")	Assembly processed of circuit board, design of printed circuit board and related consultation service	-	100	o)

(Concluded)

a) SENAO transferred its treasury stock to employees in June 2018 and the Company's ownership interest in SENAO decreased to 28.18% as of December 31, 2018 and 2019. As Chunghwa continues to control over half of the seats of the Board of Directors of SENAO (six out of eleven seats as of December 31, 2019) through the support of large beneficial stockholders, the accounts of SENAO are included in the consolidated financial statements.

b) CHIEF issued new shares in March and November 2018, and March and November 2019, as its employees exercised their options. In addition, Chunghwa and CHI disposed some shares of CHIEF in May 2018 before CHIEF traded its shares on the General Stock Market of the Taipei Exchange according to the local requirements. Furthermore, Chunghwa and CHI did not participate in the capital increase of CHIEF in June 2018. Therefore, the Company's ownership interest in CHIEF decreased to 60.23% and 59.75% as of December 31, 2018 and 2019, respectively.

c) SHE reduced 19.72% of its capital to offset accumulated deficits in December 2019 and the Company's ownership interest in SHE remained the same.

d) The Company increased its investment in CHTT proportionally in October 2019 and the Company's ownership interest in CHTT remained the same.

e) SENAO subscribed for all the shares in the capital increase of Youth in December 2018. Therefore, the Company's ownership interest in Youth increased from 89% to 93%.

f) Aval invested 100% equity shares of Wiin Technology Co., Ltd. ("Wiin") in September 2019.

g) SENYOUNG invested 100% equity shares of Senaolife Insurance Agent Co., Ltd. ("Senaolife") in November 2019.

h) LED invested 60% equity shares of Taoyuan Asia Silicon Valley Innovation Co., Ltd. ("TASVI") in March 2018. TASVI completed its liquidation in September 2019.

i) Concord completed its liquidation in January 2018.

j) CHI disposed some shares of CHPT from April to August 2018. Therefore, its ownership interest in CHPT decreased to 34.25% as of December 31, 2018 and 2019. However, considering the absolute and relative size of ownership interest, and the dispersion of shares owned by the other stockholders, the management concluded that the Company has a sufficiently dominant voting interest to direct the relevant activities; hence, CHPT is deemed as a subsidiary of the Company.

k) STF completed its liquidation in May 2019.

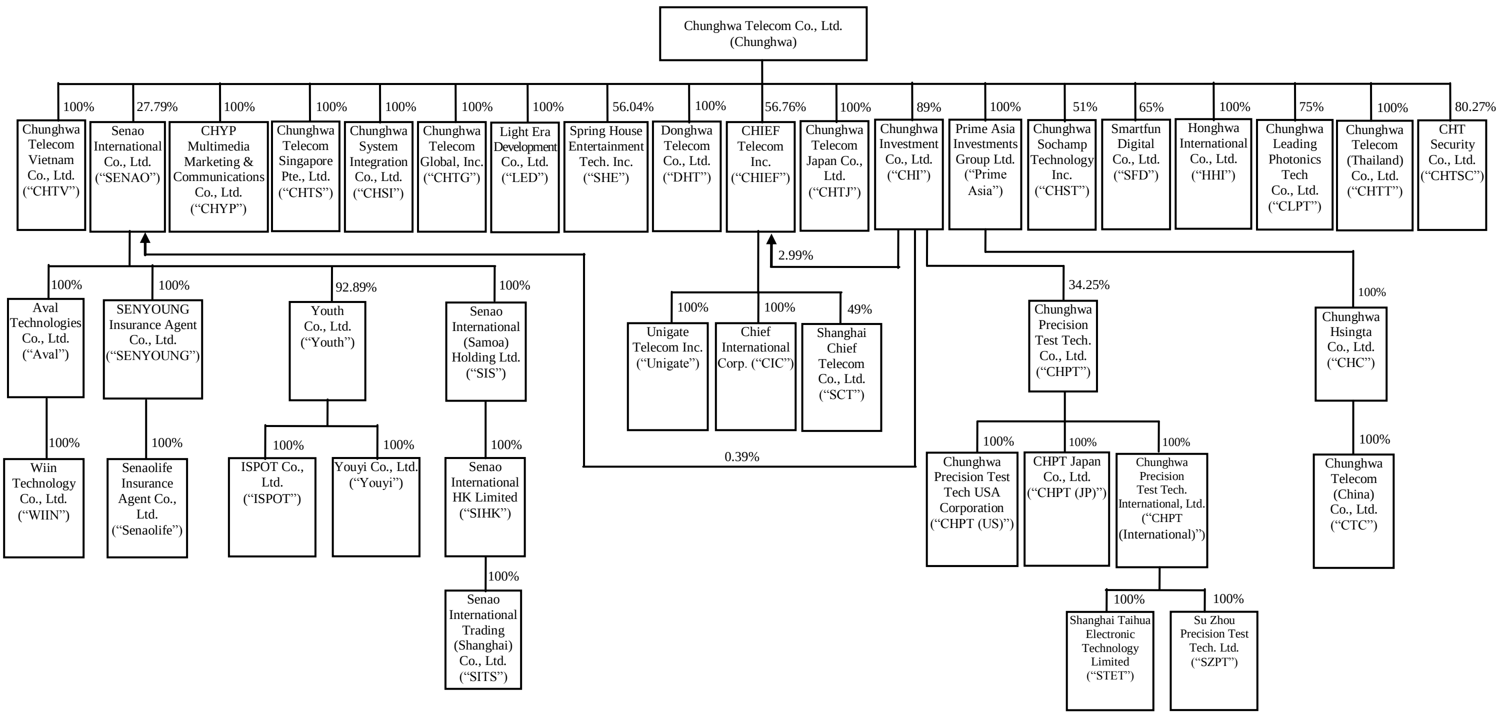
l) SEITS completed its liquidation in March 2018.

m) SITJ completed its liquidation in March 2019.

n) JZIT completed its liquidation in December 2018.

o) CHPT (International) invested 100% equity shares of Su Zhou Precision Test Tech. Ltd. ("SZPT") in October 2019.

The following diagram presents information regarding the relationship and ownership percentages between Chunghwa and its subsidiaries as of December 31, 2019:



Foreign Currencies

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

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

Non-monetary items carried at fair value that are denominated in foreign currencies are retranslated at the rates prevailing at the date when the fair value was determined and related exchange differences are recognized in profit or loss. Conversely, when the fair value changes were recognized in other comprehensive income, related exchange difference shall be recognized in other comprehensive income.

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

Chunghwa uses New Taiwan dollars (NT$) as the functional currency. For the purposes of presenting consolidated financial statements, the assets and liabilities of the Company's foreign operations (including of the subsidiaries and associates in other countries or currencies used different with Chunghwa) are translated into New Taiwan dollars using exchange rates prevailing at the end of each reporting period. Income and expense items are translated at the average exchange rates for the period. Exchange differences arising, if any, are recognized in other comprehensive income and attributed to stockholders of the parent and noncontrolling interests as appropriate.

Cash Equivalents

Cash equivalents include commercial paper, time deposits, negotiable certificates of deposit and repurchase agreements collateralized by bonds with original maturities within three months from the date of acquisition, 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.

Inventories

Inventories are stated at the lower of cost or net realizable value item by item, except for those that may be appropriate to group items of similar or related inventories. Net realizable value is the estimated selling price of inventories less all estimated costs of completion and costs necessary to make the sale. The calculation of the cost of inventory is derived using the weighted-average method.

Buildings and Land Consigned to Construction Contractors

Inventories of LED are stated at the lower of cost or net realizable value item by item, except for those that may be appropriate to group as similar items or related inventories. Land acquired before construction is classified as land held for development, and then reclassified as land held under development after LED begins its construction project.

Upon the completion of the construction project, LED recognizes revenues in the amount of proceeds from customers for land and buildings and related costs when ownership is transferred to the customers. The unsold portion of the completed construction project is transferred to land and building held for sale.

Investments in Associates and Joint Ventures

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

Investments accounted for using the equity method include investments in associates and interests in joint ventures. Under the equity method, an investment in an associate or a joint venture is initially recognized at cost and adjusted thereafter to recognize the Company's share of profit or loss and other comprehensive income of the associate and joint venture as well as the distribution received.

When the Company reduces its ownership interest in an associate or a joint venture but the Company continues to use the equity method, the Company reclassifies to profit or loss the proportion of the gain or loss that had previously been recognized in other comprehensive income relating to that reduction in ownership interest if that gain or loss would be reclassified to profit or loss on the disposal of the related assets or liabilities.

Any excess of the cost of acquisition over the Company's share of the fair value of the identifiable net 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 shall not be amortized. Any excess of the Company's share of the net fair value of the identifiable assets and liabilities over the cost of acquisition is recognized immediately in profit or loss.

When necessary, the entire carrying amount of the 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.

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

Property, Plant and Equipment

Property, plant and equipment are initially measured at cost and subsequently measured at cost less accumulated depreciation and accumulated impairment loss.

Property, plant and equipment in the course of construction are depreciated and classified to the appropriate categories of property, plant and equipment when completed and ready for their intended use.

Depreciation on property, plant and equipment is recognized using the straight-line method. Each significant part is depreciated separately. Freehold land is not depreciated. The estimated useful lives, residual values and depreciation method are reviewed at the end of each year, 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 net disposal proceeds and the carrying amount of the asset is recognized in profit or loss in the period in which the property is derecognized.

Investment Properties

Investment properties are properties held to earn rentals and/or for capital appreciation. 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.

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

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

On derecognition of the investment properties, the difference between the net disposal proceeds and the carrying amount of the asset is recognized in profit or loss in the period in which the property is derecognized.

Goodwill

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

For the purpose of impairment testing, goodwill is allocated to each of the Company's cash-generating units or groups of cash-generating units (referred to as "cash-generating unit") that are expected to benefit from the synergies of the business 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 attributable 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 to the other assets of the unit pro rata 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.

Intangible Assets Other Than Goodwill

Intangible assets with finite useful lives that are acquired separately are initially measured at cost and subsequently measured at cost less accumulated amortization and accumulated impairment loss. Amortization is recognized on a straight-line basis. The estimated useful life, residual value and amortization method are reviewed at the end of each reporting period, with the effect of any changes in estimate being accounted for on a prospective basis. The residual value of an intangible asset with a finite useful life shall be assumed to be zero unless the Company expects to dispose of the intangible asset before the end of its economic life.

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.

Gains or losses arising from derecognition of an intangible asset, measured as the difference between the net disposal proceeds and the carrying amount of the asset, are recognized in profit or loss in the period in which the asset is derecognized.

Impairment of Tangible Assets, Intangible Assets Other Than Goodwill and Incremental Costs of Obtaining Contracts

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

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

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.

Impairment loss from the assets related to incremental cost of obtaining contracts is recognized to the extent that the carrying amount of the assets exceeds the remaining amount of consideration that the Company expects to receive in exchange for related goods or services less the costs which relate directly to providing those goods or services.

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 in profit or loss.

Financial Instruments

Financial assets and financial liabilities are recognized when the Company 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 of financial assets and financial liabilities (other than financial assets and financial liabilities at fair value through profit or loss) are added to 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.

a. Financial assets

All regular way purchases or sales of financial assets are recognized and derecognized on a trade date basis. The regular way of transaction means the purchase or sale of financial assets delivered within the time frame established by regulation or convention in the marketplace.

1) Measurement category

2017

a) Financial assets at fair value through profit or loss (FVTPL)

Financial assets are classified as at FVTPL when the financial asset is held for trading.

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 does not incorporate any dividend or interest earned on the financial asset.

b) Held-to-maturity financial assets

Held-to-maturity financial assets are non-derivative financial assets with fixed or determinable payments and fixed maturity date that the Company has positive intention and ability to hold to maturity other than those that are designated as at fair value through profit or loss or as available-for-sale and those that meet the definition of loans and receivables on initial recognition.

The Company invests in bank debentures and corporate bonds with specific credit ratings and the Company has positive intent and ability to hold to maturity, are classified as held-to-maturity investments.

Subsequent to initial recognition, held-to-maturity financial assets are measured at amortized cost using the effective interest method less any impairment loss.

c) Available-for-sale financial assets (AFS financial assets)

AFS financial assets are non-derivatives that are either designated as AFS or are not classified as loans and receivables, held-to-maturity financial assets or financial assets at fair value through profit or loss.

The Company invests in listed stocks, emerging market stocks, and non-listed stocks. Among these investments, those that have a quoted market price in an active market are classified as AFS and measured at fair value at the end of each reporting period; the others that do not have a quoted market price in an active market and whose fair value cannot be reliably measured are measured at cost less any identified impairment losses at the end of each reporting period. If, in a subsequent period, the fair value of the financial assets can be reliably measured, the financial assets are remeasured at fair value. The difference between the carrying amount and the fair value is recognized in other comprehensive income. Any impairment losses are recognized in profit or loss.

Changes in the carrying amount of AFS monetary financial assets relating to changes in foreign currency exchange rates, interest income calculated using the effective interest method and dividends on AFS equity investments are recognized in profit or loss. Other changes in the carrying amount of AFS financial assets are recognized in other comprehensive income and will be reclassified to profit or loss when the investment is disposed of or is determined to be impaired.

Dividends on AFS equity instruments are recognized in profit or loss when the Company's right to receive the dividends is established.

d) Loans and receivables

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. Loans and receivables (including cash and cash equivalents, trade notes and accounts receivable, receivables from related parties, other financial assets and refundable deposits) are measured at amortized cost using the effective interest method, less any impairment loss, except for short-term receivables as the effect of discounting is immaterial.

Starting from 2018

a) Financial assets at fair value through profit or loss (FVTPL)

Financial asset is classified as at FVTPL when the financial asset is mandatorily classified as at FVTPL. Financial assets mandatorily classified as at FVTPL include investments in equity instruments which are not designated as at fair value through other comprehensive income (FVOCI).

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 does not incorporate any dividend earned on the financial asset. Fair value is determined in the manner described in Note 37.

b) 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 are measured at amortized cost, which equals to gross carrying amount determined by the effective interest method less any impairment loss, except for short-term receivables as the effect of discounting is immaterial. Exchange differences are recognized in profit or loss.

Interest income is calculated by applying the effective interest rate to the gross carrying amount of such financial assets.

c) Investments in equity instruments at FVOCI

On initial recognition, the Company may make an irrevocable election to designate investments in equity instruments as at FVOCI. Designation at FVOCI 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 FVOCI 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, it will be transferred to retained earnings.

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

2) Impairment of financial assets and contract assets

<u>2017</u>

Financial assets, other than those at FVTPL, are assessed to determine whether there is objective evidence that an impairment loss has occurred at the end of each reporting period. 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 asset, the estimated future cash flows of the investment have been affected.

For financial assets carried at amortized cost, such as held-to-maturity financial assets, and trade notes and accounts receivable, assets that are individually assessed and not impaired are, in addition, assessed for impairment on a collective basis.

For financial assets carried at amortized cost, the amount of the impairment loss recognized is mainly based on the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the financial asset's original effective interest rate. However, since the discounted effect of short-term receivables is immaterial, the impairment loss is recognized on the difference between carrying amount and estimated future cash flow.

For financial assets measured at amortized cost, if, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognized, the previously recognized impairment loss is reversed through profit or loss to the extent that the carrying amount of the investment at the date the impairment is reversed does not exceed what the amortized cost would have been had the impairment not been recognized.

For AFS 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 AFS 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 AFS equity securities, impairment losses previously recognized in profit or loss are not reversed through profit or loss. Any increase in fair value subsequent to an impairment loss is recognized in other comprehensive income.

For financial assets that are carried at cost, the amount of the impairment loss is mainly measured as the difference between the asset's carrying amount and the present value of the estimated future cash flows discounted at the current market rate of return for a similar financial asset. Such impairment loss is not reversed in subsequent periods.

The carrying amount of the financial asset is reduced by the impairment loss directly for all financial assets with the exception of trade notes and accounts receivable and other receivables, where the carrying amount is reduced through the use of an allowance account. When trade notes and accounts receivable and other receivables are considered uncollectible, it is 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 notes and accounts receivable and other receivables that are written off against the allowance account.

Starting from 2018

The Company recognizes a loss allowance for expected credit losses on financial assets at amortized cost (including accounts receivable) and contract assets.

The Company recognizes lifetime Expected Credit Loss (ECL) for accounts receivable and contract assets. For all other financial instruments, the Company 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 Company 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 ECL that is expected to result from default events on a financial instrument that are possible within 12 months after the reporting date.

The Company recognizes an impairment loss for all financial instruments with a corresponding adjustment to their carrying amount through a loss allowance account.

3) Derecognition of financial assets

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

2017

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 that had been recognized in other comprehensive income is recognized in profit or loss.

Starting from 2018

On derecognition of a financial asset measured 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 investments in equity instruments at FVOCI in its entirety, the cumulative gain or loss is directly transferred to retained earnings, and it is not reclassified to profit or loss.

b. Financial liabilities

1) Subsequent measurement

Except for financial liabilities at FVTPL, all the financial liabilities are subsequently measured at amortized cost using the effective interest method.

2) Derecognition of financial liabilities

The Company derecognizes financial liabilities when, and only when, the Company'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.

c. Derivative financial instruments

The Company enters into derivative financial instruments to manage its exposure to foreign exchange rate risks, including forward exchange contracts.

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

Hedge Accounting

The Company designates some derivatives instruments as cash flow hedges. Hedges of foreign exchange risk on firm commitments are accounted for as 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 is 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 forecast 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 are included in the initial cost of the non-financial asset or non-financial liability.

Before 2018, hedge accounting was discontinued prospectively when the Company revoked the designated hedging relationship, or when the hedging instrument expired or was sold, terminated, or exercised, or when the hedging instrument no longer met the criteria for hedge accounting. Starting from 2018, the Company discontinues hedge accounting only when the hedging relationship ceases 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.

Provisions

Provisions are measured at the best estimate of the expenditure required to settle the Company's obligation at the end of the reporting period, taking into account the risks and uncertainties surrounding the obligation. The provisions for warranties claims and trade-in right of 2017 are made by management according to the sales agreements which represent the management's best estimate of the future outflow of economic benefits. The provisions of warranties claims and trade-in right of 2017 are recognized as operating cost and the reduction of revenue, respectively, in the period in which the goods are sold. The provision for onerous contracts represents the present obligation resulting from the measurement for the unavoidable costs of meeting the Company's contractual obligations exceed the economic benefits expected to be received from the contracts.

Revenue Recognition

<u>2017</u>

Revenue from the sale of goods is recognized when all the following conditions are satisfied:

a. The Company has transferred to the buyer the significant risks and rewards of ownership of the goods;

b. The Company 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 the Company; and

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

Revenue is measured at the fair value of the consideration received or receivable and represents amounts for goods sold in the normal course of business, net of sales discounts and volume rebates. For trade notes and accounts receivable due within one year from the balance sheet date, as the nominal value of the consideration to be received approximates its fair value and transactions are frequent, fair value of the consideration is not determined by discounting all future receipts using an imputed rate of interest.

Usage revenues from fixed-line services (including local, domestic long distance and international long distance telephone services), mobile services, internet and data services, and interconnection and call transfer fees from other telecommunications companies and carriers are billed in arrears and are recognized based upon seconds or minutes of traffic processed when the services are provided in accordance with contract terms.

Other revenues are recognized as follows: (a) one-time subscriber connection fees (on fixed-line services) are deferred and recognized over the average expected customer service periods, (b) monthly fees (on fixed-line services, mobile, internet and data services) are accrued every month, and (c) prepaid services (fixed-line, mobile, internet and data services) are recognized as income based upon actual usage by customers.

Where the Company enters into transactions which involve both the provision of telecommunications service bundled with products such as handsets, total consideration received from products and telecommunications service in these arrangements are allocated and measured using units of accounting within the arrangement based on their relative fair values limited to the amount paid by the customer for the products.

Services revenue is recognized when service provided. Revenue from a contract to provide services is recognized by reference to the stage of completion of the contract.

Dividend income from investments is recognized when the stockholder's right to receive payment has been established under the premises when it is probable that the economic benefit related to the transactions will flow to the Company and that the revenue can be reasonably measured.

Interest income from a financial asset is recognized when it is probable that the economic benefits related to the transactions will flow to the Company and the amount of income can be measured reliably. Interest income is accrued on a time basis, by reference to the principal outstanding and at the effective interest rate applicable.

When another party is involved in providing goods or services to a customer, the Company is acting as a principal when it has exposure to the significant risks and rewards associated with the sale of goods or the rendering of services; otherwise, the Company is acting as an agent. When the Company is acting as a principal, gross inflow of economic benefits arising from transactions is recognized as revenue. When the Company is acting as an agent, revenue is recognized as its share of transaction.

Starting from 2018

The Company identifies the performance obligations in the contract with the customers, allocates transaction price to each performance obligation and recognizes revenue when performance obligations are satisfied.

Sales of products are recognized as revenue when the Company delivers products and the customer accepts and controls the product. Except for the consumer electronic products such as mobile devices sold in channel stores which are usually in cash sale, the Company recognizes revenues for sale of other electronic devices and corresponding trade notes and accounts receivable.

Usage revenues from fixed-line services (including local, domestic long distance and international long distance telephone services), mobile services, internet and data services, and interconnection and call transfer fees from other telecommunications companies and carriers are billed in arrears and are recognized based upon seconds or minutes of traffic processed when the services are provided in accordance with contract terms. The usage revenues and corresponding trade notes and accounts receivable are recognized monthly.

Other revenues are recognized as follows: (a) one-time subscriber connection fees (on fixed-line services) are first recognized as contract liabilities and revenues are recognized subsequently over the average expected customer service periods, (b) monthly fees (on fixed-line services, mobile, internet and data services) and related receivables are accrued monthly, and (c) prepaid services (fixed-line, mobile, internet and data services) are recognized as contract liabilities upon collection considerations from customers and are recognized as revenues subsequently based upon actual usage by customers.

Where the Company enters into transactions which involve both the provision of telecommunications service bundled with products such as handsets, total consideration received from products and telecommunications service in these arrangements are allocated based on their relative stand-alone selling price. The amount of sales revenue recognized for products is not limited to the amount paid by the customer for the products. When the amount of sales revenue recognized for products exceeded the amount paid by the customer for the products, the difference is recognized as contract assets. Contract assets are reclassified to accounts receivable when the amounts become collectible from customers subsequently. When the amount of sales revenue recognized for products was less than the amount paid by the customer for the products, the difference is recognized as contract liabilities and revenues are recognized subsequently when the telecommunications service are provided.

For project business contracts, if a substantial part of the Company's promise to customers is to manage and coordinate the various tasks and assume the risks of those tasks to ensure the individual goods or services are incorporated into the combined output, they are treated as a single performance obligation since the Company provides a significant integration service. The Company recognizes revenues and corresponding accounts receivable when the project business contract is completed and accepted by customers.

For service contracts such as maintenance and warranties, customers simultaneously receive and consume the benefits provided by the Company; thus revenues and corresponding accounts receivable of service contracts are recognized over the related service period.

When another party is involved in providing goods or services to a customer, the Company is acting as a principal if it controls the specified good or service before that good or service is transferred to a customer; otherwise, the Company is acting as an agent. When the Company is acting as a principal, gross inflow of economic benefits arising from transactions is recognized as revenue. When the Company is acting as an agent, revenue is recognized as its share of transaction.

Incremental Costs of Obtaining Contracts

Commissions and equipment subsidy related to telecommunications service as a result of obtaining contracts are recognized as an asset under the incremental costs of obtaining contracts to the extent the costs are expected to be recovered, and are amortized over the contract period. However, the Company elects not to capitalize the incremental costs of obtaining contracts if the amortization period of the assets that the Company otherwise would have recognized is expected to be one year or less.

Leasing

<u>Prior to 2019</u>

a. The Company as lessor

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

b. The Company as lessee

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

<u>2019</u>

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

a. The Company as lessor

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

b. The Company as lessee

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

Right-of-use assets are initially measured at cost, which comprises the initial measurement of lease liabilities and for lease payments made at or before the commencement date. Right-of-use assets are subsequently measured at cost less accumulated depreciation and accumulated impairment losses and adjusted for any remeasurement of the lease liabilities. Right-of-use assets are presented separately on the consolidated balance sheets.

Right-of-use assets are depreciated using the straight-line basis from the commencement dates to the earlier of the end of the useful lives of the right-of-use assets or the end of the lease terms.

Lease liabilities were initially measured at the present value of the lease payments, which comprise fixed payments, in-substance fixed payments, variable lease payments which depend on an index or a rate. The lease payments are discounted using the interest rate implicit in a lease, if that rate can be readily determined. If such rate cannot be readily determined, the lessee's incremental borrowing rate is used.

Lease liabilities are subsequently measured at amortized cost using the effective interest method, with interest expense recognized over the lease terms. When there is a change in a lease term or a change in future lease payments resulting from a change in an index or a rate used to determine those payments, the Company remeasures the lease liabilities with a corresponding adjustment to the right-of-use-assets. However, if the carrying amount of the right-of-use assets is reduced to zero, any remaining amount of the remeasurement is recognized in profit or loss. Lease liabilities are presented separately on the consolidated balance sheets.

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

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.

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

Government Grants

Government grants are not recognized until there is reasonable assurance that the Company will comply with the conditions attached to government grants 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 Company recognizes expenses of the related costs for which the grants are intended to compensate. Specifically, government grants whose primary condition is that the Company should construct noncurrent assets are recognized as deferred revenue and transferred to profit or loss on a systematic and rational basis over the useful lives of the related assets.

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 service.

b. Retirement benefits

Payments to defined contribution retirement benefit plans are recognized as an expense when employees have rendered service 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 gains or losses on settlements) and net interest on the net defined benefit liability (asset) are recognized as employee benefits expense in the period they occur. Remeasurement, comprising (a) actuarial gains and losses; and (b) the return on plan assets, excluding amounts included in net interest on the net defined benefit liability (asset), 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 Company's defined benefit plan. Any surplus resulting from this calculation is limited to the present value of any refunds from the plans or reductions in future contributions to the plans.

c. Other long-term employee benefits

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

Share-based Payment Arrangements - Employee Stock Options

The fair value determined at the grant date of the employee share options is expensed on a straight-line basis over the vesting period, based on the Company's estimate of employee stock options that are expected to ultimately vest, with a corresponding increase in additional paid-in capital - employee stock options. If the equity instruments granted vest immediately at the grant date, expenses are recognized in full in profit or loss.

At the end of each reporting period, the Company revises its estimate of the number of employee share options expected to vest. The impact of the revision of the original estimates, if any, is recognized in profit or loss such that the cumulative expense reflects the revised estimate, with a corresponding adjustment to additional paid-in capital - employee stock options.

Income Tax

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

a. Current tax

The current tax is based on taxable profit for the year. Taxable profit differs from profit as reported in the consolidated statement of comprehensive income because of items of income or expense that are taxable or deductible in other years and items that are never taxable or deductible. The Company's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

Income tax on unappropriated earnings is accrued during the period the earnings arise and adjusted to the extent that distributions are approved by the stockholders in the following year.

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

b. 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 the 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 difference arising from 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 carry forward and unused tax credits from purchases of machinery, equipment and technology, and research and development expenditures to the extent that it is probable that taxable profits will be available against which those deductible temporary differences can be utilized.

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

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

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

c. Current and deferred tax

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

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.

4. CRITICAL ACCOUNTING JUDGMENTS AND KEY SOURCES OF ESTIMATION, UNCERTAINTY AND ASSUMPTION

In the application of the Company’s accounting policies, the management is required to make judgments, estimates and assumptions which are based on historical experience and other factors that are not readily apparent from other sources. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed by the management 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.

a. Critical accounting judgments

1) Revenue recognition

The Company's project agreements are mainly to provide one or more customized equipment or services to customers. In order to fulfill the agreements, another party may be involved in some agreements. The Company considers the following factors to determine whether the Company is a principal of the transaction: whether the Company is the primary obligation provider of the agreements, its exposures to inventory risks and the discretion in establishing prices, etc. The determination of whether the Company is a principal or an agent will affect the amount of revenue recognized by the Company. Only when the Company is acting as a principal, gross inflows of economic benefits arising from transactions is recognized as revenue.

2) Control over subsidiaries

As discussed in Note 3, some entities are subsidiaries of the Company although the Company only owns less than 50% ownership interests in these entities. After considering the Company's absolute size of holding in the entity and the relative size of and the dispersion of shares owned by the other stockholders, and the contractual arrangements between the Company and other investors, potential voting interests and the written agreement between stockholders, the management concluded that the Company has a sufficiently dominant voting interest to direct the relevant activities of the entity and to have control over the governance of the entity and therefore the Company has control over these entities.

b. Key sources of estimation uncertainty and assumption

The following are the key assumptions concerning the future, and other key sources of estimation uncertainty at the end of the reporting period. Actual results may differ from these estimates.

1) Impairment of trade notes and accounts receivable

<u>2017</u>

When there is objective evidence showed indications of impairment, the Company considers the estimation of future cash flows. The amount of impairment will be measured at the difference between the carrying amount and the present value of estimated future cash flows discounted by the original effective interest rates of the financial assets. However, as the impact from discounting short-term receivables is not material, the impairment of short-term receivables is measured at the difference between the carrying amount and the estimated undiscounted future cash flows. Where the actual future cash flows are lower than expected, a material impairment loss may arise.

<u>Starting from 2018</u>

The provision for impairment of trade notes and accounts receivable is based on assumptions about risk of default and expected loss rates. The Company uses judgment in making these assumptions and in selecting the inputs to the impairment calculation, based on the Company's past experience, current market conditions as well as forward looking information at the end of each reporting period. For details of the key assumptions and inputs used, see Note 10. Where the actual future cash flows are less than expected, a material impairment loss may arise.

2) Fair value measurements and valuation processes

For the assets and liabilities measured at fair value without quoted prices in active markets, the Company's management determines the appropriate valuation techniques for the fair value measurements and whether to engage third party qualified appraisers based on the related regulations and professional judgments.

Information about the valuation techniques and inputs used in determining the fair value of various assets and liabilities was disclosed in Note 37. If the actual changes of inputs in the future differ from expectation, the fair value may vary accordingly. The Company updates inputs periodically to monitor the appropriateness of the fair value measurement.

3) Provision for inventory valuation and obsolescence

Inventories are stated at the lower of cost or net realizable value. Estimates of net realizable value are based on the most reliable evidence available at the time the estimates are made at the end of reporting period. These estimates take into consideration fluctuations of price or cost directly relating to events occurring after the end of the period to the extent that such events confirm conditions existing at the end of the period. Inventory write-downs are determined on an item by item basis, except for those similar items which could be categorized into the same groups. The Company uses the inventory holding period and turnover as the evaluation basis for inventory obsolescence losses.

4) Impairment of tangible and intangible assets

In the process of evaluating the potential impairment of tangible and intangible assets, the Company is required to consider internal and external indicators of impairment and make subjective judgments in determining the independent cash flows, useful lives, expected future revenue and expenses related to the specific asset groups within the context of the telecommunication industry. Any changes in these estimates based on changed economic conditions or business strategies could result in significant impairment charges in future periods.

5) Useful lives of property, plant and equipment

As discussed in Note 3, "Summary of Significant Accounting Policies - Property, Plant and Equipment", the Company reviews estimated useful lives of property, plant and equipment at the end of each year.

6) Recognition and measurement of defined benefit plans

Net defined benefit liabilities and the resulting pension expense under defined benefit pension plans are calculated using the Projected Unit Credit Method. Actuarial assumptions comprise the discount rate, employee turnover rate, average future salary increase and etc. Changes in economic circumstances and market conditions will affect these assumptions and may have a material impact on the amount of the expense and the liability.

7) Lessees' incremental borrowing rates

2019

In determining a lessee's incremental borrowing rate used in discounting lease payments, a risk-free rate for relevant duration and the same currency is selected as a reference rate. The lessee's credit spread adjustments and lease specific adjustments are also taken into account.

5. APPLICATION OF NEW AND AMENDED INTERNATIONAL FINANCIAL REPORTING STANDARDS

Amendments to IFRSs and the New Interpretation That Are Mandatorily Effective for the Current Year

The Company has applied the amendments to IFRSs included in the Annual Improvements to IFRSs 2015-2017 Cycle, Amendments to IFRS 9: Prepayment Features with Negative Compensation, IFRS 16: Lease, Amendments to IAS19: Plan Amendment, Curtailment or Settlement, Amendments to IAS 28: Long-term Interests in Associates and Joint Ventures, and IFRIC 23: Uncertainty Over Income Tax Treatments for the first time in 2019. Except for the following, the application of these new standards and amendments has had no impact on the disclosures or amounts recognized in the Company's consolidated financial statements.

IFRS 16 "Leases"

IFRS 16 sets out the accounting standards for identifying leases and accounting treatments for lessors and lessees. It supersedes IAS 17 "Lease", IFRIC 4 - Determining Whether an Arrangement Contains a Lease and a number of related interpretations. Refer to Note 3 for information relating to the relevant accounting policies.

The Company reassessed whether a contract is, or contains, a lease in accordance with the definition of a lease under IFRS 16. Some contracts previously identified as containing a lease under IAS 17 and IFRIC 4 do not meet the definition of a lease under IFRS 16 and are accounted for in accordance with other accounting standards because the Company does not have the right to direct the use of the identified assets. Contracts that are reassessed as leases or containing a lease are accounted for in accordance with the transitional provisions under IFRS 16.

If the Company is a lessee, it shall recognize right-of-use assets and lease liabilities for all leases on the consolidated balance sheets except for those whose payments for low-value assets are recognized as expenses on a straight-line basis. On the consolidated statements of comprehensive income, the Company presents the depreciation expense charged on the right-of-use asset separately from the interest expense accrued on lease liability using the effective interest method. On the consolidated statements of cash flows, cash payments for the principal portion of lease liability are classified within financing activities; cash payments for interest portion are classified within operating activities. Before the application of IFRS 16, payments under operating lease contracts were recognized as expenses on a straight-line basis. Prepaid lease payments for use rights of leased assets were recognized as prepaid rents. Cash flows for operating leases were classified within operating activities on the statements of cash flows.

The Company did not make any adjustments for leases in which the Company is a lessor and accounted for those leases with the application of IFRS 16 starting from January 1, 2019.

The Company applied IFRS 16 retrospectively with the cumulative effect of the initial application of IFRS 16 recognized in retained earnings on January 1, 2019. Comparative financial information is not restated.

Lease liabilities are recognized on January 1, 2019 for leases previously classified as operating leases under IAS 17 and measured at the present value of the remaining lease payments, discounted using the lessee's incremental borrowing rate on January 1, 2019. Right-of-use assets are measured at the present value discounted using the aforementioned incremental borrowing rate as if IFRS 16 had been applied since the commencement date of leases. The Company applies IAS 36 for assessing impairment of right-of-use assets.

The Company's weighted average incremental borrowing rate applied to lease liabilities recognized on January 1, 2019 was 0.85%. The difference between the (1) lease liabilities recognized on January 1, 2019 and (2) future aggregate minimum lease payments of non-cancellable operating lease under IAS 17 on December 31, 2018 is explained as follows:

	NT$ (In Millions)
The future aggregate minimum lease payments of non-cancellable operating lease on December 31, 2018	$ 10,558
Less: Recognition exemption for leases of low-value assets	(3)
Undiscounted amount on January 1, 2019	$ 10,555
Discounted lease liabilities using the incremental borrowing rate on January 1, 2019	$ 10,340
Add: Adjustments as a result of a different treatment of extension options	-
Lease liabilities recognized on January 1, 2019	$ 10,340

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

	Carrying Amount as of January 1, 2019 NT$	Effect of Retrospective Application of IFRS 16 NT$ (In Millions)	Adjusted Carrying Amount as of January 1, 2019 NT$
Prepayments - current	$ 1,873	$ (245)	$ 1,628
Property, plant and equipment	$ 288,914	(1,309)	$ 287,605
Right-of-use assets	$ -	12,163	$ 12,163
Deferred income tax assets	$ 3,554	26	$ 3,580
Prepayments - noncurrent	$ 3,463	(414)	$ 3,049
Total effect on assets		$ 10,221	
Contract liabilities - current	$ 10,688	$ 214	$ 10,902
Lease liabilities - current	$ -	3,394	$ 3,394
Other payables	$ 23,315	(48)	$ 23,267
Other current liabilities	$ 1,382	(214)	$ 1,168
Contract liabilities - noncurrent	$ 2,595	3,483	$ 6,078
Deferred income tax liabilities	$ 1,992	-	$ 1,992
Lease liabilities - noncurrent	$ -	6,946	$ 6,946
Other noncurrent liabilities	$ 4,793	(3,483)	$ 1,310
Total effect on liabilities		$ 10,292	
Unappropriated earnings	$ 66,626	$ (51)	$ 66,575
Noncontrolling interests	$ 9,857	(20)	$ 9,837
Total effect on equity		$ (71)	

New and Amended IFRSs in Issue But Not Yet Effective

The Company has not applied the following new and amended IFRSs that have been issued but are not yet effective.

New or Amended Standards and Interpretations		Effective Date Issued by IASB (Note 1)
Amendments to IFRS 3	Definition of a Business	January 1, 2020 (Note 2)
Amendments to IFRS 9, IAS 39 and IFRS 7	Interest Rate Benchmark Reform	January 1, 2020 (Note 3)
Amendments to IFRS 10 and IAS 28	Sale or Contribution of Assets between an Investor and its Associate or Joint Venture	To be determined by IASB
Amendments to IAS 1 and IAS 8	Definition of Materiality	January 1, 2020 (Note 4)
Amendments to IAS 1	Classification of liabilities as current or noncurrent	January 1, 2022

Note 1: The aforementioned new or amended standards or interpretations are effective after fiscal year beginning on or after the effective dates, unless specified otherwise.

Note 2: The Company shall apply these amendments to business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after January 1, 2020 and to asset acquisitions that occur on or after the beginning of that period.

Note 3: The Company shall apply these amendments retrospectively in annual periods beginning on or after January 1, 2020.

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

The application of “Amendments to IFRS 3: Definition of a Business”, “Amendments to IFRS 9, IAS 39 and IFRS 7: Interest Rate Benchmark Reform” and “Amendments to IAS 1 and IAS 8: Definition of Materiality” will not have material impact on the Company’s consolidated financial statements.

As of the date the consolidated financial statements were authorized for issue, the Company is continuously assessing whether the application of “Amendments to IFRS 10 and IAS 28: Sale or Contribution of Assets between an Investor and its Associate or Joint Venture” and “Amendments to IAS 1: Classification of liabilities as current or noncurrent” will have the impact on the Company’s financial position and operating result. The Company will disclose the relevant impact when the assessment is completed.

6. U.S. DOLLAR AMOUNTS

The Company maintains its accounts and expresses its consolidated financial statements in New Taiwan dollars. For readers’ convenience only, U.S. dollar amounts presented in the accompanying consolidated financial statements have been translated from New Taiwan dollars as set forth in the statistical release of the Federal Reserve Board of the United States as of December 31, 2019, which was NT$29.91 to US$1.00. The convenience translations should not be construed as representations that the New Taiwan dollar 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.

7. CASH AND CASH EQUIVALENTS

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Cash		
Cash on hand	$ 463	$ 353
Bank deposits	10,575	9,433
	11,038	9,786
Cash equivalents (investments with maturities of less than three months)		
Commercial paper	6,144	20,110
Negotiable certificates of deposit	7,600	1,700
Time deposits	2,863	2,451
Repurchase agreements collateralized by bonds	-	3
	16,607	24,264
	$ 27,645	$ 34,050

The annual yield rates of bank deposits, commercial paper, negotiable certificates of deposit, time deposits and repurchase agreements collateralized by bonds as of balance sheet dates were as follows:

	December 31	
	2018	2019
Bank deposits	0.00%-0.50%	0.00%-0.74%
Commercial paper	0.47%-0.57%	0.47%-0.54%
Negotiable certificates of deposit	0.55%-0.60%	0.58%-0.60%
Time deposits	0.09%-4.40%	0.09%-4.40%
Repurchase agreements collateralized by bonds	-	1.90%

8. FINANCIAL INSTRUMENTS AT FAIR VALUE THROUGH PROFIT OR LOSS

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Financial assets-current		
Mandatorily measured at FVTPL		
Derivatives (not designated for hedge)		
Forward exchange contract	$ -	$ -
Non-derivatives		
Listed stocks - domestic	-	1
	$ -	$ 1

(Continued)

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Financial assets-noncurrent		
Mandatorily measured at FVTPL		
Non-derivatives		
Non-listed stocks - domestic	$ 293	$ 511
Non-listed stocks - foreign	224	267
Forward exchange contracts	$ 517	$ 778
Financial liabilities-current		
Held for trading		
Derivatives (not designated for hedge)		
Forward exchange contracts	$ 1	$ -

(Concluded)

The Company increased its investment in Taiwania Capital Buffalo Fund Co., Ltd. proportionally for $300 million in October 2019 and the Company's ownership interest in Taiwania Capital Buffalo Fund Co., Ltd. remained at 12.9%.

Outstanding forward exchange contracts not designated for hedge as of balance sheet dates were as follows:

	Currency	Maturity Period	Contract Amount (In Millions)
December 31, 2018			
Forward exchange contracts - buy	EUR/NT$	2019.03-06	EUR5/NT$193
Forward exchange contracts - buy	US$/NT$	2019.01	US$2/NT$62
December 31, 2019			
Forward exchange contracts - buy	EUR/NT$	2020.03	EUR2/NT$51
Forward exchange contracts - buy	US$/NT$	2020.01	US$1/NT$26

The Company entered into the above forward exchange contracts to manage its exposure to foreign currency risk due to fluctuations in exchange rates. However, the aforementioned derivatives did not meet the criteria for hedge accounting.

9. FINANCIAL ASSETS AT FAIR VALUE THROUGH OTHER COMPREHENSIVE INCOME - NONCURRENT

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Domestic investments		
Listed stocks	$ 2,900	$ 2,454
Non-listed stocks	3,901	4,566
Foreign investments		
Non-listed stocks	132	134
	$ 6,933	$ 7,154

The Company holds the above foreign and domestic stocks for medium to long-term strategic purposes and expects to profit from long-term investment. Accordingly, the management elected to designate these investments in equity instruments at FVOCI as they believe that recognizing short-term fair value fluctuations of these investments in profit or loss is not consistent with the Company's strategy of holding these investments for long-term purposes.

The Company recognized dividend income of $396 million and $296 million for the years ended December 31, 2018 and 2019, respectively, from those investments still held on balance sheet dates.

10. TRADE NOTES AND ACCOUNTS RECEIVABLE, NET

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Trade notes and accounts receivable	$ 32,678	$ 28,768
Less: Loss allowance	(2,602)	(2,360)
	$ 30,076	$ 26,408

2017

The average credit terms range from 30 to 90 days. In determining the recoverability of trade notes and accounts receivable, the Company considers significant change in the credit quality of the trade notes and accounts receivable from the date credit was initially granted up to the end of the reporting period. In general, with few exceptional cases, it is unlikely for the notes and accounts receivable due longer than 180 days to be collected, therefore the Company recognized 100% allowance of notes and accounts receivable overdue longer than 180 days. For the notes and accounts receivable less than 180 days, the allowance for doubtful accounts was estimated based on the Company's historical recovery experience.

The Company serves a large consumer base; therefore, the concentration of credit risk is limited.

Movements of the allowance for doubtful accounts were as follows:

	Individually Assessed for Impairment	Collectively Assessed for Impairment	Total
	NT$	NT$ (In Millions)	NT$
Balance on January 1, 2017	$ 805	$ 968	$ 1,773
Add: Provision for doubtful accounts	535	43	578
Deduct: Amounts written off	(15)	(219)	(234)
Balance on December 31, 2017	$ 1,325	$ 792	$ 2,117

Starting from 2018

The main credit terms range from 30 to 90 days.

The Company serves a large consumer base for telecommunications business; therefore, the concentration of credit risk is limited. When having transactions with customers, the Company considers the record of arrears in the past. In addition, the Company may also collect some telecommunication charges in advance to reduce the payment arrears in subsequent periods.

The Company adopted a policy of dealing with counterparties with certain credit ratings for project business and to obtain collateral where necessary to mitigate the risk of loss arising from default. Credit rating information is provided by independent rating agencies where available and, if such credit rating information is not available, the Company uses other publicly available financial information and its own historical transaction experience to rate its major customers. The Company continues to monitor the credit exposure and credit ratings of its counterparties and spread the credit risk amongst qualified counterparties.

In order to mitigate credit risk, the management of the Company has delegated a team responsible for determining credit limits, credit approvals and other monitoring procedures to ensure the recoverability of receivables. In addition, the Company reviews the recoverable amount of receivables at balance sheet dates to ensure that adequate allowance is provided for possible irrecoverable amounts. In this regard, the management believes the Company’s credit risk could be reasonably reduced.

The Company applies the simplified approach to providing for expected credit losses prescribed by IFRS 9, which permits the use of lifetime expected loss provision for receivables. The expected credit losses on receivables are estimated using a provision matrix by reference to past default experience of the customers and an analysis of the customers’ current financial positions, as well as the forward-looking indicators such as macroeconomic business indicator.

When there are evidences indicating that the counterparty is in evasion, bankruptcy, deregistration of its company or the accounts receivable are over two years past due and the recoverable amount cannot be reasonable estimated, the Company writes off the trade notes and accounts receivable. For accounts receivable that have been written off, the Company continues to engage in enforcement activity to attempt to recover the receivables due. Where recoveries are made, these are recognized in profit or loss.

Except for receivables arising from telecommunications business and project business, the Company's remaining accounts receivable are limited. Therefore, only Chunghwa's provision matrix arising from telecommunications business and project business is disclosed below:

December 31, 2018

	Not Past Due NT$	Past Due Less than 30 Days NT$	Pass Due 31 to 60 Days NT$	Pass Due 61 to 90 Days NT$	Pass Due 91 to 120 Days NT$	Pass Due 121 to 180 Days NT$	Pass Due over 180 Days NT$	Total NT$
				(In Millions)				
Telecommunications business								
Expected credit loss rate (Note a)	0%-3%	3%-30%	7%-69%	19%-82%	32%-90%	61%-95%	100%	
Gross carrying amount	$ 23,307	$ 455	$ 95	$ 49	$ 37	$ 36	$ 418	$ 24,397
Loss allowance (Lifetime ECL)	(80)	(27)	(24)	(29)	(28)	(25)	(418)	(631)
Amortized cost	$ 23,227	$ 428	$ 71	$ 20	$ 9	$ 11	$ -	$ 23,766
Project business								
Expected credit loss rate (Note b)	0%-5%	5%	10%	30%	50%	80%	100%	
Gross carrying amount	$ 4,067	$ 88	$ 92	$ 8	$ 12	$ 7	$ 1,725	$ 5,999
Loss allowance (Lifetime ECL)	(153)	(8)	(10)	(3)	(8)	(6)	(1,725)	(1,913)
Amortized cost	$ 3,914	$ 80	$ 82	$ 5	$ 4	$ 1	$ -	$ 4,086

December 31, 2019

	Not Past Due NT$	Past Due Less than 30 Days NT$	Pass Due 31 to 60 Days NT$	Pass Due 61 to 90 Days NT$	Pass Due 91 to 120 Days NT$	Pass Due 121 to 180 Days NT$	Pass Due over 180 Days NT$	Total NT$
				(In Millions)				
Telecommunications business								
Expected credit loss rate (Note a)	0%-2%	0%-25%	0%-68%	0%-83%	11%-90%	17%-96%	100%	
Gross carrying amount	$ 19,020	$ 268	$ 75	$ 47	$ 41	$ 28	$ 601	$ 20,080
Loss allowance (Lifetime ECL)	(56)	(26)	(28)	(35)	(26)	(27)	(601)	(799)
Amortized cost	$ 18,964	$ 242	$ 47	$ 12	$ 15	$ 1	$ -	$ 19,281
Project business								
Expected credit loss rate (Note b)	0%-5%	5%	10%	30%	50%	80%	100%	
Gross carrying amount	$ 4,054	$ 78	$ 52	$ 30	$ 12	$ 1	$ 1,472	$ 5,699
Loss allowance (Lifetime ECL)	(3)	(5)	(5)	(11)	(5)	(1)	(1,472)	(1,502)
Amortized cost	$ 4,051	$ 73	$ 47	$ 19	$ 7	$ -	$ -	$ 4,197

Note a: Please refer to Notes 29 and 41 for the information of disaggregation of telecommunications service revenue. The expected credit loss rate applicable to different business revenue varies so as to reflect the risk level indicating by factors like historical experience.

Note b: The project business has different loss types according to the customer types. The expected credit loss rate listed above is for general customers. When customer is the government or its affiliates, it is expected that no credit loss will occur. For those who had bounced or exchanged checks as well as those accounts receivable were overdue more than six months that are classified as high risk customers, the expected credit loss of high risk customers is at least 50%, and the rate is increased when the overdue days increases.

Movements of loss allowance for trade notes and accounts receivable were as follows:

	Year Ended December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Beginning balance	$ 2,117	$ 2,602
Add: Provision for (reversal of) credit loss	805	(54)
Less: Amounts written off	(320)	(188)
Ending balance	$ 2,602	$ 2,360

11. INVENTORIES

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Merchandise	$ 6,068	$ 3,858
Project in process	6,756	11,113
Work in process	109	141
Raw materials	112	156
	13,045	15,268
Land held under development	1,999	1,999
Construction in progress	77	77
	$ 15,121	$ 17,344

The operating costs related to inventories were $56,342 million, $48,649 million and $49,258 million for the years ended December 31, 2017, 2018 and 2019, respectively.

For the years ended December 31, 2017, 2018 and 2019, valuation loss on inventories recognized as operating costs included the amounts of $52 million, $365 million and $475 million, respectively.

As of December 31, 2018 and 2019, inventories of $2,076 million and $2,076 million, respectively, were expected to be recovered for a time period longer than twelve months. The aforementioned amount of inventories is related to property development owned by LED.

Land held under development and construction in progress was developed by LED for Qingshan Sec., Dayuan Dist., Taoyuan City project.

12. PREPAYMENTS

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Prepaid rents	$ 2,415	$ 3,382
Others	2,921	1,180
	$ 5,336	$ 4,562
Current		
Prepaid rents	$ 600	$ 704
Others	1,273	1,179
	$ 1,873	$ 1,883
Noncurrent		
Prepaid rents	$ 1,815	$ 2,678
Others	1,648	1
	$ 3,463	$ 2,679

Prepaid rents in 2019 comprises the prepayments from the lease agreements applying the recognition exemption and the prepayments for leases that do not meet the definition of leases under IFRS 16.

13. OTHER CURRENT MONETARY ASSETS

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Time deposits and negotiable certificates of deposit with maturities of more than three months	$ 8,157	$ 5,959
Repurchase agreements collateralized by bonds with maturities of more than three months	-	15
Others	1,347	1,524
	$ 9,504	$ 7,498

The annual yield rates of time deposits, negotiable certificates of deposit and repurchase agreements collateralized by bonds with maturities of more than three months at the balance sheet dates were as follows:

	December 31	
	2018	2019
Time deposits and negotiable certificates of deposit with maturities of more than three months	0.03%-3.05%	0.03%-2.73%
Repurchase agreements collateralized by bonds with maturities of more than three months	-	2.50%

14. SUBSIDIARIES

a. Information on significant noncontrolling interest subsidiary

The table below shows details of less than wholly owned subsidiaries of the Company that have material noncontrolling interests:

Subsidiaries	Place of Incorporation and Principal Place of Business	Proportion of Ownership Interests and Voting Rights Held by Noncontrolling Interests	
		December 31	
		2018	2019
SENAO	Taiwan	72%	72%
CHPT	Taiwan	66%	66%

	Profit Allocated to Noncontrolling Interests			Accumulated Noncontrolling Interests	
	Year Ended December 31			December 31	
	2017	2018	2019	2018	2019
	NT$	NT$	NT$ (In Millions)	NT$	NT$
SENAO	$ 592	$ 326	$ 291	$ 4,108	$ 4,146
CHPT	$ 431	$ 477	$ 414	4,022	4,217
Individually immaterial subsidiaries with noncontrolling interests				1,727	1,752
				$ 9,857	$ 10,115

Summarized financial information in respect of SENAO and its subsidiaries that has material noncontrolling interests is set out below. The summarized financial information below represents amounts before intercompany eliminations.

	December 31	
	2018	2019
	NT$ (In Millions)	NT$
Current assets	$ 7,041	$ 6,751
Noncurrent assets	$ 2,527	$ 3,173
Current liabilities	$ 3,757	$ 3,637
Noncurrent liabilities	$ 164	$ 590
Equity attributable to the parent	$ 1,539	$ 1,551
Equity attributable to noncontrolling interests	$ 4,108	$ 4,146

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Revenue and income	$ 36,038	$ 31,540	$ 29,131
Costs and expenses	35,200	31,081	28,725
Profit for the year	$ 838	$ 459	$ 406
Profit attributable to the parent	$ 246	$ 133	$ 115
Profit attributable to noncontrolling interests	592	326	291
Profit for the year	$ 838	$ 459	$ 406
Other comprehensive income (loss) attributable to the parent	$ 3	$ (2)	$ (7)
Other comprehensive income (loss) attributable to noncontrolling interests	(17)	(10)	22
Other comprehensive income (loss) for the year	$ (14)	$ (12)	$ 15
Total comprehensive income attributable to the parent	$ 249	$ 131	$ 108
Total comprehensive income attributable to noncontrolling interests	575	316	313
Total comprehensive income for the year	$ 824	$ 447	$ 421
Net cash flow from operating activities	$ 1,081	$ 696	$ 538
Net cash flow from investing activities	(57)	(13)	235
Net cash flow from financing activities	(897)	(491)	(718)
Effect of exchange rate changes on cash and cash equivalents	(2)	1	-
Net cash inflow	$ 125	$ 193	$ 55
Dividends paid to noncontrolling interests	$ 703	$ 587	$ 269

Summarized financial information in respect of CHPT and its subsidiaries that has material noncontrolling interests is set out below. The summarized financial information below represents amounts before intercompany eliminations.

	December 31	
	2018	2019
	NT$ (In Millions)	NT$
Current assets	$ 4,417	$ 3,710
Noncurrent assets	$ 2,779	$ 4,044
Current liabilities	$ 1,076	$ 1,316

(Continued)

	2018	2019
	NT$	NT$
	(In Millions)	
Noncurrent liabilities	$ 1	$ 22
Equity attributable to CHI	$ 2,097	$ 2,199
Equity attributable to noncontrolling interests	$ 4,022	$ 4,217

(Concluded)

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$	NT$
		(In Millions)	
Revenues and income	$ 3,127	$ 3,299	$ 3,404
Costs and expenses	2,402	2,549	2,775
Profit for the year	$ 725	$ 750	$ 629
Profit attributable to CHI	$ 294	$ 273	$ 215
Profit attributable to noncontrolling interests	431	477	414
Profit for the year	$ 725	$ 750	$ 629
Other comprehensive loss attributable to CHI	$ (1)	$ -	$ (1)
Other comprehensive loss attributable to noncontrolling interests	(2)	-	(2)
Other comprehensive loss for the year	$ (3)	$ -	$ (3)
Total comprehensive income attributable to CHI	$ 293	$ 273	$ 214
Total comprehensive income attributable to noncontrolling interests	429	477	412
Total comprehensive income for the year	$ 722	$ 750	$ 626
Net cash flow from operating activities	$ 1,052	$ 862	$ 507
Net cash flow from investing activities	(639)	(733)	(1,426)
Net cash flow from financing activities	2,306	(328)	(349)
Effect of exchange rate changes on cash and cash equivalents	(4)	1	(5)
Net cash inflow (outflow)	$ 2,715	$ (198)	$ (1,273)
Dividends paid to noncontrolling interests	$ 146	$ 210	$ 216

b. Equity transactions with noncontrolling interests

CHI did not participate in the capital increase of CHPT in September 2017. Additionally, CHI disposed some shares of CHPT from April to August 2018. Therefore, the Company's ownership interest in CHPT decreased to 34.25% as of December 31, 2018 and 2019. See Note 33(f) for details.

Chunghwa and CHI disposed some shares of CHIEF in June 2017 and May 2018 before CHIEF traded its shares on the emerging stock market and the General Stock Market of the Taipei Exchange according to the local requirements. In addition, Chunghwa and CHI did not participate in the capital increase of CHIEF in June 2018. Furthermore, CHIEF issued new shares in March and November 2018, and March and November 2019, as its employees exercised their options. Therefore, the Company's ownership interest in CHIEF decreased to 60.23% and 59.75% as of December 31, 2018 and 2019. See Note 33(c)(d) for details.

SENAO transferred its treasury stock to employees in June and November 2017, and June 2018; therefore, the Company's ownership interest in SENAO decreased to 28.18% as of December 31, 2018 and 2019. See Note 33(b) for details.

SENAO subscribed for all the shares in the capital increase of Youth in December 2018; therefore, the Company's ownership interest in Youth increased to 93% as of December 31, 2018 and 2019.

The above transactions were accounted for as equity transactions since the Company did not cease to have control over these subsidiaries.

The detailed information of the equity transactions for the years ended December 31, 2017, 2018 and 2019 was as follows:

	Year Ended December 31		
	2017		
	CHI Did Not Participate in the Capital Increase of CHPT	**SENAO Transferred its Treasury Stock**	**Chunghwa and CHI Disposed Some Shares of CHIEF**
	NT$	**NT$ (In Millions)**	**NT$**
Cash consideration received from (paid to) Noncontrolling interests	$ 2,552	$ 164	$ 106
The proportionate share of the carrying amount of the net assets of the subsidiary transferred (to) from noncontrolling interests	(1,750)	(137)	(29)
Differences arising from equity transactions	$ 802	$ 27	$ 77
Line items for equity transaction adjustments			
Additional paid-in capital - difference between consideration received or paid and the carrying amount of the subsidiaries' net assets upon actual disposal or acquisition	$ -	$ -	$ 77
Additional paid-in capital - arising from changes in equities of subsidiaries	$ 802	$ 27	$ -

	Year Ended December 31					
	2018					
	SENAO not Proportionately participating in the Capital Increase of Youth	SENAO Transferred its Treasury Stock	CHI Disposed Some Shares of CHPT	Chunghwa and CHI Did Not Participate in the Capital Increase of CHIEF	Chunghwa and CHI Disposed Some Shares of CHIEF	Share-Based Payment of CHIEF
	NT$	NT$	NT$ (In Millions)	NT$	NT$	NT$
Cash consideration received from noncontrolling interests	$ -	$ 327	$ 1,042	$ 1,477	$ 133	$ 35
The proportionate share of the carrying amount of the net assets of the subsidiary transferred to noncontrolling interests	-	(272)	(330)	(700)	(19)	(24)
Differences arising from equity transactions	$ -	$ 55	$ 712	$ 777	$ 114	$ 11
Line items for equity transaction adjustments						
Additional paid-in capital-difference between consideration received or paid and the carrying amount of the subsidiaries' net assets upon actual disposal or acquisition	$ -	$ -	$ 712	$ -	$ 114	$ -
Additional paid-in capital - arising from changes in equities of subsidiaries	$ -	$ 55	$ -	$ 777	$ -	$ 11

	Year Ended December 31, 2019
	CHIEF Share-Based Payment
	NT$ (In Millions)
Cash consideration received from noncontrolling interests	$ 19
The proportionate share of the carrying amount of the net assets of the subsidiary transferred to noncontrolling interests	(20)
Differences arising from equity transactions	$ (1)
Line items for equity transaction adjustments	
Additional paid-in capital - arising from changes in equities of subsidiaries	$ (1)

15. INVESTMENTS ACCOUNTED FOR USING EQUITY METHOD

a. Investments in associates

Investments in associates were as follows:

	Carrying Amount December 31 2018 NT$ (In Millions)	Carrying Amount December 31 2019 NT$ (In Millions)
Material associate		
Next Commercial Bank Co., Ltd. (preparatory office) ("NCB")	$ -	$ 4,074
Associates that are not individually material		
Listed		
Senao Networks, Inc. ("SNI")	768	803
KingwayTek Technology Co., Ltd. ("KWT")	-	217
Non-listed		
ST-2 Satellite Ventures Pte. Ltd. ("STS")	496	501
International Integrated System, Inc. ("IISI")	306	335
Viettel-CHT Co., Ltd. ("Viettel-CHT")	286	317
Taiwan International Standard Electronics Co., Ltd. ("TISE")	213	268
Chunghwa PChome Fund I Co., Ltd. ("CPFI")	199	194
So-net Entertainment Taiwan Limited ("So-net")	120	186
KKBOX Taiwan Co., Ltd. ("KKBOXTW", previously known as Skysoft Co., Ltd.)	147	151
Taiwan International Ports Logistics Corporation ("TIPL")	50	51
Click Force Co., Ltd. ("CF")	38	37
UUPON Inc. ("UUPON", previously known as Dian Zuan Integrating Marketing Co., Ltd.)	4	(3)
Cornerstone Ventures Co., Ltd. ("CVC")	5	5
Alliance Digital Tech Co., Ltd. ("ADT")	3	3
KingwayTek Technology Co., Ltd. ("KWT")	97	-
MeWorks Limited (HK) ("MeWorks")	-	-
	$ 2,732	$ 7,139

The percentages of ownership and voting rights in associates held by the Company as of balance sheet dates were as follows:

	% of Ownership and Voting Rights	
	December 31	
	2018	2019
Material associate		
Next Commercial Bank Co., Ltd. (preparatory office) ("NCB")	-	42
Associates that are not individually material		
Senao Networks, Inc. ("SNI")	34	34
KingwayTek Technology Co., Ltd. ("KWT")	26	23
ST-2 Satellite Ventures Pte., Ltd. ("STS")	38	38
International Integrated System, Inc. ("IISI")	32	31
Viettel-CHT Co., Ltd. ("Viettel-CHT")	30	30
Taiwan International Standard Electronics Co., Ltd. ("TISE")	40	40
Chunghwa PChome Fund I Co., Ltd. ("CPFI")	50	50
So-net Entertainment Taiwan Limited ("So-net")	30	30
KKBOX Taiwan Co., Ltd. ("KKBOXTW")	30	30
Taiwan International Ports Logistics Corporation ("TIPL")	27	27
Click Force Co., Ltd. ("CF")	49	49
UUPON Inc. ("UUPON")	22	22
Cornerstone Ventures Co., Ltd. ("CVC")	49	49
Alliance Digital Tech Co., Ltd. ("ADT")	14	14
MeWorks Limited (HK) ("MeWorks")	20	20

Summarized financial information of NCB (preparatory office) is set out below:

	December 31, 2019
	NT$ (In Millions)
Current assets	$ 10,000
Noncurrent assets	452
Current liabilities	(291)
Noncurrent liabilities	(437)
Equity	$ 9,724
The percentage of ownership held by the company	41.9%
Equity attributable to the Company and carrying amount of investment	$ 4,074

	Period from the Beginning Date of Preparation to December 31, 2019
	NT$ (In Millions)
Revenues	$ -
Net loss for the period	$ (276)
Other comprehensive income	-
Total comprehensive loss for the year	$ (276)

Except for NCB (preparatory office), no associates is considered individually material to the Company. Summarized financial information of associates that are not individually material to the Company was as follows:

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
The Company's share of profits	$ 420	$ 509	$ 575
The Company's share of other comprehensive income (loss)	(4)	5	(3)
The Company's share of total comprehensive income	$ 416	$ 514	$ 572

The Level 1 fair values based on the closing market prices of SNI and KWT as of the balance sheet dates were as follows:

	December 31	
	2018	2019
	NT$ (In Millions)	NT$
SNI	$ 1,447	$ 2,014
KWT	$ -	$ 873

The Company did not participate in the capital increase of UUPON in April 2017 and the ownership interest of UUPON decreased to 22%. UUPON engages mainly in information technology service and general advertisement service.

The Company owns 14% equity shares of ADT. As the Company remains the seat in the Board of Directors of ADT and considers the relative size of ownership interest and the dispersion of shares owned by the other stockholders, the Company remains significant influence over ADT. In June 2018, the stockholders of ADT approved to dissolve. The liquidation of ADT is still in process.

HopeTech returned the proceeds of $19 million as a result of capital reduction in January 2018. The Company received $3 million by disposing all shares of HopeTech in June 2018 and recognized disposal loss of $0.1 million. HopeTech engages mainly in sale of information and communication technologies products.

The Company invested 50% equity shares of CPFI in October 2018. The Company has only two out of five seats of the Board of Directors of CPFI, and has no control but significant influence over CPFI. Therefore, the Company recognized CPFI as investment in associate. CPFI engages mainly in investment business.

The Company invested 49% equity shares of CVC in October 2018. The Company has only two out of five seats of the Board of Directors of CVC, and has no control but significant influence over CVC. Therefore, the Company recognized CVC as investment in associate. CVC engages mainly in investment business.

The participation of establishing NCB was approved by the Chunghwa's Board of Directors in January 2019. The establishment of NCB was approved by the Financial Supervisory Commission of ROC in July 2019 and the incorporation of NCB was approved by the ROC's Ministry of Economic Affairs Department of Commerce in January 2020. Chunghwa prepaid investment funds to NCB in February and November 2019 amounted to $4,190 million, for ownership interest of 41.9%. Chunghwa obtained six out of fifteen seats of the Board of Directors of NCB; therefore, Chunghwa does not have control over NCB and merely has significant influence over NCB and treats it as an associate. NCB mainly engages in online banking business, which located in Taiwan.

IISI issued new shares in March and September 2019 as its employees exercised their options, therefore, the Company's ownership interest in IISI decreased to 31% as of December 31, 2019. The investment of 20.58% of ownership interest in IISI was approved by Chunghwa's Board of Directors in January 2020. Upon the completion of the transaction, the Company's ownership interest in IISI is expected to increase from 31% to 52%. Therefore, Chunghwa will gain control over IISI and treat it as a subsidiary.

The Company disposed some shares of KWT in April 2019 before KWT traded its shares on the General Stock Market of the Taipei Exchange according to the local requirements and recognized disposal gain of $151 million. In addition, the Company did not participate in the capital increase of KWT in May 2019 and KWT repurchased its stock in December 2019. Therefore, the Company's ownership interest in KWT decreased to 23% as of December 31, 2019.

The Company's share of profits and other comprehensive income (loss) of associates was recognized based on the audited financial statements.

b. Investments in joint ventures

In March 2016, the stockholders of Huada Digital Corporation ("HDD") approved that HDD should start its dissolution from March 31, 2016. HDD completed its liquidation in March 2017.

In December 2016, the stockholders of Chunghwa Benefit One Co., Ltd. ("CBO") approved that CBO should start its dissolution from December 31, 2016. CBO completed its liquidation in December 2017.

None of the above joint ventures is considered individually material to the Company. Summarized financial information of joint ventures that were not material to the Company was as follows:

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
The Company's share of loss	$ (1)	$ -	$ -
The Company's share of other comprehensive income	-	-	-
The Company's share of total comprehensive loss	$ (1)	$ -	$ -

The Company's share of loss of joint ventures was recorded based on the audited financial statements.

16. PROPERTY, PLANT AND EQUIPMENT

	December 31, 2018
	NT$ (In Millions)
Carrying amount	
Land	$ 103,972
Land improvements	263
Buildings	44,784
Computer equipment	2,115
Telecommunications equipment	116,322
Transportation equipment	231
Miscellaneous equipment	2,582
Construction in progress and equipment to be accepted	18,645
	$ 288,914

	Land	Land Improvements	Buildings	Computer Equipment	Telecommuni-cations Equipment	Transportation Equipment	Miscellaneous Equipment	Construction in Progress and Equipment to be Accepted	Total
	NT$	NT$	NT$	NT$	NT$ (In Millions)	NT$	NT$	NT$	NT$
Cost									
Balance on January 1, 2017	$ 103,872	$ 1,581	$ 67,738	$ 14,295	$ 715,692	$ 3,866	$ 8,943	$ 20,141	$ 936,128
Additions	-	-	30	78	193	1	193	25,574	26,069
Disposal	(158)	(5)	(108)	(974)	(13,739)	(62)	(402)	-	(15,448)
Effect of foreign exchange differences	-	-	-	(1)	(172)	-	(3)	-	(176)
Others	365	19	5,034	764	20,080	29	784	(27,188)	(113)
Balance on December 31, 2017	$ 104,079	$ 1,595	$ 72,694	$ 14,162	$ 722,054	$ 3,834	$ 9,515	$ 18,527	$ 946,460
Accumulated depreciation and impairment									
Balance on January 1, 2017	$ -	$ (1,248)	$ (25,591)	$ (11,582)	$ (596,497)	$ (3,237)	$ (6,803)	$ -	$ (644,958)
Depreciation expenses	-	(50)	(1,402)	(1,192)	(24,492)	(330)	(677)	-	(28,143)
Disposal	-	4	47	967	13,712	63	389	-	15,182
Effect of foreign exchange differences	-	-	-	-	45	-	2	-	47
Others	-	1	147	19	78	(9)	(116)	-	120
Balance on December 31, 2017	$ -	$ (1,293)	$ (26,799)	$ (11,788)	$ (607,154)	$ (3,513)	$ (7,205)	$ -	$ (657,752)
Cost									
Balance on January 1, 2018	$ 104,079	$ 1,595	$ 72,694	$ 14,162	$ 722,054	$ 3,834	$ 9,515	$ 18,527	$ 946,460
Additions	-	-	21	52	159	-	334	27,413	27,979
Disposal	(71)	-	-	(643)	(31,984)	(29)	(623)	-	(33,350)
Effect of foreign exchange differences	-	-	-	-	60	-	-	-	60
Others	(36)	6	196	687	25,459	77	648	(27,295)	(258)
Balance on December 31, 2018	$ 103,972	$ 1,601	$ 72,911	$ 14,258	$ 715,748	$ 3,882	$ 9,874	$ 18,645	$ 940,891

(Continued)

	Land	Land Improvements	Buildings	Computer Equipment	Telecommuni-cations Equipment	Transportation Equipment	Miscellaneous Equipment	Construction in Progress and Equipment to be Accepted	Total
	NT$	NT$	NT$	NT$	NT$ (In Millions)	NT$	NT$	NT$	NT$
Accumulated depreciation and impairment									
Balance on January 1, 2018	$ -	$ (1,293)	$ (26,799)	$ (11,788)	$ (607,154)	$ (3,513)	$ (7,205)	$ -	$ (657,752)
Depreciation expenses	-	(45)	(1,356)	(983)	(24,236)	(162)	(679)	-	(27,461)
Disposal	-	-	-	632	31,952	29	615	-	33,228
Effect of foreign exchange differences	-	-	-	-	(20)	-	-	-	(20)
Others	-	-	28	(4)	32	(5)	(23)	-	28
Balance on December 31, 2018	$ -	$ (1,338)	$ (28,127)	$ (12,143)	$ (599,426)	$ (3,651)	$ (7,292)	$ -	$ (651,977)

(Concluded)

There was no indication that property, plant and equipment was impaired so the Company did not recognize any impairment loss for the years ended December 31, 2017 and 2018.

Depreciation expense in 2017 and 2018 is computed using the straight-line method over the following estimated service lives:

Land improvements	8-30 years
Buildings	
Main buildings	35-60 years
Other building facilities	3-20 years
Computer equipment	2-8 years
Telecommunications equipment	
Telecommunication circuits	2-30 years
Telecommunication machinery and antennas equipment	2-30 years
Transportation equipment	3-10 years
Miscellaneous equipment	
Leasehold improvements	1-6 years
Mechanical and air conditioner equipment	3-16 years
Others	1-10 years

	December 31, 2019
	NT$ (In Millions)
Assets used by the Company	$ 276,370
Assets subject to operating leases	7,324
	$ 283,694

a. Assets used by the Company

	Land	Land Improvements	Buildings	Computer Equipment	Telecommuni-cations Equipment	Transportation Equipment	Miscellaneous Equipment	Construction in Progress and Equipment to be Accepted	Total
	NT$	NT$	NT$	NT$	NT$ (In Millions)	NT$	NT$	NT$	NT$
Cost									
Balance on January 1, 2019	$ 103,972	$ 1,601	$ 72,911	$ 14,258	$ 715,748	$ 3,882	$ 9,874	$ 18,645	$ 940,891
Effect of retrospective application of IFRS 16	(3,617)	(1)	(3,583)	-	(3,885)	-	-	-	(11,086)
Balance on January 1, 2019 as adjusted	100,355	1,600	69,328	14,258	711,863	3,882	9,874	18,645	929,805
Additions	-	-	1,221	57	120	1	149	21,612	23,160
Disposal	(38)	(7)	(3)	(1,916)	(30,417)	(51)	(405)	-	(32,837)
Effect of foreign exchange differences	-	-	-	-	(37)	-	(1)	(6)	(44)
Others	(1,214)	25	455	606	24,503	80	473	(26,499)	(1,571)
Balance on December 31, 2019	$ 99,103	$ 1,618	$ 71,001	$ 13,005	$ 706,032	$ 3,912	$ 10,090	$ 13,752	$ 918,513

(Continued)

	Land	Land Improvements	Buildings	Computer Equipment	Telecommuni-cations Equipment	Transportation Equipment	Miscellaneous Equipment	Construction in Progress and Equipment to be Accepted	Total
	NT$	NT$	NT$	NT$	NT$ (In Millions)	NT$	NT$	NT$	NT$
Accumulated depreciation and impairment									
Balance on January 1, 2019	$ -	$ (1,338)	$ (28,127)	$ (12,143)	$ (599,426)	$ (3,651)	$ (7,292)	$ -	$ (651,977)
Effect of retrospective application of IFRS 16	-	1	1,265	-	2,576	-	-	-	3,842
Balance on January 1, 2019 as adjusted	-	(1,337)	(26,862)	(12,143)	(596,850)	(3,651)	(7,292)	-	(648,135)
Depreciation expenses	-	(43)	(1,301)	(827)	(23,906)	(91)	(688)	-	(26,856)
Disposal	-	6	3	1,909	30,380	51	402	-	32,751
Impairment losses	-	-	-	-	-	-	(64)	(29)	(93)
Effect of foreign exchange differences	-	-	-	-	16	-	1	-	17
Others	-	(1)	183	(7)	22	(3)	(21)	-	173
Balance on December 31, 2019	$ -	$ (1,375)	$ (27,977)	$ (11,068)	$ (590,338)	$ (3,694)	$ (7,662)	$ (29)	$ (642,143)

(Concluded)

CHPT evaluated that certain miscellaneous equipment, construction in progress and equipment to be accepted used for manufacturing specific PCB will not be used in the future and there was no active market for sale; therefore, CHPT determined that the recoverable amount of such assets was nil and recognized impairment losses of $89 million for the year ended December 31, 2019. CHSI evaluated that certain miscellaneous equipment will not be used in the future and there was no active market for sale; therefore, CHSI determined that the recoverable amount of such assets was nil and recognized impairment losses of $4 million for the year ended December 31, 2019. The aforementioned impairment losses were included in other income and expenses of statement of comprehensive income.

Depreciation expense for assets used by the Company in 2019 is computed using the straight-line method over the following estimated service lives:

Land improvements	10-30 years
Buildings	
Main buildings	20-60 years
Other building facilities	3-15 years
Computer equipment	2-8 years
Telecommunications equipment	
Telecommunication circuits	2-30 years
Telecommunication machinery and antennas equipment	2-30 years
Transportation equipment	3-10 years
Miscellaneous equipment	
Leasehold improvements	1-9 years
Mechanical and air conditioner equipment	3-16 years
Others	1-15 years

b. Assets subject to operating leases

	Land	Land Improvements	Buildings	Total
	NT$	NT$ (In Millions)	NT$	NT$
Cost				
Balance on January 1, 2019	$ -	$ -	$ -	$ -
Effect of retrospective application of IFRS 16	3,617	1	3,583	7,201
Balance on January 1, 2019 as adjusted	3,617	1	3,583	7,201

(Continued)

	Land	Land Improvements	Buildings	Total
	NT$	NT$	NT$	NT$
		(In Millions)		
Additions	$ -	$ -	$ 4	$ 4
Transferred from (to) assets used by the Company	1,362	(1)	255	1,616
Balance on December 31, 2019	$ 4,979	$ -	$ 3,842	$ 8,821
Accumulated depreciation and impairment				
Balance on January 1, 2019	$ -	$ -	$ -	$ -
Effect of retrospective application of IFRS 16	-	(1)	(1,265)	(1,266)
Balance on January 1, 2019 as adjusted	-	(1)	(1,265)	(1,266)
Depreciation expenses	-	-	(74)	(74)
Transferred to (from) assets used by the company	-	1	(158)	(157)
Balance on December 31, 2019	$ -	$ -	$ (1,497)	$ (1,497)
Balance on January 1, 2019 as adjusted, net	$ 3,617	$ -	$ 2,318	$ 5,935
Balance on December 31, 2019, net	$ 4,979	$ -	$ 2,345	$ 7,324

(Concluded)

The Company leases out land and buildings with lease terms between 1 to 20 years. The lessees do not have bargain purchase options to acquire the assets at the expiry of the lease periods.

The future aggregate lease collection under operating lease for the freehold plant, property and equipment is as follows:

	December 31, 2019
	NT$ (In Millions)
Year 1	$ 302
Year 2	273
Year 3	234
Year 4	191
Year 5	130
Onwards	1,224
	$ 2,354

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

Land improvements	10 years
Buildings	
Main buildings	35-60 years
Other building facilities	3-15 years

17. LEASE ARRANGEMENTS

a. Right-of-use Assets

	December 31, 2019
	NT$ (In Millions)
Land and buildings	
Handsets base stations	$ 6,845
Others	1,916
Equipment	2,603
	$ 11,364

	Year Ended December 31, 2019
	NT$ (In Millions)
Additions to right-of-use assets	$ 3,803
Depreciation charge for right-of-use assets	
Land and buildings	
Handsets base stations	$ 2,728
Others	821
Equipment	419
	$ 3,968

b. Lease liabilities

	December 31, 2019
	NT$ (In Millions)
Lease liabilities	
Current	$ 3,291
Non-current	6,467
	$ 9,758

Range of discount rate for lease liabilities is as follows:

	December 31, 2019
Land and buildings	
Handsets base stations	0.58%-1.18%
Others	0.58%-9.00%
Equipment	0.58%-4.50%

c. Important lease-in activities and terms

The Company mainly enters into lease-in agreements of land and buildings for handsets base stations located all over Taiwan with lease terms from 1 to 20 years. There's no clause for bargain purchase options to acquire the assets at the expiry of the lease periods in the agreement. In most lease-in agreements of handsets base station agreements, the Company is able to terminate the agreement prior to the maturity date provided that the premise the Company fails to meet the purpose to build telecommunication equipment due to legal restriction, controversial events, or other events.

The Company also leases land and buildings for the use of offices, server rooms, and stores with lease terms from 1 to 30 years. Most of the lease agreements for national land adjust the lease payment according to the changes of present values of land announced by the authority. At the expiry of the lease term, the Company does not have bargain purchase options to acquire the assets.

The lease agreements for equipment include a contract between Chunghwa and ST-2 Satellite Ventures Pte., Ltd. to lease capacity on the ST-2 satellite. The information of lease agreements with related parties, please refer to Note 38 to the consolidated financial statements for details.

d. Other lease information

The future aggregate minimum lease payments under non-cancellable operating leases are as follows:

2018

	December 31, 2018
	NT$ (In Millions)
Within one year	$ 3,439
Longer than one year but within five years	6,375
Longer than five years	744
	$ 10,558

2019

	Year Ended December 31, 2019
	NT$ (In Millions)
Expenses relating to low-value asset leases	$ 7
Expenses relating to variable lease payments not included in the measurement of lease liabilities	$ 6
Total cash outflow for leases	$ 3,826

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

Lease-out arrangements under operating leases for freehold property, plant, and equipment and investment properties are set out in Notes 16 and 18 to the consolidated financial statements.

18. INVESTMENT PROPERTIES

	December 31	
	2018	2019
	NT$ (In Millions)	NT$
Carrying amount		
Investment properties	$ 8,287	$ 8,169

	Investment Properties
	NT$ (In Millions)
Cost	
Balance on January 1, 2017	$ 9,195
Reclassification	(60)
Balance on December 31, 2017	$ 9,135
Accumulated depreciation and impairment	
Balance on January 1, 2017	$ (1,080)
Depreciation expense	(21)
Reclassification	3
Reversal of impairment loss	11
Balance on December 31, 2017	$ (1,087)

(Continued)

	Investment Properties NT$ (In Millions)
Cost	
Balance on January 1, 2018	$ 9,135
Additions	6
Reclassification	251
Balance on December 31, 2018	$ 9,392
Accumulated depreciation and impairment	
Balance on January 1, 2018	$ (1,087)
Depreciation expense	(21)
Reclassification	(16)
Reversal of impairment loss	19
Balance on December 31, 2018	$ (1,105)
Cost	
Balance on January 1, 2019	$ 9,392
Additions	1
Disposal	(6)
Reclassification	(173)
Balance on December 31, 2019	$ 9,214
Accumulated depreciation and impairment	
Balance on January 1, 2019	$ (1,105)
Depreciation expense	(25)
Disposal	6
Reclassification	22
Reversal of impairment loss	57
Balance on December 31, 2019	$ (1,045)

(Concluded)

After the evaluation of land and buildings, the Company concluded the recoverable amount which represented the fair value less costs to sell of some land and buildings was higher than the carrying amount; therefore, the Company recognized reversal of impairment losses of $11 million, $19 million and $57 million for the years ended December 31, 2017, 2018 and 2019, respectively, and the amounts were recognized only to the extent of impairment losses that had been recognized in prior years. The reversal of impairment loss was included in other income and expenses in the statements of comprehensive income.

Depreciation expense is computed using the straight-line method over the following estimated service lives:

Land improvements	10-30 years
Buildings	
Main buildings	35-60 years
Other building facilities	4-10 years

The fair values of the Company's investment properties as of December 31, 2018 and 2019 were determined by Level 3 fair value measurements inputs based on the appraisal reports conducted by independent appraisers. Those appraisal reports are based on the comparison approach, income approach or cost approach. Key assumptions and the fair values were as follows:

	December 31	
	2018	**2019**
	NT$	**NT$**
	(In Millions)	
Fair value	$ 18,515	$ 18,701
Overall capital interest rate	1.02%-4.04%	1.03%-4.04%
Profit margin ratio	12%-20%	12%-20%
Discount rate	-	-
Capitalization rate	0.79%-1.75%	0.79%-1.74%

All of the Company's investment properties are held under freehold interest.

2018

The future aggregate minimum lease collection under non-cancellable operating leases is as follows:

	December 31, 2018
	NT$ (In Millions)
Within one year	$ 344
Longer than one year but within five years	580
Longer than five years	206
	$ 1,130

2019

The future aggregate lease collection under operating lease for investment properties is as follows:

	December 31, 2019
	NT$ (In Millions)
Year 1	$ 113
Year 2	91
Year 3	71
Year 4	61

(Continued)

	December 31, 2019
	NT$ (In Millions)
Year 5	$ 39
Onwards	96
	$ 471

(Concluded)

19. INTANGIBLE ASSETS

	December 31	
	2018	2019
	NT$ (In Millions)	NT$
Carrying amount		
3G and 4G concession	$ 49,512	$ 45,672
Computer software	959	931
Goodwill	209	200
Others	264	244
	$ 50,944	$ 47,047

	3G and 4G Concession	Computer Software	Goodwill	Others	Total
	NT$	NT$	NT$ (In Millions)	NT$	NT$
Cost					
Balance on January 1, 2017	$ 59,209	$ 3,408	$ 236	$ 414	$ 63,267
Additions-acquired separately	10,935	366	-	4	11,305
Disposal	-	(462)	-	-	(462)
Effect of foreign exchange difference	-	-	-	-	-
Balance on December 31, 2017	$ 70,144	$ 3,312	$ 236	$ 418	$ 74,110
Accumulated amortization and impairment					
Balance on January 1, 2017	$ (13,413)	$ (2,413)	$ (18)	$ (70)	$ (15,914)
Amortization expenses	(3,262)	(481)	-	(23)	(3,766)
Disposal	-	462	-	-	462
Impairment losses	-	-	(9)	-	(9)
Effect of foreign exchange difference	-	-	-	-	-
Balance on December 31, 2017	$ (16,675)	$ (2,432)	$ (27)	$ (93)	$ (19,227)
Cost					
Balance on January 1, 2018	$ 70,144	$ 3,312	$ 236	$ 418	$ 74,110
Additions-acquired separately	-	485	-	13	498
Disposal	-	(371)	-	(58)	(429)
Effect of foreign exchange difference	-	-	-	-	-
Balance on December 31, 2018	$ 70,144	$ 3,426	$ 236	$ 373	$ 74,179

(Continued)

	3G and 4G Concession	Computer Software	Goodwill	Others	Total
	NT$	NT$	NT$ (In Millions)	NT$	NT$
Accumulated amortization and impairment					
Balance on January 1, 2018	$ (16,675)	$ (2,432)	$ (27)	$ (93)	$ (19,227)
Amortization expenses	(3,957)	(406)	-	(23)	(4,386)
Disposal	-	371	-	58	429
Impairment losses	-	-	-	(51)	(51)
Effect of foreign exchange difference	-	-	-	-	-
Balance on December 31, 2018	$ (20,632)	$ (2,467)	$ (27)	$ (109)	$ (23,235)
Cost					
Balance on January 1, 2019	$ 70,144	$ 3,426	$ 236	$ 373	$ 74,179
Additions-acquired separately	-	358	-	5	363
Disposal	(10,179)	(356)	-	-	(10,535)
Effect of foreign exchange difference	-	-	-	-	-
Others	-	2	-	-	2
Balance on December 31, 2019	$ 59,965	$ 3,430	$ 236	$ 378	$ 64,009
Accumulated amortization and impairment					
Balance on January 1, 2019	$ (20,632)	$ (2,467)	$ (27)	$ (109)	$ (23,235)
Amortization expenses	(3,840)	(388)	-	(25)	(4,253)
Disposal	10,179	356	-	-	10,535
Impairment losses	-	-	(9)	-	(9)
Effect of foreign exchange difference	-	-	-	-	-
Balance on December 31, 2019	$ (14,293)	$ (2,499)	$ (36)	$ (134)	$ (16,962)

(Concluded)

For long-term business development, Chunghwa submitted an application to NCC for 4G mobile broadband license in 1.8 and 2.1 GHz frequency bands and obtained certain spectrums. Chunghwa paid the 4G concession fee amounting to $10,935 million in November 2017.

The concessions are granted and issued by the NCC. The concession fees are amortized using the straight-line method from the date operations commence through the date the license expires. The carrying amount of 3G concession fee was fully amortized in December 2018, and 4G concession fees will be fully amortized by December 2030 and December 2033.

The computer software is amortized using the straight-line method over the estimated useful lives of 1 to 10 years. Other intangible assets are amortized using the straight-line method over the estimated useful lives of 1 to 20 years. Goodwill is not amortized.

SENAO evaluated the goodwill that arose in the acquisition of Youth and its subsidiaries at the end of each year. SENAO determined the smallest identifiable group of assets that generates cash inflows as single cash generating units by business type, and evaluated the recoverable amount of those cash generating units by their value in use. The management of SENAO estimated the cash flow projections based on the financial budgets for the following five years. Discount rates were 14.8%, 13.7% and 12.3% as of December 31 2017, 2018 and 2019, respectively and were used to calculate the recoverable amount of related cash generating units by discounting aforementioned cash flows.

SENAO concluded the recoverable amount of the goodwill was lower than the carrying value and recognized impairment loss of $9 million and $9 million for the years ended December 31, 2017 and 2019, respectively. There was no impairment loss recognized for the year ended December 31, 2018.

SENAO evaluated and determined that the recoverable amount of certain licensed contract was nil and recognized the impairment loss of $51 million for the year ended December 31, 2018. The recoverable amount was based on the value in use.

The aforementioned impairment losses were included in other income and expenses in the statements of comprehensive income.

20. OTHER ASSETS

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Spare parts	$ 2,422	$ 2,336
Refundable deposits	1,992	1,879
Other financial assets	1,000	1,000
Deposit for mobile broadband license bidding	-	1,000
Others	2,342	2,316
	$ 7,756	$ 8,531
Current		
Spare parts	$ 2,422	$ 2,336
Others	154	94
	$ 2,576	$ 2,430
Noncurrent		
Refundable deposits	$ 1,992	$ 1,879
Other financial assets	1,000	1,000
Deposit for mobile broadband license bidding	-	1,000
Others	2,188	2,222
	$ 5,180	$ 6,101

For long-term business development, Chunghwa participated in the first phase of 5G mobile broadband license bidding hosted by NCC and paid the deposit for 5G spectrum bidding amounting to $1,000 million in October 2019. Chunghwa obtained 90MHz in the 3.5GHz spectrum and 600MHz in the 28GHz spectrum for bid amounting to $46,293 million in January 2020. In addition, Chunghwa participated in the second phase of the aforementioned license bidding for location in February 2020 for the bid of $2,080 million. Therefore, the total bid amounted to $48,373 million.

Other financial assets - noncurrent was Piping Fund. As part of the government's effort to upgrade the existing telecommunications infrastructure, Chunghwa and other public utility companies were required by the ROC government to contribute to a Piping Fund administered by the Taipei City Government. This fund was used to finance various telecommunications infrastructure projects. Net assets of this fund will be returned proportionately after the project is completed.

Chunghwa evaluated that certain other assets will not be used in the future and there was no active market for sale; therefore, the Company determined that the recoverable amount of such assets was nil and recognized impairment losses of $44 million for the year ended December 31, 2019. The aforementioned impairment loss was included in other income and expenses in the statements of comprehensive income.

21. HEDGING FINANCIAL INSTRUMENTS

Chunghwa's hedge strategy is to enter forward exchange contracts - buy to avoid its foreign currency exposure to certain foreign currency denominated equipment payments in the following six months. In addition, Chunghwa's management considers the market condition to determine the hedge ratio, and enters into forward exchange contracts with the banks to avoid the foreign currency risk.

Chunghwa signed equipment purchase contracts with suppliers and entered into forward exchange contracts to avoid foreign currency risk exposure to Euro-denominated purchase commitments. Those forward exchange contracts were designated as cash flow hedges. When forecast purchases actually take place, basis adjustments are made to the initial carrying amounts of hedged items.

For the hedges of highly probable forecast sales and purchases, as the critical terms (i.e. the notional amount, life and underlying) of the forward foreign exchange contracts and their corresponding hedged items are the same, the Company performs a qualitative assessment of effectiveness and it is expected that the value of the forward contracts and the value of the corresponding hedged items will systematically change in opposite direction in response to movements in the underlying exchange rates.

The main source of hedge ineffectiveness in these hedging relationships is the effect of credit risks of the Company and the counterparty on the fair value of the forward exchange contracts. Such credit risks do not impact the fair value of the hedged item attributable to changes in foreign exchange rates. No other sources of ineffectiveness emerged from these hedging relationships.

2017

The hedging instrument was showed as follows:

	December 31, 2017 NT$ (In Millions)
Hedging derivative financial assets	
Cash flow hedge - forward exchange contracts	$ -
Hedging derivative financial liabilities	
Cash flow hedge - forward exchange contracts	$ 1

For the year ended December 31, 2017, losses arising from changes in fair value of the hedged items recognized in other comprehensive income was $1 million. Upon the completion of the purchase transaction, the amount deferred and recognized in equity initially will be reclassified into equipment as its carrying value.

As of December 31, 2017, Chunghwa expected part of the equipment purchase transactions would not occur and reclassified the related gains of $2 million from equity to profit or loss which arising from the forward exchange contracts of the aforementioned transactions for the year ended December 31, 2017.

The outstanding forward exchange contracts at the balance sheet dates were as follows:

	Currency	Maturity Period	Contract Amount (Millions)
December 31, 2017			
Forward exchange contracts - buy	EUR/NT$	2018.03-06	EUR4/NT$142

Loss (gain) arising from the hedging derivative financial instruments that have been reclassified from equity to initial cost of the property, plant and equipment were as follows:

	Year Ended December 31, 2017
	NT$ (In Millions)
Construction in progress and equipment to be accepted	$ (2)

Starting from 2018

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

December 31, 2018

Hedging Instruments	Currency	Notional Amount	Maturity	Forward Rate	Line Item in Balance Sheet	Carrying Amount		Change in Fair Values of Hedging Instruments Used for Calculating Hedge Ineffectiveness
						Asset	Liability	
		(In Millions)				NT$	NT$ (In Millions)	NT$
Cash flow hedge								
Forecast purchases - forward exchange contracts	EUR/NT$	EUR 5/ NT$ 172	2019.03	$ 34.98	Hedging financial assets (liabilities)	$ 1	$ -	$ 2

Hedged Items	Change in Value of Hedged Item Used for Calculating Hedge Ineffectiveness	Accumulated Gain or Loss on Hedging Instruments in Other Equity	
		Continuing Hedges	Hedge Accounting No Longer Applied
	NT$	NT$ (In Millions)	NT$
Cash flow hedge			
Forecast equipment purchases	$ (2)	$ 1	$ -

December 31, 2019

Hedging Instruments	Currency	Notional Amount	Maturity	Forward Rate	Line Item in Balance Sheet	Carrying Amount		Change in Fair Values of Hedging Instruments Used for Calculating Hedge Ineffectiveness
						Asset	Liability	
		(In Millions)				NT$	NT$ (In Millions)	NT$
Cash flow hedge								
Forecast purchases - forward exchange contracts	EUR/NT$	EUR 2/NT$ 84	2020.03	$ 33.66	Hedging financial assets (liabilities)	$ -	$ -	$ (1)

Hedged Items	Change in Value of Hedged Item Used for Calculating Hedge Ineffectiveness	Accumulated Gain or Loss on Hedging Instruments in Other Equity	
		Continuing Hedges	Hedge Accounting No Longer Applied
	NT$	NT$ (In Millions)	NT$
Cash flow hedge			
Forecast equipment purchases	$ 1	$ -	$ -

2018

Hedge Transaction	Comprehensive Income				
				Reclassification from Equity to Profit or Loss and the Adjusted Line Item	
	Hedging Gain or Loss Recognized in OCI	Amount of Hedge Ineffectiveness Recognized in Profit or Loss	Line Item in Which Hedge Ineffectiveness is Included	Amount Reclassified to P/L and the Adjusted Line Item	Due to Hedged Future Cash Flows No Longer Expected to Occur
	NT$	NT$	NT$ (In Millions)	NT$	NT$
Cash flow hedge					
Forecast equipment purchases	$ 2	$ -	-	$ (4) Construction in progress and equipment to be accepted	$ - Other gains and losses

2019

Hedge Transaction	Comprehensive Income: Hedging Gain or Loss Recognized in OCI	Amount of Hedge Ineffectiveness Recognized in Profit or Loss	Line Item in Which Hedge Ineffectiveness is Included	Reclassification from Equity to Profit or Loss and the Adjusted Line Item: Amount Reclassified to P/L and the Adjusted Line Item	Due to Hedged Future Cash Flows No Longer Expected to Occur
	NT$	NT$	NT$ (In Millions)	NT$	NT$
Cash flow hedge					
Forecast equipment purchases	$ (1)	$ -	-	$ (2) Construction in progress and equipment to be accepted	$ - Other gains and losses

22. SHORT-TERM LOANS

	December 31 2018	December 31 2019
	NT$ (In Millions)	NT$ (In Millions)
Unsecured loans	$ 100	$ 90

The annual interest rates of loans were as follows:

	December 31 2018	December 31 2019
Unsecured loans	1.35%-2.35%	1.20%-2.50%

23. LONG-TERM LOANS

	December 31 2018	December 31 2019
	NT$ (In Millions)	NT$ (In Millions)
Secured loans (Note 39)	$ 1,600	$ 1,600

The annual interest rates of loans were as follows:

	December 31 2018	December 31 2019
Secured loans	0.92%	0.92%

LED obtained a secured loan from Chang Hwa Bank in September 2010. Interest is paid monthly. $300 million and $1,350 million were originally due in December 2014 and September 2015, respectively. In October 2014, the bank borrowing mentioned above was extended to September 2018 for one time repayment. LED made an early repayment of $50 million in April 2015. LED entered into a contract with Chang Hwa Bank to renew the contract upon the maturity of the aforementioned contract in December 2017 and the due date of the renew contract is extended to September 2021.

24. TRADE NOTES AND ACCOUNTS PAYABLE

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Trade notes and accounts payable	$ 20,465	$ 15,312

Trade notes and accounts payable were attributable to operating activities and the trading conditions were agreed separately.

25. OTHER PAYABLES

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Accrued salary and compensation	$ 9,041	$ 9,482
Payables to contractors	1,710	1,892
Accrued compensation to employees and remuneration to directors and supervisors	1,739	1,441
Amounts collected for others	1,226	1,279
Accrued franchise fees	1,151	1,091
Accrued maintenance costs	1,050	955
Payables to equipment suppliers	1,459	296
Others	5,939	6,517
	$ 23,315	$ 22,953

26. PROVISIONS

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Warranties	$ 132	$ 173
Onerous contracts	19	67
Employee benefits	51	59
Others	5	5
	$ 207	$ 304

(Continued)

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Current	$ 128	$ 207
Noncurrent	79	97
	$ 207	$ 304

(Concluded)

	Warranties	Onerous Contracts	Employee Benefits	Trade-in Rights	Others	Total
	NT$	NT$	NT$ (In Millions)	NT$	NT$	NT$
Balance on January 1, 2017	$ 111	$ -	$ 38	$ 31	$ 5	$ 185
Additional provisions recognized	79	-	7	69	-	155
Used / forfeited during the year	(58)	-	(2)	(13)	-	(73)
Balance on December 31, 2017	$ 132	$ -	$ 43	$ 87	$ 5	$ 267
Balance on January 1, 2018	$ 132	$ -	$ 43	$ 87	$ 5	$ 267
Effect of retrospective application of IFRS 15	-	-	-	(87)	-	(87)
Balance on January 1, 2018 as adjusted	132	-	43	-	5	180
Additional provisions recognized	164	19	9	-	-	192
Used / forfeited during the year	(164)	-	(1)	-	-	(165)
Balance on December 31, 2018	$ 132	$ 19	$ 51	$ -	$ 5	$ 207
Balance on January 1, 2019	$ 132	$ 19	$ 51	$ -	$ 5	$ 207
Additional provisions recognized	127	48	9	-	-	184
Used / forfeited during the year	(86)	-	(1)	-	-	(87)
Balance on December 31, 2019	$ 173	$ 67	$ 59	$ -	$ 5	$ 304

a. The provision for warranties claims represents the present value of the management's best estimate of the future outflow of economic benefits that will be required under the Company's obligation for warranties in sales agreements. The estimate has been made based on the historical warranty experience.

b. The provision for employee benefits represents vested long-term service compensation accrued.

c. The provision for trade-in right in 2017 was based on the management's judgments to estimate the trade-in right of products exercised by customers in the future. The provision was recognized as a reduction of revenue in the period in which the goods are sold.

d. The provision for onerous contracts represents the present obligation resulting from the measurement for the unavoidable costs of meeting the Company's contractual obligations exceed the economic benefits expected to be received from the contracts.

27. RETIREMENT BENEFIT PLANS

a. Defined contribution plans

The pension plan under the Labor Pension Act of ROC (the “LPA”) is considered as a defined contribution plan. Based on the LPA, Chunghwa and its domestic subsidiaries make monthly contributions to employees’ individual pension accounts at 6% of monthly salaries and wages. Its foreign subsidiaries would make monthly contributions based on the local pension requirements.

b. Defined benefit plans

Chunghwa completed its privatization plans on August 12, 2005. Chunghwa is required to pay all accrued pension obligations including service clearance payment, lump sum payment under civil service plan, additional separation payments, etc. upon the completion of the privatization in accordance with the Statute Governing Privatization of Stated-owned Enterprises. After paying all pension obligations for privatization, the plan assets of Chunghwa should be transferred to the Fund for Privatization of Government-owned Enterprises (the “Privatization Fund”) under the Executive Yuan. On August 7, 2006, Chunghwa transferred the remaining balance of fund to the Privatization Fund. However, according to the instructions of MOTC, Chunghwa was requested to administer the distributions to employees for pension obligations including service clearance payment, lump sum payment under civil service plan, additional separation payments, etc. upon the completion of the privatization and recognized in other current monetary assets.

Chunghwa and its subsidiaries SENAO, CHIEF, CHSI, and SHE with the pension mechanism under the Labor Standards Law are considered as defined benefit plans. These pension plans provide benefits based on an employee’s length of service and average six-month salary prior to retirement. Chunghwa and its subsidiaries contribute an amount no more than 15% of salaries paid each month to their respective pension funds (the Funds), which are administered by the Labor Pension Fund Supervisory Committee (the Committee) and deposited in the names of the Committees in the Bank of Taiwan. The plan assets are held in a commingled fund which is operated and managed by the government’s designated authorities; as such, the Company does not have any right to intervene in the investments of the funds. According to the Article 56 of the Labor Standards Law in the ROC, entities are required to contribute the difference in one appropriation to the Funds before the end of next March when the balance of the Funds is insufficient to pay employees who will meet the retirement eligibility criteria within next year.

The amounts included in the consolidated balance sheets arising from the Company’s obligation in respect of its defined benefit plans were as follows:

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Present value of funded defined benefit obligation	$ 41,397	$ 41,197
Fair value of plan assets	(39,027)	(39,820)
Funded status - deficit	$ 2,370	$ 1,377
Net defined benefit liabilities	$ 3,534	$ 3,505
Net defined benefit assets	(1,164)	(2,128)
	$ 2,370	$ 1,377

Movements in the defined benefit obligation and the fair value of plan assets were as follows:

	Present Value of Funded Defined Benefit Obligation	Fair Value of Plan Assets	Net Defined Benefit Liabilities (Assets)
	NT$	NT$ (In Millions)	NT$
Balance on January 1, 2017	$ 34,572	$ 33,954	$ 618
Current service cost	2,918	-	2,918
Interest expense/interest income	506	519	(13)
Amounts recognized in profit or loss	3,424	519	2,905
Remeasurement on the net defined benefit liability			
Return on plan assets (excluding amounts included in net interest)	-	(193)	193
Actuarial losses recognized from changes in demographic assumptions	15	-	15
Actuarial losses recognized from experience adjustments	1,816	-	1,816
Amounts recognized in other comprehensive income	1,831	(193)	2,024
Contributions from employer	-	2,635	(2,635)
Benefits paid	(1,943)	(1,943)	-
Benefits paid directly by the Company	(221)	-	(221)
Balance on December 31, 2017	37,663	34,972	2,691
Current service cost	3,024	-	3,024
Interest expense/interest income	550	544	6
Amounts recognized in profit or loss	3,574	544	3,030
Remeasurement on the net defined benefit liability			
Return on plan assets (excluding amounts included in net interest)	-	875	(875)
Actuarial losses recognized from changes in demographic assumptions	4	-	4
Actuarial losses recognized from changes in financial assumptions	1,273	-	1,273
Actuarial losses recognized from experience adjustments	813	-	813
Amounts recognized in other comprehensive income	2,090	875	1,215
Contributions from employer	-	4,374	(4,374)
Benefits paid	(1,738)	(1,738)	-
Benefits paid directly by the Company	(192)	-	(192)
Balance on December 31, 2018	41,397	39,027	2,370
Current service cost	2,927	-	2,927
Interest expense/interest income	400	390	10
Amounts recognized in profit or loss	3,327	390	2,937

(Continued)

	Present Value of Funded Defined Benefit Obligation	Fair Value of Plan Assets	Net Defined Benefit Liabilities (Assets)
	NT$	NT$ (In Millions)	NT$
Remeasurement on the net defined benefit liability			
Return on plan assets (excluding amounts included in net interest)	$ -	$ 1,338	$ (1,338)
Actuarial losses recognized from changes in demographic assumptions	6	-	6
Actuarial losses recognized from changes in financial assumptions	647	-	647
Actuarial gains recognized from experience adjustments	(842)	-	(842)
Amounts recognized in other comprehensive income	(189)	1,338	(1,527)
Contributions from employer	-	2,099	(2,099)
Benefits paid	(3,034)	(3,034)	-
Benefits paid directly by the Company	(304)	-	(304)
Balance on December 31, 2019	$ 41,197	$ 39,820	$ 1,377

(Concluded)

Relevant pension costs recognized in profit and loss for defined benefit plans were as follows:

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Operating costs	$ 1,734	$ 1,796	$ 1,726
Marketing expenses	847	886	866
General and administrative expenses	156	164	164
Research and development expenses	97	107	103
	$ 2,834	$ 2,953	$ 2,859

The Company is exposed to following risks for the defined benefits plans under the Labor Standards Law:

a. Investment risk

Under the Labor Standards Law, the rate of return on assets shall not be lower than the average interest rate on a two-year time deposit published by the local banks and the government is responsible for any shortfall in the event that the rate of return is less than the required rate of return. The plan assets are held in a commingled fund mainly invested in foreign and domestic equity and debt securities and bank deposits which is operated and managed by the government’s designated authorities; as such, the Company does not have any right to intervene in the investments of the funds.

b. Interest rate risk

The decline in government bond interest rate will increase the present value of the obligation on the defined benefit plan, while the return on plan assets will increase. The net effect on the present value of the obligation on defined benefit plan is partially offset by the return on plan assets.

c. Salary risk

The calculation of the present value of defined benefit obligation is referred to the plan participants' future salary. Hence, the increase in plan participants' salary will increase the present value of the defined benefit obligation.

The most recent actuarial valuation of plan assets and the present value of the defined benefit obligation were carried out by the independent actuary.

The principal assumptions used for the purpose of the actuarial valuations were as follows:

	Measurement Date	
	December 31	
	2018	**2019**
Discount rates	1.00%	0.75%
Expected rates of salary increase	1.20%-2.00%	1.20%-2.00%

If reasonably possible changes of the respective significant actuarial assumptions occur at the end of reporting periods, while holding all other assumptions constant, the present value of the defined benefit obligation would increase (decrease) as follows:

	December 31	
	2018	**2019**
	NT$	**NT$**
	(In Millions)	
Discount rates		
0.5% increase	$ (1,258)	$ (1,275)
0.5% decrease	$ 1,338	$ 1,356
Expected rates of salary increase		
0.5% increase	$ 1,430	$ 1,448
0.5% decrease	$ (1,356)	$ (1,374)

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

Furthermore, in presenting the above sensitivity analysis, the present value of the defined benefit obligation has been calculated using the projected unit credit method at the end of the reporting period, which is the same as that applied in calculating the defined benefit obligation liability recognized in the consolidated balance sheets.

There is no change in the methods and assumptions used in preparing the sensitivity analysis from the previous period.

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
The expected contributions to the plan for the next year	$ 2,237	$ 2,076
The average duration of the defined benefit obligation	6.5-12.1 years	6.5-14 years

As of December 31, 2019, the Company's maturity analysis of the undiscounted benefit payments was as follows:

Year	Amount
	NT$ (In Millions)
2020	$ 2,956
2021	7,261
2022	11,007
2023	12,756
2024 and thereafter	42,686
	$ 76,666

28. EQUITY

a. Share capital

1) Common stocks

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Number of authorized shares	12,000	12,000
Authorized shares	$ 120,000	$ 120,000
Number of issued and paid shares	7,757	7,757
Issued and outstanding shares	$ 77,574	$ 77,574

The issued common stocks of a par value at $10 per share entitled the right to vote and receive dividends.

2) Global depositary receipts

The MOTC and some stockholders sold some common stocks of Chunghwa in an international offering of securities in the form of American Depositary Shares ("ADS") (one ADS represents 10 common stocks) in July 2003, August 2005, and September 2006. The ADSs were traded on the New York Stock Exchange since July 17, 2003. As of December 31, 2019, the outstanding ADSs were 230 million common stocks, which equaled 23 million units and represented 2.96% of Chunghwa's total outstanding common stocks.

The ADS holders generally have the same rights and obligations as other common stockholders, subject to the provision of relevant laws. The exercise of such rights and obligations shall comply with the related regulations and deposit agreement, which stipulate, among other things, that ADS holders are entitled to, through deposit agents:

a) Exercise their voting rights,

b) Sell their ADSs, and

c) Receive dividends declared and subscribe to the issuance of new shares.

b. Additional paid-in capital

The adjustments of additional paid-in capital for the years ended December 31, 2017, 2018 and 2019 were as follows:

	Share Premium	Movements of Additional Paid-in Capital for Associates and Joint Ventures Accounted for Using Equity Method	Movements of Additional Paid-in Capital Arising from Changes in Equities of Subsidiaries	Difference between Consideration Received and Carrying Amount of the Subsidiaries' Net Assets upon Disposal	Donated Capital	Stockholders' Contribution Due to Privatization	Total
	NT$	NT$	NT$	NT$ (In Millions)	NT$	NT$	NT$
Balance on January 1, 2017	$ 126,045	$ -	$ 389	$ 85	$ 13	$ 20,648	$ 147,180
Unclaimed dividend	-	-	-	-	3	-	3
Change in additional paid-in capital from investments in associates and joint ventures accounted for using equity method	-	-	-	-	-	-	-
Partial disposal of interests in subsidiaries	-	-	1	76	-	-	77
Change in additional paid-in capital for not participating in the capital increase of a subsidiary	-	-	802	-	-	-	802
Other changes in additional paid-in capital in subsidiaries	-	-	-	-	-	-	-
Share-based payment transactions of subsidiaries	-	-	2	-	-	-	2
Treasury stock transfer of subsidiaries	-	-	27	-	-	-	27
Balance on December 31, 2017	$ 126,045	$ -	$ 1,221	$ 161	$ 16	$ 20,648	$ 148,091
Balance on January 1, 2018	$ 126,045	$ -	$ 1,221	$ 161	$ 16	$ 20,648	$ 148,091
Unclaimed dividend	-	-	-	-	2	-	2
Partial disposal of interests in subsidiaries	-	-	-	826	-	-	826
Change in additional paid-in capital for not proportionately participating in the capital increase of a subsidiary	-	-	777	-	-	-	777
Share-based payment transactions of subsidiaries	-	-	11	-	-	-	11
Treasury stock transfer of subsidiaries	-	-	55	-	-	-	55
Balance on December 31, 2018	$ 126,045	$ -	$ 2,064	$ 987	$ 18	$ 20,648	$ 149,762
Balance on January 1, 2019	$ 126,045	$ -	$ 2,064	$ 987	$ 18	$ 20,648	$ 149,762
Unclaimed dividend	-	-	-	-	1	-	1
Share-based payment transactions of subsidiaries	-	-	(1)	-	-	-	(1)
Balance on December 31, 2019	$ 126,045	$ -	$ 2,063	$ 987	$ 19	$ 20,648	$ 149,762

Additional paid-in capital from share premium, donated capital and the difference between consideration received and the carrying amount of the subsidiaries' net assets upon disposal may be utilized to offset deficits. Furthermore, when Chunghwa has no deficit, it may be distributed in cash or capitalized, which however is limited to a certain percentage of Chunghwa's paid-in capital except the additional paid-in capital arising from unclaimed dividend can only be utilized to offset deficits.

The additional paid-in capital from movements of paid-in capital arising from changes in equities of subsidiaries may only be utilized to offset deficits.

Among additional paid-in capital from movements of investments in associates and joint ventures accounted for using equity method, the portion arising from the difference between consideration received and the carrying amount of the subsidiaries' net assets upon disposal may be utilized to offset deficits; furthermore, when the Company has no deficit, it may be distributed in cash or capitalized. However, other additional paid-in capital recognized in proportion of share ownership may only be utilized to offset deficits.

c. Retained earnings and dividends policy

In accordance with the Chunghwa's Articles of Incorporation, Chunghwa must pay all outstanding taxes, offset deficits in prior years and set aside a legal reserve equal to 10% of its net income before distributing a dividend or making any other distribution to stockholders, except when the accumulated amount of such legal reserve equals to Chunghwa's total issued capital, and depending on its business needs or requirements, may also set aside or reverse special reserves. No less than 50% of the remaining earnings comprising remaining balance of net income, if any, plus cumulative undistributed earnings shall be distributed as stockholders' dividends, of which cash dividends to be distributed shall not be less than 50% of the total amount of dividends to be distributed. If cash dividend to be distributed is less than $0.10 per share, such cash dividend shall be distributed in the form of common stocks.

Special reserve was appropriated in accordance with the relevant laws and regulations or as requested by local authority. Pursuant to existing regulations, Chunghwa is required to set aside additional special reserve equivalent to debit balances under stockholder's equity. For subsequent decrease in the deduction amount to stockholder's equity, the decreased amount could be reversed from the special reserve to retained earnings.

The appropriation for legal reserve shall be made until the accumulated reserve equals the aggregate par value of the outstanding capital stock of Chunghwa. This reserve can only be used to offset a deficit, or when the legal reserve has exceeded 25% of Chunghwa's paid-in capital, the excess may be transferred to capital or distributed in cash.

The appropriations of the 2017 and 2018 earnings of Chunghwa approved by the stockholders in their meetings on June 15, 2018 and June 21, 2019 were as follows:

	Appropriation of Earnings		**Dividends Per Share**	
	For Fiscal Year 2017	**For Fiscal Year 2018**	**For Fiscal Year 2017**	**For Fiscal Year 2018**
	NT$ (In Millions)	**NT$ (In Millions)**	**NT$**	**NT$**
Reversal of special reserve	$ 5	$ -		
Cash dividends	37,205	34,746	$4.796	$4.479

The appropriations of earnings for 2019 had been proposed by Chunghwa's Board of Directors on February 26, 2020. The appropriations and dividends per share were as follows:

	For Fiscal Year 2019	
	Appropriation of Earnings	**Dividends Per Share**
	NT$ (In Millions)	**NT$**
Cash dividends	$ 32,783	$4.226

The appropriations of earnings for 2019 are subject to the resolution of the stockholders' meeting planned to be held on May 29, 2020.

d. Other equity items

1) Exchange differences arising from the translation of the foreign operations

The exchange differences arising from the translation of the foreign operations from their functional currency to New Taiwan dollars were recognized as exchange differences arising from the translation of the foreign operations in other comprehensive income.

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

	Unrealized Gain or Loss on AFS Financial Assets
	NT$ (In Millions)
Balance as of January 1, 2017	$ (51)
Unrealized gain or loss on available-for-sale financial assets	607
Income tax relating to unrealized gain and loss on available-for-sale financial assets	2
Amount reclassified from equity to profit or loss on disposal of available-for-sale financial assets	-
Balance as of December 31, 2017 under IAS 39	558
Effect of retrospective application of IFRS 9	(558)
Balance as of January 1, 2018 under IFRS 9	$ -

Unrealized gain or loss on available-for-sale financial assets were accumulated gains and losses on the available-for-sale financial assets measured at fair value, which were recognized in other comprehensive income and were included in the calculation of the related disposal gain and loss or impairment loss of such financial assets upon reclassified to profits or losses.

3) Unrealized gain or loss on financial assets at FVOCI

	Year Ended December 31	
	2018	**2019**
	NT$ (In Millions)	**NT$**
Beginning balance	$ -	$ 538
Effect of retrospective application of IFRS 9	883	-
Beginning balance as adjusted	883	538
Unrealized gain (loss) for the year		
Equity instruments	(345)	197
Ending balance	$ 538	$ 735

e. Noncontrolling interests

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Beginning balance	$ 6,272	$ 8,474	$ 9,857
Effect of retrospective application of IFRS 9, 15 and 16	-	(4)	(20)
Beginning balance as adjusted	6,272	8,470	9,837
Attributable to noncontrolling interests			
Net income for the year	1,172	1,024	974
Exchange differences arising from the translation of the net investment in foreign operations	(12)	(3)	8
Unrealized gain or loss on financial assets at FVOCI	-	(1)	(26)
Unrealized loss on available-for-sale financial assets	(2)	-	-
Income tax relating to unrealized gain and loss on available-for-sale financial assets	1	-	-
Remeasurements of defined benefit pension plans	(8)	(9)	15
Income tax relating to remeasurements of defined benefit pension plans	-	3	(3)
Share of other comprehensive income (loss) of associates accounted for using equity method	(2)	1	(1)
Cash dividends distributed by subsidiaries	(942)	(958)	(710)
Partial disposal of interests in subsidiaries	29	349	-
Share-based payment transactions of subsidiaries	20	42	22
Change in additional paid-in capital for not proportionately participating in the capital increase of subsidiaries	1,750	700	-
Other changes in additional paid-in capital of subsidiaries	-	-	-
Net increase (decrease) in noncontrolling interests	196	239	(1)
Ending balance	$ 8,474	$ 9,857	$ 10,115

29. REVENUE

Starting from 2018

	Year Ended December 31,	
	2018	2019
	NT$ (In Millions)	NT$
Revenue from contracts with customers	$ 214,461	$ 206,360

(Continued)

	Year Ended December 31,	
	2018	2019
	NT$	NT$
	(In Millions)	
Other revenues		
Rental income	$ 640	$ 818
Other	382	342
	1,022	1,160
Total	$215,483	$207,520

(Concluded)

The information of performance obligations in customer contracts, please refer to Note 3 Summary of Significant Accounting Policies for details.

a. Disaggregation of revenue

2018

	Domestic Fixed Communi-cations Business	Mobile Communi-cations Business	Internet Business	International Fixed Communi-cations Business	Others	Total
	NT$	NT$	NT$ (In Millions)	NT$	NT$	NT$
Main Products and Service Revenues						
Mobile services revenue	$ -	$ 63,906	$ -	$ -	$ -	$ 63,906
Sales of products	1,731	35,702	4	251	3,601	41,289
Local telephone and domestic long distance telephone services revenue	29,996	-	-	-	-	29,996
Broadband access and domestic leased line services revenue	22,453	-	-	-	-	22,453
Data Communications internet services revenue	-	-	21,137	-	-	21,137
International network and leased telephone services revenue	-	-	-	8,724	-	8,724
Others	11,923	1,269	8,509	4,449	806	26,956
	$ 66,103	$ 100,877	$ 29,650	$ 13,424	$ 4,407	$ 214,461

2019

	Domestic Fixed Communi-cations Business	Mobile Communi-cations Business	Internet Business	International Fixed Communi-cations Business	Others	Total
	NT$	NT$	NT$ (In Millions)	NT$	NT$	NT$
Main Products and Service Revenues						
Mobile services revenue	$ -	$ 58,703	$ -	$ -	$ -	$ 58,703
Sales of products	1,957	35,545	41	265	3,785	41,593
Local telephone and domestic long distance telephone services revenue	27,929	-	-	-	-	27,929
Broadband access and domestic leased line services revenue	22,116	-	-	-	-	22,116

(Continued)

	Domestic Fixed Communi-cations Business	Mobile Communi-cations Business	Internet Business	International Fixed Communi-cations Business	Others	Total
	NT$	NT$	NT$	NT$	NT$	NT$
			(In Millions)			
Data Communications internet services revenue	$ -	$ -	$ 21,003	$ -	$ -	$ 21,003
International network and leased telephone services revenue	-	-	-	7,066	-	7,066
Others	13,064	1,142	8,790	4,144	810	27,950
	$ 65,066	$ 95,390	$ 29,834	$ 11,475	$ 4,595	$ 206,360

(Concluded)

b. Contract balances

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Trade notes and accounts receivable (Note 10)	$ 30,076	$ 26,408
Contract assets		
Products and service bundling	$ 7,123	$ 6,943
Other	109	116
Less: Loss allowance	(19)	(17)
	$ 7,213	$ 7,042
Current	$ 4,869	$ 4,441
Noncurrent	2,344	2,601
	$ 7,213	$ 7,042
Contract liabilities		
Telecommunications business	$ 8,193	$ 12,772
Project business	4,508	10,360
Products and service bundling	106	39
Others	476	510
	$ 13,283	$ 23,681
Current	$ 10,688	$ 16,840
Noncurrent	2,595	6,841
	$ 13,283	$ 23,681

The changes in the contract asset and the contract liability balances primarily result from the timing difference between the satisfaction of performance obligations and the payments collected from customers. Significant changes of contract assets and liabilities recognized resulting from product and service bundling were as follows:

	Year Ended December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Contract assets		
Net increase of customer contracts	$ 4,126	$ 6,066
Reclassified to trade receivables	(7,532)	(6,405)
	$ (3,406)	$ (339)
Contract liabilities		
Net increase of customer contracts	$ 16	$ 22
Recognized as revenues	(194)	(89)
	$ (178)	$ (67)

The Company applies the simplified approach to providing for expected credit losses prescribed by IFRS 9, which permits the use of lifetime expected loss provision for receivables. Contract assets will be reclassified to trade receivables when the corresponding invoice is billed to the client. Contract assets have substantially the same risk characteristics as the trade receivables of the same types of contracts. Therefore, the Company concluded that the expected loss rates for trade receivables can be applied to the contract assets.

Revenue recognized for the period that was included in the contract liability at the beginning of the period was as follows:

	Year Ended December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Telecommunications business	$ 7,157	$ 6,186
Project business	627	3,973
Others	324	404
	$ 8,108	$ 10,563

c. Incremental costs of obtaining contracts

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Noncurrent		
Incremental costs of obtaining contracts	$ 1,335	$ 943

The Company considered the past experience and the default clauses in the telecommunications service contract and believes the commissions and equipment subsidy paid for obtaining contracts are expected to be recoverable; therefore, incremental costs of obtaining contracts are recognized as an asset. Amortization expense of incremental costs of obtaining contracts for the years ended December 31, 2018 and 2019 were $1,941 million and $1,173 million, respectively.

d. Remaining Performance Obligations

As of December 31, 2019, the aggregate amount of transaction price allocated to performance obligations for non-cancellable telecommunications service contracts that are unsatisfied is $35,634 million. The Company recognizes revenue when service is provided over contract terms. The Company expects to recognize such revenue of $20,336 million, $11,971 million and $3,327 million in 2020, 2021 and 2022, respectively. The variable consideration collected from customers on nonrecurring basis resulting from exceeded usage from monthly fee and revenue recognized for contracts that the Company has a right to consideration from customers in the amount corresponding directly with the value to the customers of the Company's performance completed to date have been excluded from the disclosure of remaining performance obligations.

As of December 31, 2019, the aggregate amount of transaction price allocated to performance obligations for non-cancellable project business contracts that are unsatisfied is $23,159 million. The Company recognizes revenues when the project business contract is completed and accepted by customers. The Company expects to recognize such revenue of $14,183 million, $5,373 million and $3,603 million in 2020, 2021 and 2022, respectively. Project business contracts whose expected duration are less than a year have been excluded from the aforementioned disclosure.

30. NET INCOME AND OTHER COMPREHENSIVE INCOME (LOSS)

a. Other income and expenses

	Year Ended December 31		
	2017	**2018**	**2019**
	NT$	**NT$ (In Millions)**	**NT$**
Gain (loss) on disposal of property, plant and equipment	$ (107)	$ 142	$ (38)
Impairment loss on property, plant and equipment	-	-	(93)
Reversal of impairment loss on investment properties	11	19	57
Loss on disposal of intangible assets	-	-	-
Impairment loss on intangible assets	(9)	(51)	(9)
Impairment loss on other assets	-	-	(44)
	$ (105)	$ 110	$ (127)

b. Other income

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Dividend income	$ 328	$ 396	$ 296
Rental income	61	70	85
Others	447	234	150
	$ 836	$ 700	$ 531

c. Other gains and losses

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Foreign currency exchange gain or loss, net	$ (88)	$ 37	$ 16
Gain or loss on disposal of investments accounted for using equity method	-	-	151
Gain on disposal of financial instruments	3	6	4
Valuation gain or loss on financial assets and liabilities at fair value through profit or loss, net	1	(21)	(38)
Others	(48)	(68)	(49)
	$ (132)	$ (46)	$ 84

The Company disposed non-listed available-for-sale financial assets with carrying amounts of $5 million and recognized the gains on disposal of $3 million for the year ended December 31, 2017.

d. Interest expenses

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Interest on lease liabilities	$ -	$ -	$ 85
Other interest expenses	22	18	19
	$ 22	$ 18	$ 104

e. Impairment loss (reversal of impairment loss) on financial instruments

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Contract assets	$ -	$ 19	$ (2)
Trade notes and accounts receivable	$ 578	$ 805	$ (54)
Other receivables	$ 65	$ 96	$ (69)
Inventories	$ 52	$ 365	$ 475
Property, plant and equipment	$ -	$ -	$ 93
Investment properties	$ (11)	$ (19)	$ (57)
Intangible assets	$ 9	$ 51	$ 9
Other assets	$ -	$ -	$ 44

f. Depreciation and amortization expenses

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Property, plant and equipment	$ 28,143	$ 27,461	$ 26,930
Right-of-use assets	-	-	3,968
Investment properties	21	21	25
Intangible assets	3,766	4,386	4,253
Incremental costs of obtaining contracts	-	1,941	1,173
Total depreciation and amortization expenses	$ 31,930	$ 33,809	$ 36,349
Depreciation expenses summarized by functions			
Operating costs	$ 26,402	$ 25,996	$ 28,957
Operating expenses	1,762	1,486	1,966
	$ 28,164	$ 27,482	$ 30,923
Amortization expenses summarized by functions			
Operating costs	$ 3,473	$ 6,085	$ 5,196
Marketing expenses	154	113	96
General and administrative expenses	104	93	95
Research and development expenses	35	36	39
	$ 3,766	$ 6,327	$ 5,426

g. Employee benefit expenses

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Post-employment benefit			
Defined contribution plans	$ 594	$ 640	$ 654
Defined benefit plans	2,834	2,953	2,859
	3,428	3,593	3,513
Share-based payment			
Equity-settled share-based payment	22	17	2
Other employee benefit			
Salaries	25,760	26,204	25,464
Insurance	2,748	2,740	2,746
Others	15,449	14,470	14,430
	43,957	43,414	42,640
Total employee benefit expenses	$ 47,407	$ 47,024	$ 46,155
Summary by functions			
Operating costs	$ 24,725	$ 24,367	$ 23,587
Operating expenses	22,682	22,657	22,568
	$ 47,407	$ 47,024	$ 46,155

Chunghwa distributes employees' compensation at the rates from 1.7% to 4.3% and remuneration to directors not higher than 0.17%, respectively, of pre-tax income. As of December 31, 2019, the payables of the employees' compensation and the remuneration to directors were $1,126 million and $35 million, respectively. Such amounts have been approved by the Chunghwa's Board of Directors on February 26, 2020 and will be reported to the stockholders in their meeting planned to be held on May 29, 2020.

If there is a change in the proposed amounts after the annual financial statements are authorized for issue, the differences are recorded as a change in accounting estimate.

The compensation to the employees and remuneration to the directors of 2017 and 2018 approved by the Board of Directors on March 13, 2018 and March 19, 2019, respectively, were as follows.

	2017	2018
	Cash	Cash
	NT$ (In Millions)	NT$
Compensation distributed to the employees	$ 1,596	$ 1,404
Remuneration paid to the directors	41	38

There was no difference between the initial accrual amounts and the amounts proposed in the Board of Directors in 2018 and 2019 of the aforementioned compensation to employees and the remuneration to directors.

h. Reclassification adjustments of other comprehensive income or loss

	Year Ended December 31, 2017
	NT$ (In Millions)
Unrealized gain or loss on available-for-sale financial assets	
Arising during the year	$ 605
Reclassification adjustments	
Upon disposal	-
	$ 605
Cash flow hedges	
Gain arising during the year	$ 3
Reclassification adjustments included in profit or loss	(2)
Adjusted against the carrying amount of hedged items	(2)
	$ (1)

31. INCOME TAX

a. Income tax recognized in profit or loss

The major components of income tax expense were as follows:

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Current tax			
Current tax expenses recognized for the year	$ 7,996	$ 8,271	$ 8,109
Income tax on unappropriated earnings	(60)	(2,070)	(20)
Income tax adjustments on prior years	(2)	7	(91)
Others	10	8	12
	7,944	6,216	8,010
Deferred tax			
Deferred tax expense recognized for the year	(101)	208	(63)
Income tax adjustments on prior years	6	19	(1)
Change in tax rate	-	(38)	-
	(95)	189	(64)
Income tax expense recognized in profit or loss	$ 7,849	$ 6,405	$ 7,946

Reconciliation of accounting profit and income tax expense was as follows:

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Income before income tax	$ 48,009	$ 44,986	$ 41,867
Income tax expense calculated at the statutory rate (17% in 2017, and 20% in 2018 and 2019)	$ 8,162	$ 8,997	$ 8,373
Nondeductible income and expenses in determining taxable income	34	227	18
Unrecognized deductible temporary differences	(1)	1	3
Unrecognized loss carryforwards	10	21	7
Tax-exempt income	(87)	(580)	(148)
Additional income tax under Alternative Minimum Tax Act	-	46	-
Income tax on unappropriated earnings	(60)	(2,070)	(20)
Investment credits	(212)	(204)	(203)
Change in tax rate	-	(38)	-
Effect of different tax rates of group entities operating in other jurisdictions	(2)	(15)	(9)
Income tax adjustments on prior years	4	26	(92)
Others	1	(6)	17
Income tax expense recognized in profit or loss	$ 7,849	$ 6,405	$ 7,946

In 2017, the applicable tax rate used above is the corporate tax rate of 17% payable by the entities subject to the Income Tax Act of the Republic of China.

Income Tax Act in the ROC was amended in February 2018 and the corporate income tax rate is adjusted from 17% to 20%. Such amendment is effective from 2018. In addition, the rate of the corporate surtax applicable to 2018 unappropriated earnings is reduced from 10% to 5%. The applicable tax rate used by subsidiaries in China is 25%, and tax rates used by other entities in the Company operating in other jurisdictions are based on the tax laws in those jurisdictions.

In July 2019, the President of the ROC announced of the amendments to Article 23-3 of the Statute of Industrial Innovation, which stipulate that the unappropriated earnings in 2018 and thereafter that are reinvested in certain assets or technologies are allowed as deduction when computing the income tax on unappropriated earnings.

b. Income tax recognized in other comprehensive income

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Deferred tax			
Remeasurement on defined benefit plan	$ (344)	$ (243)	$ 305
Change in tax rate - defined benefit plan	-	(207)	-
Unrealized gain or loss on available-for-sale financial assets	(3)	-	-
Total income tax expense (benefit) recognized in other comprehensive income	$ (347)	$ (450)	$ 305

c. Current tax assets and liabilities

	December 31	
	2018	2019
	NT$ (In Millions)	NT$
Current tax assets		
Tax refund receivable (included in other current assets - other)	$ -	$ 1
Current tax liabilities		
Income tax payable	$ 6,221	$ 5,812

d. Deferred income tax assets and liabilities

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

For the year ended December 31, 2017

	January 1, 2017	Recognized in Profit or Loss	Recognized in Other Comprehensive Income	December 31, 2017
	NT$	NT$	NT$ (In Millions)	NT$
Deferred income tax assets				
Temporary differences				
Defined benefit obligation	$ 1,374	$ 5	$ 344	$ 1,723
Allowance for doubtful receivables over quota	230	59	-	289

(Continued)

	January 1, 2017	Recognized in Profit or Loss	Recognized in Other Comprehensive Income	December 31, 2017
	NT$	NT$	NT$	NT$
		(In Millions)		
Share of profits of associates and joint ventures accounted for using equity method	$ 330	$ 1	$ -	$ 331
Valuation loss on inventory	20	3	-	23
Deferred revenue	117	(11)	-	106
Estimated warranty liabilities	19	3	-	22
Impairment loss on property, plant and equipment	122	(10)	-	112
Accrued award credits liabilities	20	(5)	-	15
Unrealized foreign exchange loss, net	-	17	-	17
Property, plant and equipment	2	-	-	2
Trade-in right	-	15	-	15
Others	34	(5)	-	29
	2,268	72	344	2,684
Loss carryforwards	54	(8)	-	46
	$ 2,322	$ 64	$ 344	$ 2,730
Deferred income tax liabilities				
Temporary differences				
Defined benefit obligation	$ (1,269)	$ 4	$ -	$ (1,265)
Land value incremental tax	(95)	-	-	(95)
Intangible assets	(40)	1	-	(39)
Deferred revenue for award credits	(46)	17	-	(29)
Unrealized foreign exchange gain or loss, net	(10)	10	-	-
Valuation gain or loss on financial instruments, net	(3)	(1)	3	(1)
Others	(1)	-	-	(1)
	$ (1,464)	$ 31	$ 3	$ (1,430)

(Concluded)

For the year ended December 31, 2018

	January 1, 2018	Effect of Retrospective Application of IFRS 9	Recognized in Profit or Loss	Recognized in Other Comprehensive Income	December 31, 2018
	NT$	NT$	NT$ (In Millions)	NT$	NT$
Deferred income tax assets					
Temporary differences					
Defined benefit obligation	$ 1,723	$ -	$ 134	$ 450	$ 2,307
Allowance for doubtful receivables over quota	289	-	146	-	435
Share of profits of associates and joint ventures accounted for using equity method	331	-	58	-	389
Valuation loss on inventory	23	-	65	-	88
Deferred revenue	106	-	5	-	111
Estimated warranty liabilities	22	-	4	-	26
Impairment loss on property, plant and equipment	112	-	(19)	-	93
Accrued award credits liabilities	15	-	(1)	-	14
Unrealized foreign exchange loss, net	17	-	(16)	-	1
Property, plant and equipment	2	-	-	-	2
Trade-in right	15	-	(5)	-	10
Others	29	-	8	-	37
	2,684	-	379	450	3,513
Loss carryforwards	46	-	(5)	-	41
	$ 2,730	$ -	$ 374	$ 450	$ 3,554
Deferred income tax liabilities					
Temporary differences					
Defined benefit obligation	$ (1,265)	$ -	$ (567)	$ -	$ (1,832)
Land value incremental tax	(95)	-	-	-	(95)
Intangible assets	(39)	-	7	-	(32)
Deferred revenue for award credits	(29)	-	(2)	-	(31)
Unrealized foreign exchange gain, net	-	-	(1)	-	(1)
Valuation gain or loss on financial instruments, net	(1)	1	-	-	-
Others	(1)	-	-	-	(1)
	$ (1,430)	$ 1	$ (563)	$ -	$ (1,992)

For the year ended December 31, 2019

	January 1, 2019	Effect of Retrospective Application of IFRS 16	Recognized in Profit or Loss	Recognized in Other Comprehensive Income	December 31, 2019
	NT$	NT$	NT$ (In Millions)	NT$	NT$
Deferred income tax assets					
Temporary differences					
Defined benefit obligation	$ 2,307	$ -	$ 32	$ (305)	$ 2,034
Allowance for doubtful receivables over quota	435	-	(31)	-	404
Share of profits of associates and joint ventures accounted for using equity method	389	-	13	-	402
Valuation loss on inventory	88	-	53	-	141
Deferred revenue	111	-	(13)	-	98
Estimated warranty liabilities	26	-	8	-	34
Impairment loss on property, plant and equipment	93	-	(75)	-	18
Accrued award credits liabilities	14	-	3	-	17
Unrealized foreign exchange loss, net	1	-	2	-	3

(Continued)

	January 1, 2019	Effect of Retrospective Application of IFRS 16	Recognized in Profit or Loss	Recognized in Other Comprehensive Income	December 31, 2019
	NT$	NT$	NT$ (In Millions)	NT$	NT$
Property, plant and equipment	$ 2	$ -	$ -	$ -	$ 2
Trade-in right	10	-	(9)	-	1
Others	37	26	14	-	77
	3,513	26	(3)	(305)	3,231
Loss carryforwards	41	-	(13)	-	28
	$ 3,554	$ 26	$ (16)	$ (305)	$ 3,259
Deferred income tax liabilities					
Temporary differences					
Defined benefit obligation	$ (1,832)	$ -	$ 74	$ -	$ (1,758)
Land value incremental tax	(95)	-	-	-	(95)
Intangible assets	(32)	-	3	-	(29)
Deferred revenue for award credits	(31)	-	2	-	(29)
Unrealized foreign exchange gain, net	(1)	-	-	-	(1)
Valuation gain or loss on financial instruments, net	-	-	-	-	-
Others	(1)	-	1	-	-
	$ (1,992)	$ -	$ 80	$ -	$ (1,912)

(Concluded)

e. Items for which no deferred income tax assets have been recognized

	December 31 2018	December 31 2019
	NT$ (In Millions)	NT$ (In Millions)
Loss carryforwards		
Expire in 2020	$ 41	$ 23
Expire in 2021	12	13
Expire in 2022	10	10
Expire in 2023	9	8
Expire in 2024	2	8
Expire in 2025	15	15
Expire in 2026	8	8
Expire in 2027	3	3
Expire in 2028	1	1
Expire in 2029	-	-
	$ 101	$ 89
Deductible temporary differences	$ 1	$ 1

f. Information about unused loss carryforwards

As of December 31, 2019, unused loss carryforwards was as follows:

Remaining Creditable Amount NT$ (In Millions)	Expiry Year
$ 23	2020
19	2021
11	2022
9	2023
8	2024
26	2025
12	2026
3	2027
4	2028
2	2029
$ 117	

g. Income tax examinations

Income tax returns of Chunghwa, CHSI, CHST, SENAO, CHIEF, CHI, CHPT, LED, Unigate, CLPT, SFD, SHE, ISPOT, Youth, Youyi, SENYOUNG, Aval and HHI have been examined by the tax authorities through 2017. Income tax returns of CHYP and CHTSC have been examined by the tax authorities through 2018.

32. EARNINGS PER SHARE

Net income and weighted average number of common stocks used in the calculation of earnings per share were as follows:

Net Income

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Net income used to compute the basic earnings per share			
Net income attributable to the parent	$ 38,988	$ 37,557	$ 32,947
Assumed conversion of all dilutive potential common stocks			
Employee stock options, employee compensation of subsidiaries	-	(6)	(4)
Net income used to compute the diluted earnings per share	$ 38,988	$ 37,551	$ 32,943

Weighted Average Number of Common Stocks

(Millions Shares)

	Year Ended December 31		
	2017	**2018**	**2019**
Weighted average number of common stocks used to compute the basic earnings per share	7,757	7,757	7,757
Assumed conversion of all dilutive potential common stocks			
Employee compensation	11	9	8
Weighted average number of common stocks used to compute the diluted earnings per share	7,768	7,766	7,765

Because Chunghwa may settle the employee compensation in shares or cash, Chunghwa shall presume that it will be settled in shares and takes those shares into consideration when calculating the weighted average number of outstanding shares used in the calculation of diluted EPS if the shares have a dilutive effect. The dilutive effect of the shares needs to be considered until the approval of the number of shares to be distributed to employees as compensation in the following year.

33. SHARE-BASED PAYMENT ARRANGEMENT

a. SENAO share-based compensation plan ("SENAO Plan") described as follows:

Effective Date	Grant Date	Stock Options Units (In Thousands)	Exercise Price NT$
2012.05.28	2013.05.07	10,000	$66.20 (Original price $93.00)

Each option is eligible to subscribe for one common share when exercisable. Under the terms of the SENAO Plan, the options are granted at an exercise price equal to the closing price of the SENAO's common stocks listed on the TWSE on the higher of closing price or par value. The SENAO Plan have exercise price adjustment formula upon the changes in common stocks equity (including cash capital increase, new share issue through capitalization of earnings and additional paid-in capital, merger, spin off and new share issue for Global Depositary Shares, and so on) or distribution of cash dividends. The options of SENAO Plan are valid for six years and the graded vesting schedule for which 50% of option granted will vest two years after the grant date and another two tranches of 25%, each will vest three and four years after the grant date respectively.

The compensation costs of stock options granted on May 7, 2013 was $4 million for the year ended December 31, 2017. No compensation cost was recognized for the year ended December 31, 2018 and 2019.

SENAO modified the plan terms of the outstanding stock options in July 2017, the exercise price changed from $76.10 to $70.70 per share. The modification did not cause any incremental fair value granted.

SENAO modified the plan terms of the outstanding stock options in July 2018, the exercise price changed from $70.70 to $66.20 per share. The modification did not cause any incremental fair value granted.

Information about SENAO's outstanding stock options for the years ended December 31, 2017, 2018 and 2019 was as follows:

	Year Ended December 31, 2017	
	Granted on May 7, 2013	
	Number of Options (In Thousands)	**Weighted-average Exercise Price NT$**
Employee stock options		
Options outstanding at beginning of the year	6,587	$ 76.10
Options forfeited	(661)	-
Options outstanding at end of the year	5,926	70.70
Options exercisable at end of the year	5,926	70.70

	Year Ended December 31, 2018	
	Granted on May 7, 2013	
	Number of Options (In Thousands)	**Weighted-average Exercise Price NT$**
Employee stock options		
Options outstanding at beginning of the year	5,926	$ 70.70
Options forfeited	(608)	-
Options outstanding at end of the year	5,318	66.20
Options exercisable at end of the year	5,318	66.20

	Year Ended December 31, 2019	
	Granted on May 7, 2013	
	Number of Options (In Thousands)	**Weighted-average Exercise Price NT$**
Employee stock options		
Options outstanding at beginning of the year	5,318	$ 66.20
Options forfeited	(5,318)	-
Options outstanding at end of the year	-	-
Options exercisable at end of the year	-	-

As of December 31, 2018, information about employee stock options outstanding was as follows:

Options Outstanding				Options Exercisable	
Range of Exercise Price	Number of Options	Weighted-average Remaining Contractual Life	Weighted-average Exercise Price	Number of Options	Weighted-average Exercise Price
NT$	(In Thousands)	(Years)	NT$	(In Thousands)	NT$
$ 66.20	5,318	0.35	$ 66.20	5,318	$ 66.20

As of December 31, 2019, there were no outstanding stock options.

SENAO used the fair value method to evaluate the options using the Black-Scholes model and the related assumptions and the fair value of the options were as follows:

	Stock Options Granted on May 7, 2013
Grant-date share price (NT$)	$93.00
Exercise price (NT$)	$93.00
Dividends yield	-
Risk-free interest rate	0.91%
Expected life	4.375 years
Expected volatility	36.22%
Weighted-average fair value of grants (NT$)	$28.72

Expected volatility was based on the historical share price volatility of SENAO over the period equal to the expected life of SENAO Plan.

b. SENAO transferred the treasury stock

The Board of Directors of SENAO resolved to transfer treasury stock to specific employees in May and November 2017. The aforementioned treasury stock transferred to employees were measured at the fair value of the grant date. SENAO totally transfered 3,342 thousand shares of treasury stock and the compensation cost of $9 million was recognized for the year ended December 31, 2017.

The Board of Directors of SENAO resolved to transfer treasury stock 6,658 thousand shares to specific employees in April 2018. The aforementioned treasury stock transferred to employees were measured at the fair value on the grant date. The compensation cost of $15.6 million was recognized for the year ended December 31, 2018.

SENAO used the fair value method to evaluate share-based payment transaction using the Black-Scholes model and the related assumptions and the fair value of the option were as follows:

	Stock Options Granted on May 23, 2017	Stock Options Granted on November 17, 2017	Stock Options Granted on May 7, 2018
Grant-date share price (NT$)	$53.60	$51.00	$51.60
Exercise price (NT$)	$49.28	$49.28	$49.28

(Continued)

	Stock Options Granted on May 23, 2017	Stock Options Granted on November 17, 2017	Stock Options Granted on May 7, 2018
Dividends yield	-	-	-
Risk-free interest rate	0.59%	0.59%	0.59%
Expected life	9 days	14 days	18 days
Expected volatility	12.35%	9.94%	8.78%
Weighted average fair value of grants (NT$)	$4.33	$1.75	$2.34

(Concluded)

Expected volatility was based on the historical share price volatility of SENAO over three months before the grant date.

c. CHIEF share-based compensation plan (“CHIEF Plan”) described as follows:

Effective Date	Grant Date	Stock Options Units	Exercise Price NT$
2015.11.17	2015.10.22	2,000.00	$34.40 (Original price $43.00)
2017.12.18	2017.12.19	950.00	135.60 (Original price$147.00)
	2018.10.31	50.00	141.70 (Original price$147.00)

Each option is eligible to subscribe for one thousand common stocks when exercisable. The options are granted to specific employees that meet the vesting conditions. The CHIEF Plan has exercise price adjustment formula upon the changes in common stocks or distribution of cash dividends. The options of CHIEF Plan are valid for five years and the graded vesting schedule will vest two years after the grant date.

The compensation costs for stock options granted on October 22, 2015 were $3 million, $1 million and $0.3 million for the years ended December 31, 2017, 2018 and 2019, respectively.

The compensation costs for stock options granted on December 19, 2017 were $0.1 million, $0.6 million and $0.6 million for the years ended December 31, 2017, 2018 and 2019, respectively.

The compensation cost for stock options granted on October 31, 2018 were $0.1 million and $0.6 million for the years ended December 31, 2018 and 2019, respectively.

CHIEF modified the plan terms of stock options granted on December 19, 2017 in June and August 2018 and the exercise price changed from $147.00 to $144.10 and $140.60 per share, respectively. The modification did not cause any incremental fair value granted.

CHIEF modified the plan terms of stock options granted on December 19, 2017 in June 2019 and the exercise price changed from $140.60 to $135.60 per share. The modification did not cause any incremental fair value granted.

CHIEF modified the plan terms of stock options granted on October 31, 2018 in June 2019 and the exercise price changed from $147.00 to $141.70 per share. The modification did not cause any incremental fair value granted.

Information about CHIEF's outstanding stock options for the years ended December 31, 2017, 2018 and 2019 was as follows:

	Year Ended December 31, 2017			
	Granted on October 22, 2015		Granted on December 19, 2017	
	Number of Options	Weighted Average Exercise Price (NT$)	Number of Options	Weighted Average Exercise Price (NT$)
Employee stock options				
Options outstanding at beginning of the year	1,948.00	$ 34.40	-	$ -
Options granted	-	-	950.00	147.00
Options forfeited	(12.00)	-	-	-
Options outstanding at end of the year	1,936.00	34.40	950.00	147.00
Options exercisable at end of the year	968.00	34.40	-	-

	Year Ended December 31, 2018					
	Granted on October 22, 2015		Granted on December 19, 2017		Granted on October 31, 2018	
	Number of Options	Weighted Average Exercise Price (NT$)	Number of Options	Weighted Average Exercise Price (NT$)	Number of Options	Weighted Average Exercise Price (NT$)
Employee stock options						
Options outstanding at beginning of the year	1,936.00	$ 34.40	950.00	$ 147.00	-	$ -
Options granted	-	-	-	-	50.00	147.00
Options exercised	(1,027.25)	34.40	-	-	-	-
Options forfeited	(26.00)	-	(25.00)	-	-	-
Options outstanding at end of the year	882.75	34.40	925.00	140.60	50.00	147.00
Options exercisable at end of the year	416.50	34.40	-	-	-	-

	Year Ended December 31, 2019					
	Granted on October 22, 2015		Granted on December 19, 2017		Granted on October 31, 2018	
	Number of Options	Weighted Average Exercise Price (NT$)	Number of Options	Weighted Average Exercise Price (NT$)	Number of Options	Weighted Average Exercise Price (NT$)
Employee stock options						
Options outstanding at beginning of the year	882.75	$ 34.40	925.00	$ 140.60	50.00	$ 147.00
Options exercised	(547.25)	34.40	-	-	-	-
Options forfeited	(21.25)	-	(28.00)	-	(4.00)	-
Options outstanding at end of the year	314.25	34.40	897.00	135.60	46.00	141.70
Options exercisable at end of the year	314.25	34.40	448.50	135.60	-	-

As of December 31, 2018, information about employee stock options outstanding was as follows:

Granted on October 22, 2015

Options Outstanding				Options Exercisable	
Range of Exercise Price NT$	Number of Options	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price NT$	Number of Options	Weighted Average Exercise Price NT$
$ 34.40	882.75	1.81	$ 34.40	416.50	$ 34.40

Granted on December 19, 2017

Options Outstanding				Options Exercisable	
Range of Exercise Price NT$	Number of Options	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price NT$	Number of Options	Weighted Average Exercise Price NT$
$140.60	925.00	3.96	$140.60	-	$ -

Granted on October 31, 2018

Options Outstanding				Options Exercisable	
Range of Exercise Price NT$	Number of Options	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price NT$	Number of Options	Weighted Average Exercise Price NT$
$147.00	50.00	4.83	$147.00	-	$ -

As of December 31, 2019, information about employee stock options outstanding was as follows:

Granted on October 22, 2015

Options Outstanding				Options Exercisable	
Range of Exercise Price NT$	Number of Options	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price NT$	Number of Options	Weighted Average Exercise Price NT$
$ 34.40	314.25	0.81	$ 34.40	314.25	$ 34.40

Granted on December 19, 2017

Options Outstanding				Options Exercisable	
Range of Exercise Price NT$	Number of Options	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price NT$	Number of Options	Weighted Average Exercise Price NT$
$135.60	897.00	2.96	$135.60	448.50	$135.60

Granted on October 31, 2018

Options Outstanding				Options Exercisable	
Range of Exercise Price NT$	Number of Options	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price NT$	Number of Options	Weighted Average Exercise Price NT$
$141.70	46.00	3.83	$141.70	-	$ -

CHIEF used the fair value method to evaluate the options using the Black-Scholes model and binomial option pricing model and the related assumptions and the fair value of the options were as follows:

	Stock Options Granted on October 22, 2015	Stock Options Granted on December 19, 2017	Stock Options Granted on October 31, 2018
Grant-date share price (NT$)	$39.55	$95.92	$166.00
Exercise price (NT$)	$43.00	$147.00	$147.00
Dividends yield	-	-	-
Risk-free interest rate	0.86%	0.62%	0.72%
Expected life	5 years	5 years	5 years
Expected volatility	21.02%	17.35%	16.60%
Weighted average fair value of grants (NT$)	$4,863	$2,318	$33,540

Expected volatility was based on the average annualized historical share price volatility of CHIEF's comparable companies before the grant date.

d. New shares reserved for subscription by employees under cash injection of CHIEF

In March 2018, the Board of Directors of CHIEF approved the cash injection to issue 7,842 thousand shares and simultaneously reserved 1,176 thousand shares for subscription by employees according to the Company Act of the ROC. Furthermore, when the employees subscribed some shares or discarded their rights to subscribe shares, the Board of Directors of CHIEF authorized the chairman of the Board of Directors to contact specific people or group to subscribe.

The aforementioned options granted to employees are accounted for and measured at fair value of the grant date. No compensation cost was recognized for the year ended December 31, 2018.

CHIEF used the fair value method to evaluate the options granted to employees on May 22, 2018 using the Black-Scholes model and the related assumptions and the fair value of the options were as follows:

	Stock Options Granted on May 22, 2018
Grant-date share price (NT$)	$156.41
Exercise price (NT$)	$170.00
Dividends yield	-
Risk-free interest rate	0.34%
Expected life	7 days
Expected volatility	14.33%
Weighted average fair value of grants (NT$)	$ -

Expected volatility was based on the average annualized historical share price volatility of CHIEF's comparable companies before the grant date.

e. CHTSC share-based compensation plan ("CHTSC Plan") described as follows:

The Board of Directors of CHTSC resolved to issue 4,500 options that are granted to specific employees that meet the vesting conditions on December 20, 2019. Each option is eligible to subscribe for one thousand common stocks when exercisable, and the exercisable price is $19.085. The CHTSC Plan has exercise price adjustment formula upon the changes in common stocks. The options of CHTSC Plan are valid for five years and the graded vesting schedule will vest one year after the grant date.

The compensation costs of stock options granted were $0.2 million for the year ended December 31, 2019.

Information about CHTSC's outstanding stock options for the year ended December 31, 2019 was as follows:

	Year Ended December 31, 2019	
	Granted on December 20, 2019	
	Number of Options	**Weighted Average Exercise Price (NT$)**
Employee stock options		
Options outstanding at beginning of the year	-	$ -

(Continued)

	Year Ended December 31, 2019	
	Granted on December 20, 2019	
	Number of Options	Weighted Average Exercise Price (NT$)
Options granted	4,500	$ 19.085
Options outstanding at end of the year	4,500	19.085
Options exercisable at end of the year	-	-

(Concluded)

As of December 31, 2019, information about employee stock options outstanding was as follows:

Options Outstanding				Options Exercisable	
Range of Exercise Price (NT$)	Number of Options	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price (NT$)	Number of Options	Weighted Average Exercise Price (NT$)
$19.085	4,500	4.97	$19.085	-	$ -

CHTSC used the fair value method to evaluate the options using the Black-Scholes model and the related assumptions and the fair value of the options were as follows:

	Stock Options Granted on December 20, 2019
Grant-date share price (NT$)	$20.17
Exercise price (NT$)	$19.085
Dividends yield	12.49%
Risk-free interest rate	0.54%
Expected life	5 years
Expected volatility	42.41%
Weighted average fair value of grants (NT$)	$2,470

Expected volatility was based on the average annualized historical share price volatility of CHTSC’s comparable companies before the grant date.

f. New shares reserved for subscription by employees under cash injection of CHPT

On February 8, 2017, the Board of Directors of CHPT approved the cash injection to issue 2,000 thousand shares and simultaneously reserved 300 thousand shares for subscription by employees according to the Company Act of the ROC. Furthermore, when the employees subscribed some shares or discarded their rights to subscribe shares, the Board of Directors of CHPT authorized the chairman of the Board of Directors to contact specific people or group to subscribe.

The aforementioned options granted to employees are accounted for and measured at fair value. The compensation cost was $6 million for the year ended December 31, 2017.

CHPT used the fair value method to evaluate the options granted to employees on September 18, 2017 using the Black-Scholes model and the related assumptions and the fair value of the options were as follows:

	Stock Options Granted on September 18, 2017
Grant-date share price (NT$)	$1,295.00
Exercise price (NT$)	$1,267.33
Dividends yield	-
Risk-free interest rate	0.35%
Expected life	4 days
Expected volatility	28.30%
Weighted average fair value of grants (NT$)	$31.60

Expected volatility was based on the historical share price volatility of CHPT over the period equal to the expected life.

34. NON-CASH TRANSACTIONS

For the years ended December 31, 2017, 2018 and 2019, the Company entered into the following non-cash investing activities:

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Increase in property, plant and equipment	$ 26,069	$ 27,979	$ 23,164
Other payables	806	571	1,002
	$ 26,875	$ 28,550	$ 24,166

For the year ended December 31, 2019, changes in liabilities arising from financing activities, including non-cash transactions, were as follows:

	Balance on January 1, 2019	Cash Flows from Financing Activities	Changes in Non-Cash Transactions		Cash Flows from Operation Activities - Interest Paid	Balance on December 31, 2019
			New Leases	Others		
	NT$	NT$	NT$ (In Millions)	NT$	NT$	NT$
Lease liabilities	$ 10,340	$ (3,728)	$ 3,803	$ (572)	$ (85)	$ 9,758

35. CAPITAL MANAGEMENT

The Company manages its capital to ensure that entities in the Company will be able to continue as going concerns while maximizing the return to stakeholders through the optimization of the debt and equity balance.

The capital structure of the Company consists of debt of the Company and the equity attributable to the parent.

Some consolidated entities are required to maintain minimum paid-in capital amount as prescribed by the applicable laws.

The management reviews the capital structure of the Company as needed. As part of this review, the management considers the cost of capital and the risks associated with each class of capital.

According to the management's suggestion, the Company maintains a balanced capital structure through paying cash dividends, increasing its share capital, purchasing outstanding shares, and proceeds from new debt or repayment of debt.

36. FINANCIAL INSTRUMENTS

Categories of Financial Instruments

	December 31	
	2018	2019
	NT$	NT$
	(In Millions)	
Financial assets		
Measured at FVTPL		
Mandatorily measured at FVTPL	$ 517	$ 779
Hedging financial assets	1	-
Financial assets at amortized cost (Note a)	70,241	71,852
Financial assets at FVOCI	6,933	7,154
Financial liabilities		
Measured at FVTPL		
Held for trading	1	-
Measured at amortized cost (Note b)	40,334	34,434

Note a: The balances included cash and cash equivalents, trade notes and accounts receivable, receivables from related parties, other current monetary assets and refundable deposits (classified as other noncurrent assets) which were financial assets measured at amortized cost.

Note b: The balances included short-term loans, trade notes and accounts payable, payables to related parties, partial other payables, customers' deposits and long-term loans which were financial liabilities carried at amortized cost.

Financial Risk Management Objectives

The main financial instruments of the Company include equity investments, trade notes and accounts receivable, trade notes and accounts payable, lease liabilities and loans. The Company's Finance Department provides services to its business units, co-ordinates access to domestic and international capital markets, monitors and manages the financial risks relating to the operations of the Company through internal risk reports which analyze exposures by degree and magnitude of risks. These risks include market risk (including foreign currency risk, interest rate risk and other price risk), credit risk, and liquidity risk.

The Company seeks to minimize the effects of these risks by using derivative financial instruments to hedge risk exposures. The use of financial derivatives is governed by the Company's policies approved by the Board of Directors. Those derivatives are used to hedge the risks of exchange rate fluctuation arising from operating or investment activities. Compliance with policies and risk exposure limits is reviewed by the Company's Finance Department on a continuous basis. The Company does not enter into or trade financial instruments, including derivative financial instruments, for speculative purposes.

Chunghwa reports the significant risk exposures and related action plans timely and actively to the audit committee and if needed to the Board of Directors.

a. Market risk

The Company is exposed to market risks of changes in foreign currency exchange rates and interest rates. The Company uses forward exchange contracts to hedge the exchange rate risk arising from assets and liabilities denominated in foreign currencies.

There were no changes to the Company's exposure to market risks or the manner in which these risks are managed and measured.

1) Foreign currency risk

The carrying amounts of the Company's foreign currency denominated monetary assets and monetary liabilities at the balance sheet dates were as follows:

	December 31	
	2018	**2019**
	NT$	**NT$**
	(In Millions)	
Assets		
USD	$ 5,903	$ 5,782
EUR	34	12
SGD	124	225
JPY	17	17
RMB	2	9
Liabilities		
USD	6,999	4,121
EUR	1,217	206
SGD	51	1,263
JPY	14	14
RMB	-	-

The carrying amounts of the Company's derivatives with exchange rate risk exposures at the balance sheet dates were as follows:

	December 31	
	2018	2019
	NT$ (In Millions)	NT$
Assets		
USD	$ -	$ -
EUR	1	-
Liabilities		
USD	-	-
EUR	1	-

Foreign currency sensitivity analysis

The Company is mainly exposed to the fluctuations of the currencies, USD, EUR, SGD, JPY and RMB as listed above.

The following table details the Company's sensitivity to a 5% increase and decrease in the functional currency against the relevant foreign currencies. 5% is the sensitivity rate used when reporting foreign currency risk internally to key management personnel and represents management's assessment of the reasonably possible changes in foreign exchange rates. The sensitivity analysis includes only outstanding foreign currency denominated monetary items and forward exchange contracts. A positive number below indicates an increase in pre-tax profit or equity where the functional currency weakens 5% against the relevant currency.

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Profit or loss			
Monetary assets and liabilities (a)			
USD	$ 31	$ (55)	$ 83
EUR	(65)	(59)	(10)
SGD	(2)	4	(52)
JPY	1	-	-
RMB	-	-	-
Derivatives (b)			
USD	6	3	1
EUR	3	10	3
Equity			
Derivatives (c)			
EUR	7	9	4

a) This is mainly attributable to the exposure to foreign currency denominated receivables and payables of the Company outstanding at the balance sheet dates.

b) This is mainly attributable to forward exchange contracts.

c) This is mainly attributable to the changes in the fair value of derivatives that are designated as cash flow hedges.

For a 5% strengthening of the functional currency against the relevant currencies, there would be an equal and opposite effect on the pre-tax profit or equity for the amounts shown above.

2) Interest rate risk

The carrying amounts of the Company's exposures to interest rates on financial assets and financial liabilities at the balance sheet dates were as follows:

	December 31	
	2018	**2019**
	NT$	**NT$**
	(In Millions)	
Fair value interest rate risk		
Financial assets	$ 25,822	$ 30,947
Financial liabilities	-	9,758
Cash flow interest rate risk		
Financial assets	9,161	7,681
Financial liabilities	1,700	1,690

Interest rate sensitivity analysis

The sensitivity analyses below have been determined based on the exposure to interest rates for non-derivative instruments at the end of the reporting period. A 25 basis point increase or decrease is used when reporting interest rate risk internally to key management personnel and represents management's assessment of the reasonably possible change in interest rates.

If interest rates had been 25 basis points higher/lower and all other variables were held constant, the Company's pre-tax income would increase/decrease by $13 million, $19 million and $15 million for the years ended December 31, 2017, 2018 and 2019, respectively. This is mainly attributable to the Company's exposure to floating interest rates on its financial assets and short-term and long-term loan.

3) Other price risk

The Company is exposed to equity price risks arising from holding other company's equity. Equity investments are held for strategic rather than trading purposes. The management managed the risk through holding various risk portfolios. Further, the Company assigned finance and investment departments to monitor the price risk.

Equity price sensitivity analysis

The sensitivity analyses below have been determined based on the exposure to equity price risks at the end of the reporting period.

If equity prices had been 5% higher/lower, pre-tax other comprehensive income for the year ended December 31, 2017 would have increased/decreased by $156 million as a result of the changes in fair value of available-for-sale assets. If equity prices had been 5% higher/lower, pre-tax profit and pre-tax other comprehensive income for the year ended December 31, 2018 would have increased/decreased by $26 million and $347 million as a result of the changes in fair value of financial assets at FVTPL and financial assets at FVTOCI, respectively. If equity prices had been 5% higher/lower, pre-tax profit and pre-tax other comprehensive income for the year ended December 31, 2019 would have increased/decreased by $39 million and $358 million as a result of the changes in fair value of financial assets at FVTPL and financial assets at FVTOCI, respectively.

b. Credit risk

Credit risk refers to the risk that a counterparty would default on its contractual obligations resulting in financial loss to the Company. The maximum credit exposure of the aforementioned financial instruments is equal to their carrying amounts recognized in consolidated balance sheet as of the balance sheet date.

The Company has large trade receivables outstanding with its customers. A substantial majority of the Company's outstanding trade receivables are not covered by collateral or credit insurance. The Company has implemented ongoing measures including enhancing credit assessments and strengthening overall risk management to reduce its credit risk. While the Company has procedures to monitor and limit exposure to credit risk on trade receivables, there can be no assurance such procedures will effectively limit its credit risk and avoid losses. This risk is heightened during periods when economic conditions worsen.

As the Company serves a large number of unrelated consumers, the concentration of credit risk was limited.

c. Liquidity risk

The Company manages and maintains sufficient cash and cash equivalent position to support the operations and reduce the impact on fluctuation of cash flow.

1) Liquidity and interest risk tables

The following tables detailed the Company's remaining contractual maturity for its non-derivative financial liabilities with agreed repayment periods. The tables had been drawn up based on the undiscounted cash flows of financial liabilities based on the earliest date on which the Company is required to pay.

	Weighted Average Effective Interest Rate (%)	Less than 1 Month	1-3 Months	3 Months to 1 Year	1-5 Years	More than 5 Years	Total
		NT$	NT$	NT$	NT$	NT$	NT$
				(In Millions)			
December 31, 2018							
Non-derivative financial liabilities							
Non-interest bearing	-	$ 41,808	$ -	$ 2,890	$ 4,717	$ -	$ 49,415
Floating interest rate instruments	0.98	-	-	100	1,600	-	1,700
		$ 41,808	$ -	$ 2,990	$ 6,317	$ -	$ 51,115

	Weighted Average Effective Interest Rate (%)	Less than 1 Month	1-3 Months	3 Months to 1 Year	1-5 Years	More than 5 Years	Total
		NT$	NT$	NT$	NT$	NT$	NT$
				(In Millions)			
December 31, 2019							
Non-derivative financial liabilities							
Non-interest bearing	-	$ 36,387	$ -	$ 2,532	$ 4,748	$ -	$ 43,667
Floating interest rate instruments	0.98	50	10	30	1,600	-	1,690
		$ 36,437	$ 10	$ 2,562	$ 6,348	$ -	$ 45,357

Information about the maturity analysis for lease liabilities was as follows:

	Less than 1 Year NT$	1-3 Years NT$	3-5 Years NT$ (In Millions)	More than 5 Years NT$	Total NT$
Lease liabilities	$ 3,310	$ 4,394	$ 1,581	$ 645	$ 9,930

The following table detailed the Company's liquidity analysis for its derivative financial instruments. The table had been drawn up based on the undiscounted gross inflows and outflows on those derivatives that require gross settlement.

	Less than 1 Month NT$	1-3 Months NT$	3 Months to 1 Year NT$ (In Millions)	1-5 Years NT$	Total NT$
December 31, 2018					
Gross settled					
Forward exchange contracts					
Inflows	$ 62	$ 238	$ 126	$ -	$ 426
Outflows	62	238	126	-	426
	$ -	$ -	$ -	$ -	$ -
December 31, 2019					
Gross settled					
Forward exchange contracts					
Inflows	$ 26	$ 135	$ -	$ -	$ 161
Outflows	26	135	-	-	161
	$ -	$ -	$ -	$ -	$ -

2) Financing facilities

	December 31	
	2018 NT$	2019 NT$
	(In Millions)	
Unsecured bank loan facility		
Amount used	$ 133	$ 121
Amount unused	46,328	46,109
	$ 46,461	$ 46,230
Secured bank loan facility		
Amount used	$ 1,600	$ 1,600
Amount unused	1,340	1,340
	$ 2,940	$ 2,940

37. FAIR VALUE INFORMATION

The fair value measurement guidance establishes a framework for measuring fair value and expands disclosure about fair value measurements. The standard describes a fair value hierarchy based on three levels of inputs that may be used to measure fair value. These levels are:

Level 1 fair value measurements: These measurements are those derived from quoted prices (unadjusted) in active markets for identical assets or liabilities.

Level 2 fair value measurements: These measurements are those derived from inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices).

Level 3 fair value measurements: These measurements are those derived from valuation techniques that include inputs for the asset or liability that are not based on observable market data (unobservable inputs).

a. Financial instruments that are not measured at fair value but for which fair value is disclosed

The Company considers that the carrying amounts of financial assets and liabilities not measured at fair value approximate their fair values or the fair values cannot be reliable estimated, no financial instruments need to be disclosed on balance sheet date.

b. Financial instruments that are measured at fair value on a recurring basis

December 31, 2018

	Level 1	Level 2	Level 3	Total
Financial assets at FVTPL				
Non-listed stocks	$ -	$ -	$ 517	$ 517
Hedging financial assets	$ -	$ 1	$ -	$ 1
Financial assets at FVOCI				
Equity investment	$ 2,900	$ -	$ 4,033	$ 6,933
Financial liabilities at FVTPL				
Derivatives	$ -	$ 1	$ -	$ 1

December 31, 2019

	Level 1	Level 2	Level 3	Total
Financial assets at FVTPL				
Derivatives	$ -	$ -	$ -	$ -
Listed stocks	1	-	-	1
Non-listed stocks	-	-	778	778
	$ 1	$ -	$ 778	$ 779
Hedging financial assets	$ -	$ -	$ -	$ -
Financial assets at FVOCI				
Equity investment	$ 2,454	$ -	$ 4,700	$ 7,154

(Continued)

	Level 1	Level 2	Level 3	Total
Financial liabilities at FVTPL				
Derivatives	$ -	$ -	$ -	$ -

(Concluded)

There were no transfers between Levels 1 and 2 for the years ended December 31, 2018 and 2019.

The reconciliations for financial assets measured at Level 3 are listed below:

2018

Financial Assets	Measured at Fair Value through Profit or Loss NT$	Measured at Fair Value through Other Comprehensive Income NT$ (In Millions)	Total NT$
Balance at January 1, 2018 (IAS 39)	$ -	$ -	$ -
The effect on retrospective adjustment of applying IFRS 9	543	3,925	4,468
Balance at January 1, 2018 (IFRS 9)	543	3,925	4,468
Acquisition	-	290	290
Recognized in profit or loss under "Other gains and losses"	(26)	-	(26)
Recognized in other comprehensive income under "Unrealized gain or loss on investments in equity instruments at fair value through other comprehensive income"	-	(175)	(175)
Proceeds from return of investees	-	(7)	(7)
Balance at December 31, 2018	$ 517	$ 4,033	$ 4,550
Unrealized loss in 2018	$ (26)		

2019

Financial Assets	Measured at Fair Value through Profit or Loss NT$	Measured at Fair Value through Other Comprehensive Income NT$ (In Millions)	Total NT$
Balance at January 1, 2019	$ 517	$ 4,033	$ 4,550
Acquisition	300	-	300
Recognized in profit or loss under "Other gains and losses"	(39)	-	(39)

(Continued)

Financial Assets	Measured at Fair Value through Profit or Loss	Measured at Fair Value through Other Comprehensive Income	Total
	NT$	NT$ (In Millions)	NT$
Recognized in other comprehensive income under "Unrealized gain or loss on investments in equity instruments at fair value through other comprehensive income"	$ -	$ 676	$ 676
Proceed from return of investments	-	(9)	(9)
Balance at December 31, 2019	$ 778	$ 4,700	$ 5,478
Unrealized loss in 2019	$ (39)		

(Concluded)

The fair values of financial assets and financial liabilities of Level 2 are determined as follows:

1) The fair values of financial assets and financial liabilities with standard terms and conditions and traded in active markets are determined with reference to quoted market prices.

2) For derivatives, fair values are estimated using discounted cash flow model. Future cash flows are estimated based on observable inputs including forward exchange rates at the end of the reporting periods, and the forward and spot exchange rates stated in the contracts, discounted at a rate that reflects the credit risk of various counterparties.

The fair values of non-listed domestic and foreign equity investments were Level 3 financial assets, and determined using the market approach by reference the Price-to-Book ratios (P/B ratios) of peer companies that traded in active market or using assets approach. The significant unobservable inputs used were listed in the table below. A decrease in discount for the lack of marketability or noncontrolling interests discount would result in increases in the fair values.

	December 31	
	2018	2019
Discount for lack of marketability	12.73%-20.00%	13.73%-20.00%
Noncontrolling interests discount	24.41%-25.00%	21.45%-25.00%

If the inputs to the valuation model were changed to reflect reasonably possible alternative assumptions while all the other variables were held constant, the fair values of equity investments would increase as below table. When related discounts increase, the fair value of equity investments would be the negative amount of the same amount.

	December 31	
	2018	2019
	NT$ (In Millions)	NT$
Discount for lack of marketability		
5% decrease	$ 268	$ 342
Noncontrolling interests discount		
5% decrease	$ 37	$ 54

38. RELATED PARTIES TRANSACTIONS

The ROC Government, one of Chunghwa's customers has significant equity interest in Chunghwa. Chunghwa provides fixed-line services, wireless services, internet and data and other services to the various departments and institutions of the ROC Government in the normal course of business and at arm's-length prices. The transactions with the ROC government bodies have not been provided because the transactions are not individually or collectively significant. However, the related revenues and operating costs have been appropriately recorded.

a. The Company engages in business transactions with the following related parties:

Company	Relationship
Taiwan International Standard Electronics Co., Ltd.	Associate
So-net Entertainment Taiwan Limited	Associate
KKBOX Taiwan Co., Ltd.	Associate
KingwayTek Technology Co., Ltd.	Associate
UUPON Inc.	Associate
Taiwan International Ports Logistics Corporation	Associate
Huada Digital Corporation	Joint venture
Chunghwa Benefit One Co., Ltd.	Joint venture
International Integrated System, Inc.	Associate
Senao Networks, Inc.	Associate
EnRack Technology Inc.	Subsidiary of the Company's associate, Senao Networks, Inc.
Emplus Technologies, Inc.	Subsidiary of the Company's associate, Senao Networks, Inc.
ST-2 Satellite Ventures Pte., Ltd.	Associate
Viettel-CHT Co., Ltd.	Associate
Click Force Co., Ltd.	Associate
Alliance Digital Tech Co., Ltd.	Associate
MeWorks Limited（HK）	Associate
Chunghwa PChome Fund I Co., Ltd. ("CPFI")	Associate
Cornerstone Ventures Co., Ltd. ("CVC")	Associate
Next Commercial Bank Co., Ltd. (preparatory office) ("NCB")	Associate
Other related parties	
Chunghwa Telecom Foundation	A nonprofit organization of which the funds donated by Chunghwa exceeds one third of its total funds
Senao Technical and Cultural Foundation	A nonprofit organization of which the funds donated by SENAO exceeds one third of its total funds
Sochamp Technology Co., Ltd.	Investor of significant influence over CHST
E-Life Mall Co., Ltd.	One of the directors of E-Life Mall and a director of SENAO are members of an immediate family
Engenius Technologies Co., Ltd.	Chairman of Engenius Technologies Co., Ltd. is a member of SENAO's management
Cheng Keng Investment Co., Ltd.	Chairman of Cheng Keng Investment Co., Ltd. and SENAO's chief executive officer are members of an immediate family

(Continued)

Company	Relationship
Cheng Feng Investment Co., Ltd.	Chairman of Cheng Feng Investment Co., Ltd. and SENAO's chief executive officer are members of an immediate family
All Oriented Investment Co., Ltd.	Chairman of All Oriented Investment Co., Ltd. and SENAO's chief executive officer are members of an immediate family
Hwa Shun Investment Co., Ltd.	Chairman of Hwa Shun Investment Co., Ltd. and SENAO's chief executive officer are members of an immediate family
Yu Yu Investment Co., Ltd.	Chairman of Yu Yu Investment Co., Ltd. and SENAO's chief executive officer are members of an immediate family
United Daily News Co., Ltd.	Investor of significant influence over SFD
Shenzhen Century Communication Co., Ltd.	Investor of significant influence over SCT

(Concluded)

b. Balances and transactions between Chunghwa and its subsidiaries, which are related parties of Chunghwa, have been eliminated on consolidation and are not disclosed in this note. Terms of the foregoing transactions with related parties were not significantly different from transactions with non-related parties. When no similar transactions with non-related parties can be referenced, terms were determined in accordance with mutual agreements. Details of transactions between the Company and other related parties are disclosed below:

1) Operating transactions

	Revenues		
	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Associates	$ 344	$ 344	$ 274
Joint ventures	1	-	-
Others	65	94	76
	$ 410	$ 438	$ 350

	Operating Costs and Expenses		
	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Associates	$ 1,197	$ 1,304	$ 964
Joint ventures	2	-	-
Others	71	75	76
	$ 1,270	$ 1,379	$ 1,040

2) Non-operating transactions

	Non-operating Income and Expenses		
	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Associates	$ 32	$ 31	$ 41
Others	-	-	4
	$ 32	$ 31	$ 45

3) Receivables

	December 31	
	2018	2019
	NT$ (In Millions)	NT$
Associates	$ 11	$ 10
Others	13	7
	$ 24	$ 17

4) Payables

	December 31	
	2018	2019
	NT$ (In Millions)	NT$
Associates	$ 914	$ 651
Others	4	3
	$ 918	$ 654

5) Customers' deposits

	December 31	
	2018	2019
	NT$ (In Millions)	NT$
Associates	$ 6	$ 8

6) Acquisition of property, plant and equipment

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Associates	$ 390	$ 312	$ 242
Others	-	-	-
	$ 390	$ 312	$ 242

7) Lease-in agreements

Chunghwa entered into a contract with ST-2 Satellite Ventures Pte., Ltd. on March 12, 2010 to lease capacity on the ST-2 satellite. This lease term is for 15 years which should start from the official operation of ST-2 satellite and the total contract value is approximately $6,000 million (SG$261 million), including a prepayment of $3,068 million at the inception of the lease, and the rest of amount should be paid annually when ST-2 satellite starts its official operation. ST-2 satellite was launched in May 2011 and began its official operation in August 2011.

Prior to 2019

The total rental expense for the year ended December 31, 2017 was $392 million, which consisted of an offsetting credit of the prepayment of $204 million and an additional accrual of $188 million. The total rental expense for the year ended December 31, 2018 was $394 million, which consisted of an offsetting credit of the prepayment of $204 million and an additional accrual of $190 million. The prepaid rents (classified as prepayments) as of December 31, 2018, was as follows:

	December 31, 2018
	NT$ (In Millions)
Prepaid rents - current	$ 205
Prepaid rents - noncurrent	1,346
	$ 1,551

2019

The lease liabilities of ST-2 Satellite Ventures Pte., Ltd. as of December 31, 2019 was as follows:

	December 31, 2019
	NT$ (In Millions)
Lease liabilities - current	$ 188
Lease liabilities - noncurrent	1,024
	$ 1,212

The interest expense recognized for the aforementioned lease liabilities for the year ended December 31, 2019 was $11 million.

c. Compensation of key management personnel

The compensation of directors and other key management personnel for the years ended December 31, 2017, 2018 and 2019 were as follows:

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Short-term employee benefits	$ 254	$ 282	$ 263
Post-employment benefits	9	10	9
Share-based payment	2	9	-
	$ 265	$ 301	$ 272

The compensation of directors and other key management personnel was mainly determined by the compensation committee having regard to the performance of individual and market trends.

39. PLEDGED ASSETS

The following assets are pledged as collaterals for bank loans and custom duties of the imported materials.

	December 31	
	2018	2019
	NT$ (In Millions)	NT$
Property, plant and equipment	$ 2,520	$ 2,491
Land held under development (included in inventories)	1,999	1,999
Restricted assets (included in other assets - others)	3	3
	$ 4,522	$ 4,493

40. SIGNIFICANT CONTINGENT LIABILITIES AND UNRECOGNIZED COMMITMENTS

As of December 31, 2019, the Company’s significant commitments and contingent liabilities, excluding those disclosed in other notes, were as follows:

a. Acquisitions of land and buildings of $44 million.

b. Acquisitions of telecommunications equipment of $17,877 million.

c. Unused letters of credit amounting to $50 million.

d. A commitment to contribute $2,000 million to a Piping Fund administered by the Taipei City Government, of which $1,000 million was contributed by Chunghwa on August 15, 1996 (classified as other monetary assets - noncurrent). If the fund is not sufficient, Chunghwa will contribute the remaining $1,000 million upon notification from the Taipei City Government.

e. Chunghwa committed that when its ownership interest in NCB is greater than 25% and NCB encounters financial difficulty or capital adequacy ratio of NCB cannot meet the related regulation requirements, the Company will provide financial support to assist NCB to maintain in healthy financial condition.

f. CHPT signed the contract for its headquarters construction amounted to $1,614 million in July 2017. The payment of $1,533 million has been made as of March 31, 2020.

41. SEGMENT INFORMATION

The Company has the following reportable segments that provide different products or services. The reportable segments are managed separately because each segment represents a strategic business unit that serves different markets. Segment information is provided to CEO who allocates resources and assesses segment performance. The Company's measure of segment performance is mainly based on revenues and income before income tax. The Company's reportable segments are as follows:

a. Domestic fixed communications business - the provision of local telephone services, domestic long distance telephone services, broadband access, and related services;

b. Mobile communications business - the provision of mobile services, sales of mobile handsets and data cards, and related services;

c. Internet business - the provision of HiNet services and related services;

d. International fixed communications business - the provision of international long distance telephone services and related services;

e. Others - the provision of non-telecom services and the corporate related items not allocated to reportable segments.

Some operating segments have been aggregated into a single operating segment taking into account the following factors: (a) similar economic characteristics such as long-term gross profit margins; (b) the nature of the telecommunications products and services are similar; (c) the nature of production processes of the telecommunications products and services are similar; (d) the type or class of customer for the telecommunications products and services are similar; and (e) the methods used to provide the services to the customers are similar.

There was no material differences between the accounting policies of the operating segments and the accounting policies described in Note 3.

a. Segment revenues and operating results

Analysis by reportable segment of revenues and operating results of continuing operations was as follows:

	Domestic Fixed Communi-cations Business NT$	Mobile Communi-cations Business NT$	Internet Business NT$	International Fixed Communi-cations Business NT$	Others NT$	Total NT$
			(In Millions)			
Year ended December 31, 2017						
Revenues						
From external customers	$ 71,137	$ 109,376	$ 28,917	$ 13,552	$ 4,532	$ 227,514
Intersegment revenues	22,515	2,031	4,209	2,375	4,600	35,730
Segment revenues	$ 93,652	$ 111,407	$ 33,126	$ 15,927	$ 9,132	263,244
Intersegment elimination						(35,730)
Consolidated revenues						$ 227,514
Segment income (loss) before income tax	$ 24,888	$ 12,433	$ 11,118	$ 1,029	$ (1,459)	$ 48,009
Year ended December 31, 2018						
Revenues						
From external customers	$ 66,753	$ 100,937	$ 29,813	$ 13,435	$ 4,545	$ 215,483
Intersegment revenues	17,125	1,702	4,038	2,234	5,008	30,107
Segment revenues	$ 83,878	$ 102,639	$ 33,851	$ 15,669	$ 9,553	245,590
Intersegment elimination						(30,107)
Consolidated revenues						$ 215,483
Segment income (loss) before income tax	$ 18,243	$ 15,328	$ 11,944	$ 1,024	$ (1,553)	$ 44,986
Year ended December 31, 2019						
Revenues						
From external customers	$ 65,728	$ 95,469	$ 30,091	$ 11,485	$ 4,747	$ 207,520
Intersegment revenues	16,065	1,564	3,951	2,079	4,914	28,573
Segment revenues	$ 81,793	$ 97,033	$ 34,042	$ 13,564	$ 9,661	236,093
Intersegment elimination						(28,573)
Consolidated revenues						$ 207,520
Segment income (loss) before income tax	$ 19,537	$ 11,250	$ 12,515	$ 799	$ (2,234)	$ 41,867

b. Other segment information

Other information reviewed by the chief operating decision maker or regularly provided to the chief operating decision maker was as follows:

For the year ended December 31, 2017

	Domestic Fixed Communi-cations Business NT$	Mobile Communi-cations Business NT$	Internet Business NT$	International Fixed Communi-cations Business NT$	Others NT$	Total NT$
			(In Millions)			
Share of the profit of associates and joint ventures accounted for using equity method	$ -	$ -	$ -	$ -	$ 419	$ 419
Interest income	$ 21	$ 15	$ 9	$ 15	$ 145	$ 205

(Continued)

	Domestic Fixed Communi- cations Business	Mobile Communi- cations Business	Internet Business	International Fixed Communi- cations Business	Others	Total
	NT$	NT$	NT$	NT$	NT$	NT$
				(In Millions)		
Interest expenses	$ -	$ 6	$ -	$ -	$ 16	$ 22
Operating costs and expenses	$ 62,795	$ 80,275	$ 13,288	$ 13,385	$ 10,963	$ 180,706
Depreciation and amortization	$ 15,614	$ 11,001	$ 3,385	$ 1,477	$ 453	$ 31,930
Capital expenditure	$ 11,647	$ 9,742	$ 2,779	$ 1,580	$ 1,127	$ 26,875
Reversal of impairment loss on investment properties	$ 11	$ -	$ -	$ -	$ -	$ 11
Impairment loss on intangible assets	$ -	$ 9	$ -	$ -	$ -	$ 9

(Concluded)

For the year ended December 31, 2018

	Domestic Fixed Communi- cations Business	Mobile Communi- cations Business	Internet Business	International Fixed Communi- cations Business	Others	Total
	NT$	NT$	NT$	NT$	NT$	NT$
				(In Millions)		
Share of the profit of associates and joint ventures accounted for using equity method	$ -	$ -	$ -	$ -	$ 509	$ 509
Interest income	$ 18	$ 12	$ 19	$ 28	$ 120	$ 197
Interest expenses	$ -	$ -	$ -	$ -	$ 18	$ 18
Operating costs and expenses	$ 59,430	$ 73,901	$ 13,766	$ 13,279	$ 11,573	$ 171,949
Depreciation and amortization	$ 15,027	$ 13,788	$ 3,121	$ 1,425	$ 448	$ 33,809
Capital expenditure	$ 12,693	$ 10,664	$ 2,729	$ 1,348	$ 1,116	$ 28,550
Reversal of impairment loss on investment properties	$ 19	$ -	$ -	$ -	$ -	$ 19
Impairment loss on intangible assets	$ -	$ 51	$ -	$ -	$ -	$ 51

For the year ended December 31, 2019

	Domestic Fixed Communi- cations Business	Mobile Communi- cations Business	Internet Business	International Fixed Communi- cations Business	Others	Total
	NT$	NT$	NT$	NT$	NT$	NT$
				(In Millions)		
Share of the profit of associates and joint ventures accounted for using equity method	$ -	$ -	$ -	$ -	$ 459	$ 459
Interest income	$ 15	$ 9	$ 20	$ 41	$ 166	$ 251
Interest expenses	$ 5	$ 58	$ 1	$ 12	$ 28	$ 104
Operating costs and expenses	$ 56,269	$ 72,952	$ 13,850	$ 11,427	$ 12,249	$ 166,747
Depreciation and amortization	$ 14,842	$ 16,254	$ 2,914	$ 1,547	$ 792	$ 36,349
Capital expenditure	$ 12,071	$ 7,773	$ 1,425	$ 1,117	$ 1,780	$ 24,166
Impairment loss on property, plant and equipment	$ -	$ -	$ -	$ -	$ 93	$ 93
Reversal of impairment loss on investment properties	$ 57	$ -	$ -	$ -	$ -	$ 57
Impairment loss on intangible assets	$ -	$ 9	$ -	$ -	$ -	$ 9
Impairment loss on other assets	$ 13	$ -	$ 13	$ -	$ 18	$ 44

c. Main products and service revenues

The following is an analysis of the Company's revenue from its major products and services.

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Mobile services revenue	$ 75,823	$ 63,906	$ 58,703
Sales of product	37,649	41,289	41,593
Local telephone and domestic long distance telephone services revenue	32,247	29,996	27,929
Broadband access and domestic leased line services revenue	22,950	22,453	22,116
Data communications internet services revenue	21,143	21,137	21,003
International network and leased telephone services revenue	9,328	8,724	7,066
Others	28,374	27,978	29,110
	$ 227,514	$ 215,483	$ 207,520

d. Geographic information

The users of the Company's services are mainly from Taiwan, ROC. The revenues it derived outside Taiwan are mainly revenues from international long distance telephone and leased line services. The geographic information for revenues was as follows:

	Year Ended December 31		
	2017	2018	2019
	NT$	NT$ (In Millions)	NT$
Taiwan, ROC	$ 217,568	$ 205,696	$ 197,895
Overseas	9,946	9,787	9,625
	$ 227,514	$ 215,483	$ 207,520

The Company has long-lived assets in U.S., Singapore, Hong Kong, China, Vietnam, Japan, and Thailand and except for $4,324 million and $4,063 million as of December 31, 2018 and 2019, respectively, in the aforementioned areas, the other long-lived assets are located in Taiwan, ROC.

e. Major customers

As of December 31, 2017, 2018 and 2019, the Company did not have any single customer whose revenue exceeded 10% of the total revenues.