(English translation and a part of summary of the Annual Securities Report for the twelve-month period ended March 31, 2020, pursuant to the Financial Instruments and Exchange act of Japan.)

Annual Financial Report

For the fiscal year ended March 31, 2020

Advantest Corporation

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As used in this annual financial report, the term "FY" preceding a year means the twelve-month period ended March 31 of the year subsequent to the year referred to. For example, "FY 2019" refers to the twelve-month period ended March 31, 2020. All other references to years refer to the applicable calendar year.

"¥" or "yen" means Japanese yen.

Unless otherwise noted, all references and discussions of the financial position of Advantest Corporation (the "Company") and its consolidated subsidiaries (collectively, "Advantest"), results of operations and cash flows in this annual financial report are made with reference to Advantest's consolidated financial statements prepared in accordance with the International Financial Reporting Standards ("IFRS").

Cautionary Statement with Respect to Forward-Looking Statements

This annual financial report contains "forward-looking statements" that are based on Advantest's current expectations, estimates and projections. These statements include, among other things, the discussion of Advantest's business strategy, outlook and expectations as to market and business developments, production and capacity plans. Generally, these forward-looking statements can be identified by the use of forward-looking terminology such as "anticipate," "believe," "estimate," "expect," "intend," "project," "should" and similar expressions. Forward-looking statements are subject to known and unknown risks, uncertainties and other factors that may cause Advantest's actual results, levels of activity, performance or achievements to be materially different from those expressed or implied by such forward-looking statements, including:

• changes in demand for the products and services produced and offered by Advantest's customers, including semiconductors, communications services and electronic goods;

• circumstances relating to Advantest's investment in technology, including its ability to timely develop products that meet the changing needs of semiconductor manufacturers and communications network equipment and components makers and service providers;

• the environment in which Advantest purchases materials, components and supplies for the production of its products, including the availability of necessary materials, components and supplies during a significant expansion in the market in which Advantest operates; and

• changes in economic conditions, competitive environment, currency exchange rates or political stability in the major markets where Advantest produces, distributes or sells its products.

These risks, uncertainties and other factors also include those identified in "Risk Factors" and set forth elsewhere in this annual financial report.

1. Consolidated Financial Statements

(1) Consolidated Statement of Financial Position

Millions of Yen

	Note	As of March 31, 2019	As of March 31, 2020
Assets			
Current assets			
Cash and cash equivalents	7, 30	119,943	127,703
Trade and other receivables	8, 30	51,786	46,426
Inventories	9	57,099	58,943
Other current assets		4,423	6,871
Subtotal		233,251	239,943
Assets held for sale	11	—	199
Total current assets		233,251	240,142
Non-current assets			
Property, plant and equipment, net	12	30,786	35,072
Right-of-use-assets	14	—	11,184
Goodwill and intangible assets, net	13	26,119	51,025
Other financial assets	10, 30	2,861	2,867
Deferred tax assets	16	11,209	15,351
Other non-current assets		354	136
Total non-current assets		71,329	115,635
Total assets	6	304,580	355,777
Liabilities and Equity			
Liabilities			
Current liabilities			
Trade and other payables	17, 30	43,942	46,660
Income tax payables		8,650	7,793
Provisions	19	2,886	3,335
Lease liabilities	30	—	2,275
Other financial liabilities	30	905	1,892
Other current liabilities	23	6,465	8,582
Total current liabilities		62,848	70,537
Non-current liabilities			
Lease liabilities	30	—	9,013
Retirement benefit liabilities	20	37,528	40,622
Deferred tax liabilities	16	1,680	1,563
Other non-current liabilities		3,793	2,590
Total non-current liabilities		43,001	53,788
Total liabilities		105,849	124,325
Equity			
Share capital	21	32,363	32,363
Share premium	21	43,018	43,550
Treasury shares	21	(6,262)	(4,179)
Retained earnings	21	125,927	159,803
Other components of equity	21	3,685	(85)
Total equity attributable to owners of the parent		198,731	231,452
Total equity		198,731	231,452
Total liabilities and equity		304,580	355,777

(2) Consolidated Statement of Profit or Loss and Consolidated Statement of Comprehensive Income

Consolidated Statement of Profit or Loss

Millions of Yen

	Note	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Net sales	6, 23	282,456	275,894
Cost of sales	12, 13, 20	(128,417)	(119,397)
Gross profit		154,039	156,497
Selling, general and administrative expenses	12, 13, 19, 20, 24, 25	(93,100)	(97,751)
Other income	27	3,818	335
Other expenses		(95)	(373)
Operating income	6	64,662	58,708
Financial income	26	1,626	1,045
Financial expenses	26	(77)	(1,179)
Income before income taxes		66,211	58,574
Income taxes	16	(9,218)	(5,042)
Net income		56,993	53,532
Net income attributable to:			
Owners of the parent		56,993	53,532
Earnings per share:	29		Yen
Basic		302.35	270.12
Diluted		287.37	268.96

Consolidated Statement of Comprehensive Income

Millions of Yen

	Note	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Net income		56,993	53,532
Other comprehensive income (loss), net of tax			
Items that will not be reclassified to profit or loss			
Remeasurements of defined benefit pension plan	20, 21, 28	(2,732)	(2,144)
Net change in fair value measurements of equity instruments at fair value through other comprehensive income	21, 28	175	(169)
Items that may be subsequently reclassified to profit or loss			
Exchange differences on translation of foreign operations	21, 28	2,209	(3,490)
Total other comprehensive income (loss)		(348)	(5,803)
Total comprehensive income for the year		56,645	47,729
Comprehensive income attributable to:			
Owners of the parent		56,645	47,729

(3) Consolidated Statement of Changes in Equity

Millions of Yen

	Note	Equity attributable to owners of the parent						Total Equity
		Share capital	Share premium	Treasury shares	Retained earnings	Other components of equity	Total	
Balance as of March 31, 2018		32,363	43,466	(77,724)	125,204	1,301	124,610	124,610
Impact of change in accounting policy					788		788	788
Beginning balance as of April 1, 2018 (restated)		32,363	43,466	(77,724)	125,992	1,301	125,398	125,398
Net income					56,993		56,993	56,993
Other comprehensive income (loss), net of tax						(348)	(348)	(348)
Total comprehensive income for the year		—	—	—	56,993	(348)	56,645	56,645
Purchase of treasury shares	21			(738)			(738)	(738)
Disposal of treasury shares	21		(211)	2,203	(1,187)		805	805
Conversion of convertible bonds	18		(717)	69,997	(39,333)		29,947	29,947
Dividends	22				(13,806)		(13,806)	(13,806)
Share-based payments	25		470				470	470
Other			10				10	10
Transfer from other components of equity to retained earnings	21				(2,732)	2,732	—	—
Total transactions with the owners		—	(448)	71,462	(57,058)	2,732	16,688	16,688
Balance as of March 31, 2019		32,363	43,018	(6,262)	125,927	3,685	198,731	198,731
Net income					53,532		53,532	53,532
Other comprehensive income (loss), net of tax						(5,803)	(5,803)	(5,803)
Total comprehensive income for the year		—	—	—	53,532	(5,803)	47,729	47,729
Purchase of treasury shares	21			(1,124)			(1,124)	(1,124)
Disposal of treasury shares	21		(315)	3,207	(1,185)		1,707	1,707
Dividends	22				(16,438)		(16,438)	(16,438)
Share-based payments	25		772				772	772
Other			75				75	75
Transfer from other components of equity to retained earnings	21				(2,033)	2,033	—	—
Total transactions with the owners		—	532	2,083	(19,656)	2,033	(15,008)	(15,008)
Balance as of March 31, 2020		32,363	43,550	(4,179)	159,803	(85)	231,452	231,452

(4) Consolidated Statement of Cash Flows

Millions of Yen

	Note	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Cash flows from operating activities:			
Income before income taxes		66,211	58,574
Adjustments to reconcile income before income taxes to net cash provided by (used in) operating activities:			
Depreciation and amortization		4,967	10,892
Share-based payment expense		481	882
Changes in assets and liabilities:			
Trade and other receivables		(14,130)	6,125
Inventories		(6,901)	(1,907)
Trade and other payables		632	1,444
Warranty provisions		(155)	460
Retirement benefit liabilities		(4,828)	1,665
Other		2,255	(831)
Subtotal		48,532	77,304
Interest and dividends received		1,007	836
Interest paid		(3)	(155)
Income taxes paid		(4,744)	(11,510)
Net cash provided by (used in) operating activities		44,792	66,475
Cash flows from investing activities:			
Proceeds from sale of equity instruments		—	111
Purchases of equity instruments		(384)	—
Purchases of debt instruments		—	(548)
Proceeds from sale of property, plant and equipment		1,927	234
Purchases of property, plant and equipment		(5,891)	(8,141)
Purchases of intangible assets		(512)	(741)
Payments for acquisition of business	32	(11,098)	—
Acquisition of subsidiary	32	—	(29,665)
Other		43	(69)
Net cash provided by (used in) investing activities		(15,915)	(38,819)
Cash flows from financing activities:			
Proceeds from disposal of treasury shares		805	1,708
Purchases of treasury shares		(738)	(1,124)
Dividends paid	22	(13,786)	(16,427)
Payments for lease liabilities	14	—	(2,073)
Other		(5)	—
Net cash provided by (used in) financing activities		(13,724)	(17,916)
Net effect of exchange rate changes on cash and cash equivalents		817	(1,980)
Net change in cash and cash equivalents		15,970	7,760
Cash and cash equivalents at the beginning of year		103,973	119,943
Cash and cash equivalents at the end of year	7	119,943	127,703

Notes to the Consolidated Financial Statements

1. Reporting Entity

Advantest Corporation (the “Company”) is a public company located in Japan.

The Company’s consolidated financial statements consist of the Company and its subsidiaries (collectively, “Advantest”).

Advantest manufactures and sells semiconductor and component test system products and mechatronics-related products such as test handlers and device interfaces. Advantest also engages in research and development activities and provides maintenance and support services associated with these products.

2. Basis of Preparation

(1) Compliance with IFRS

Advantest prepares consolidated financial statements in accordance with the International Financial Reporting Standards (“IFRS”) issued by the International Accounting Standard Board. As Advantest meets the requirements of a “Specified Companies applying Designated IFRS” pursuant to Article 1-2 of the “Ordinance on Terminology, Forms, and Preparation Methods of Consolidated Financial Statements”, Advantest adopts Article 93 of the same ordinance.

The consolidated financial statements were approved on June 26, 2020 by Yoshiaki Yoshida, Representative Director, President and CEO and Atsushi Fujita, Chief Financial Officer of the Company.

(2) Basis of Measurement

The consolidated financial statements have been prepared on the historical cost basis except for certain financial instruments measured at their fair values, as included in Significant Accounting Policies (see note 3 for additional details).

(3) Functional Currency and Presentation Currency

The consolidated financial statements are presented in Japanese Yen, which is the Company’s functional currency.

(4) Changes in Accounting Policies

1) IFRS 16: Leases

Advantest has adopted IFRS 16 “Leases” from the fiscal year ended March 31, 2020.

To apply IFRS 16, Advantest used the cumulative effect transition method which is recognizing the cumulative effect of applying the new standard at the beginning of the year of initial application.

Advantest recognizes right-of-use asset and lease liability at the inception of a lease contract. At the commencement date, a right-of-use asset is measured based on the amount of the initial measurement of the lease liability and depreciated on a straight-line basis over the lease term. The lease term is determined as the non-cancellable period of a lease, together with periods covered by an option to extend the lease if it is reasonably certain to be exercised and periods covered by an option to terminate the lease if it is reasonably certain not to be exercised.

A lease liability is recognized and measured at the present value of the lease payments that are not paid at the commencement date, discounted using the lessee’s incremental borrowing rate. After the commencement date, the lease liability is measured by increasing or reducing the carrying amount to reflect interest on the lease liability and the lease payments made and re-measuring the carrying amount as necessary to reflect lease modifications.

Advantest has elected not to recognize right-of-use assets and lease liabilities for short term leases and leases of low-value assets.

In transitioning to IFRS16, Advantest has chosen the practical expedient detailed in paragraph C3 of IFRS 16 and grandfathered its assessments of whether contracts contain leases under IAS 17 “Leases” and IFRIC 4 “Determining whether an Arrangement contains a Lease”.

Reconciliation of operating lease commitments disclosed applying IAS 17 at the end of the annual reporting period immediately preceding the date of initial application and lease liabilities recognized in the consolidated statement of financial position at the date of application is as follows.

Lease liabilities are presented as “Lease liabilities” of current liabilities and “Lease liabilities” of non-current liabilities. The weighted average incremental borrowing rate applied to lease liabilities recognized at the date of initial application is 1.40%.

Millions of Yen

(a) Operating lease commitments disclosed on March 31, 2019	3,444
Discounted (a) operating lease commitments disclosed on March 31, 2019	3,347
Finance lease liabilities recognized on March 31, 2019	18
Recognized lease liabilities, mainly due to reassessment of the lease term under IFRS16	6,979
(b) Recognized lease liabilities in the Consolidated Statement of Financial Position at the date of initial application	10,344

Right-of-use assets recognized at the date of initial application in the consolidated statement of financial position amount to (Y) 10,344 million.

The following practical expedients are used in the application of IFRS 16.

- Initial direct costs are excluded from the measurement of right-of-use assets at the date of initial application.

2) IFRIC23: Uncertainty over Income Tax Treatments

Advantest has adopted IFRIC 23 “Uncertainty over Income Tax Treatments” from the fiscal year ended March 31, 2020. The impact of this application on the consolidated financial statements is immaterial.

3. Significant Accounting Policies

(1) Basis of Consolidation

Advantest’s consolidated financial statements include financial statements of the Company and its subsidiaries. Subsidiaries are entities controlled by the Company. Control is obtained when the Company has risks or rights to variable returns from its involvement with the entity and has the ability to use its power over the entity to affect the variable returns.

The Company consolidates all subsidiaries from the date on which the Company acquires control until the date on which the Company loses control.

Inter-company balances and transactions are eliminated in consolidation.

Subsidiaries’ financial statements are adjusted, if necessary, when their accounting policies differ from those of the Company. For subsidiaries with different reporting dates from that of the Company, the financial statements based on provisional settlement of accounts made as of the reporting date are used in the preparation of the consolidated financial statements. The reporting date of the subsidiaries is not more than 3 months earlier than that of the Company.

(2) Business combinations

Business combinations are accounted for using the acquisition method. Goodwill is measured as the excess of the total amount of the consideration transferred, the amount of any non-controlling interests in the acquiree and, if a business combination is achieved in stages, the amount of the fair value at the date of acquisition of acquirer’s previously held equity interest in the acquiree over the net amounts recognized of the identifiable acquired assets and assumed liabilities (which is usually measured at fair value). If the initial accounting for a business combination is incomplete by the end of the reporting period in which the business combination occurs, the Company reports provisional amounts for the items for which the accounting is incomplete. During the measurement period, which does not exceed one year from the acquisition date, the Company retrospectively adjusts the provisional amounts recognized at the acquisition date. Acquisition-related costs are recognized as expenses in the period in which they are incurred.

(3) Foreign Currency Translation

1) Translation of Foreign Currency Transactions

Monetary assets and liabilities denominated in foreign currencies are converted into the functional currency of each entity using the exchange rate at the end of the reporting period. Foreign currency transactions are converted into the functional currency using the exchange rate prevailing at the transaction date. Foreign exchange gains and losses resulting from the currency conversion and settlement are recognized as financial income (expenses).

2) Translation of Foreign Operations

Assets and liabilities of foreign operations are translated into Japanese Yen using the exchange rate at the end of the reporting period, and revenue and expense items are translated using the average exchange rates during the period. Gains or losses derived from translating foreign operations' financial statements are recognized in other comprehensive income and presented in other components of equity.

(4) Financial Instruments

1) Non-derivative Financial Assets

Advantest classifies non-derivative financial assets into the following categories: financial assets measured at amortized cost, financial assets measured at fair value through other comprehensive income or financial assets measured at fair value through profit or loss.

Advantest initially recognizes financial assets measured at amortized cost on the date that they are originated. All other financial assets are recognized initially on the trade date, the date on which Advantest becomes party to the contractual provisions.

Advantest derecognizes a financial asset when contractual rights to the cash flows from the asset expire. In transferring contractual rights to the cash flows from a financial asset, Advantest will derecognize the financial asset if Advantest neither transfers nor retains substantially all the risks and rewards of ownership of the financial asset and does not retain control of the financial asset.

Financial assets and liabilities are offset and presented net in the consolidated statement of financial position only when Advantest has a legally enforceable right to offset the recognized amounts and intends to settle on a net basis or to realize the asset and settle the liability simultaneously.

Financial assets measured at amortized cost

Financial assets are subsequently measured at amortized cost in case they meet the following requirements:

・The financial asset is held within a business model with the objective of collecting contractual cash flows.
・The contractual terms of the financial asset provide cash flows on specified dates that are solely payments of principal and interest on the principal amount outstanding.

Financial assets measured at amortized cost are initially measured at fair value (including direct transaction costs). The carrying amount of financial assets measured at amortized cost is subsequently measured using the effective interest method, and the expected credit losses are recognized as allowance for doubtful accounts. The expected credit losses are calculated based on historical loss experience or future recoverable amounts.

Financial assets measured at fair value through other comprehensive income

Advantest holds certain instruments with the purpose of expanding its revenue base by maintaining and strengthening business relations with the investees. These equity instruments are classified as financial assets measured at fair value through other comprehensive income by designation. They are initially and subsequently measured at fair value, and the changes in fair value are recognized in other comprehensive income (OCI). The cumulative amount of OCI is recognized in equity as other components of equity. If Advantest derecognizes financial assets, the cumulative gain or loss recognized in other comprehensive income is reclassified from other components of equity to retained earnings. Dividends on financial assets measured at fair value through other comprehensive income are recognized in profit or loss, except where they are considered to be return of the investment.

Financial assets measured at fair value through profit or loss

The other financial assets are classified as financial assets measured at fair value through profit or loss. These instruments are subsequently measured at fair value and the changes in fair value are recognized in profit or loss.

2) Non-derivative Financial Liabilities

Advantest classifies non-derivative financial liabilities into the following categories: financial liabilities measured at amortized cost or financial liabilities measured at fair value through profit or loss.

Advantest recognizes debt securities on the day when issued. Financial liabilities other than debt securities are initially recognized on the trade date, the date on which Advantest becomes party to contractual provisions.

Advantest derecognizes a financial liability when its contractual obligations are discharged, cancelled, or expire.

These financial liabilities measured at amortized cost are measured initially at fair value, less any directly attributable transaction costs and subsequently measured at amortized cost using the effective interest method. The amortization charge for each period is recognized as financial expenses in profit or loss.

These financial liabilities measured at fair value through profit or loss are measured initially at fair value. After initial recognition, these are subsequently measured at fair value and the changes in fair value are recognized in profit or loss.

3) Equity

Share capital

Share capital is included in equity. The direct issuance costs of share capital are deducted, net of tax, from share premium.

Treasury shares

Treasury shares are recognized at cost and deducted from equity. No gain or loss is recognized at purchase, sale and retirement of treasury shares.

4) Compound Financial Instruments

The compound financial instruments issued by Advantest include corporate bonds with subscription rights to new shares that can be converted to equity at the option of the holder and for which the number of new shares to be issued is not affected by changes in fair value. The liability element of a compound financial instrument is initially recognized at the fair value of a similar liability that does not have an equity conversion option. The equity element of a compound financial instrument is initially recognized at the difference between the fair value of the compound financial instrument as a whole and the fair value of the liability element. Any directly attributable transaction costs are allocated to each element in proportion to the initial carrying amounts. After initial recognition, the liability element of a compound financial instrument is measured at amortized cost using the effective interest method. The equity element of a compound financial instrument is not remeasured after initial recognition.

5) Derivative Financial Instruments

Advantest uses derivative instruments primarily to manage exposures to foreign currency. The primary objective in holding derivatives is to reduce the volatility of earnings and cash flows associated with changes in foreign currency. The instruments are not designated for trading or speculative purposes. Derivative financial instruments contain an element of risk in the event the counterparties are unable to meet the terms of the agreements. However, Advantest minimizes risk exposure by limiting the counterparties to major international banks and financial institutions meeting established credit guidelines. Management of the Company does not expect any counterparty to default on its obligations and, therefore, does not expect to incur any losses due to counterparty default on its obligations. Advantest generally does not require or provide collateral for these derivative financial instruments.

Derivative financial instruments are initially recognized at fair value and remeasured after initial recognition to their fair value. If the derivative instrument is not designated as a hedge, the gain or loss is recognized in earnings in the period of change.

The accounting for changes in the fair value (that are, gains or losses) of a derivative instrument depends on the objective for holding such instrument and whether it meets the criteria for designation as a cash flow hedge or a fair value hedge.

If certain conditions are met, Advantest may elect to designate a derivative instrument as a hedge of exposures to changes in fair values, cash flows, or a net investment in a foreign operation.

(5) Impairment

1) Non-derivative Financial Assets

Allowance for doubtful accounts against expected credit losses is recognized for financial assets that measured at amortized cost.

Advantest assesses at the end of each reporting period whether the credit risk that relates to financial assets has increased significantly or not since initial recognition. If the credit risk has not increased significantly, Advantest recognizes an amount equal to 12-month expected credit losses as allowance for doubtful accounts. If the credit risk has increased significantly, Advantest recognizes an amount equal to lifetime expected credit losses as allowance for doubtful accounts. Advantest determines whether the credit risk has increased significantly or not based on the change of default risk.

Advantest always recognizes an amount equal to lifetime expected credit losses for trade receivables as allowance for doubtful accounts. If there has been a significant decrease of impairment loss on financial assets after initial recognition, Advantest recognizes in profit or loss, as an impairment gain, the amount of reversal that is required to adjust the allowance for doubtful accounts.

2) Non-financial Assets

If there is any indication of impairment for non-financial assets other than inventories and deferred tax assets, the asset’s recoverable amount is estimated, and the asset is tested for impairment. Goodwill is tested for impairment both annually and when there is any indication of impairment. An impairment loss is recognized if the recoverable amount of an asset, cash-generating unit (CGU) or CGU group is less than its carrying amount.

The recoverable amount of an asset, CGU or CGU group is the greater of its value in use and its fair value less costs to sell. In assessing value in use, the estimated future cash flows associated with the asset, CGU or CGU group are discounted to present value using a pre-tax discount rate which reflects current market assessments of the time value of money and any risks specific to the asset, CGU or CGU group. For impairment testing purposes, assets are grouped together into the smallest assets, CGU or CGU group that generates cash inflows independently of cash inflows of other assets, CGU or CGU group. Goodwill is grouped together so that the impairment is tested for the smallest group of units used for internal reporting purposes. Goodwill acquired in a business combination is allocated to CGU or CGU group that is expected to benefit from the synergies of the business combination.

Impairment losses are recognized in profit or loss. Impairment losses recognized in respect of CGU are allocated first to reduce the carrying amount of any goodwill allocated to that CGU or CGU group and then to reduce the carrying amounts of other assets in CGU or CGU group on a pro-rata basis.

Impairment losses on goodwill are not reversed. For all other assets, impairment losses are only reversed to the extent that the assets carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortization, if no impairment loss had been recognized.

(6) Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, deposits at call with banks, and other short term highly liquid investments with maturities of three months or less from the date of acquisition that are readily convertible to known amounts of cash and which are subject to insignificant risk of changes in value.

(7) Inventories

The cost of inventories includes purchase costs, processing costs and all other costs incurred to bring inventories to their present location and condition.

Inventories are measured at the lower of cost or net realizable value. If net realizable value is less than the cost, that difference is accounted for as a write off and recognized as an expense. The weighted average method is used to calculate cost. Net realizable value represents the estimated selling price in the ordinary course of business, less all estimated costs of completion and estimated costs necessary to make the sale.

(8) Property, Plant and Equipment (except Right-of-Use Asset)

Property, plant and equipment are measured by using the cost model and are stated at cost less accumulated depreciation and accumulated impairment losses.

The cost includes any costs directly attributable to the acquisition of the asset and dismantlement, removal and restoration costs.

Except for assets that are not subject to depreciation such as land, assets are depreciated using the straight-line method over their estimated useful lives. The estimated useful lives of major asset items are as follows:

・Buildings：15 to 50 years

・Machinery and equipment：4 to 10 years

・Tool, furniture and fixture：2 to 10 years

The estimated useful lives, depreciation method and residual value are reviewed at each fiscal year end and if there are any changes made to the estimated useful lives, depreciation method and residual value, such changes are accounted for on a prospective basis as changes in estimate.

(9) Goodwill and Intangible Asset

1) Goodwill

Details on the measurement of goodwill at initial recognition are included in Business Combinations (see note (2) for additional details).

Goodwill is not amortized. It is allocated to CGU or group of CGUs that are identified according to types of business and regions and tested for impairment each fiscal year or when there is any indication of impairment. Impairment losses on goodwill are recognized in profit or loss, and no subsequent reversal is made.

After initial recognition, goodwill is presented at cost less accumulated impairment losses.

2) Intangible Assets (except Right-of-Use Asset)

Intangible assets acquired separately are measured at cost at the initial recognition, and the cost of intangible assets acquired through business combinations are recognized at fair value at the acquisition date.

Expenses on internally generated intangible assets are recognized as expense in the period when incurred, except for those that satisfy the criteria for recognition as assets. Internally generated intangible assets that satisfy the criteria for recognition as assets are stated at cost in the total amount of spending that is incurred after the assets first met recognition standards.

Intangible assets are subsequently measured at cost less accumulated amortization and accumulated impairment losses.

Intangible assets for which useful lives can be determined are amortized on a straight-line method over their estimated useful lives from the date the assets are available for use. These assets are also tested for impairment whenever there is any indication of impairment.

Estimated useful lives, residual values and amortization methods are reviewed at each fiscal year end and the effect of any changes in estimate are accounted for during the period in which the change occurred and on a prospective basis. The effect of any changes in estimate is recognized in the period in which the change occurs.

The estimated useful lives of major assets are as follows:

・Software：3 to 5 years

(10) Leases

Fiscal year ended March 31, 2019

The contract which should be subject to lease or including lease is defined based on the actual condition of the agreement at inception of lease. In the contract, the lease all risks and economic value accompany with possession of asset materially transfer to lessee is categorized as finance lease. The other leases are categorized as operating lease.

1) Leases-Lessor

Revenue from operating lease is recognized on the straight line basis over the leasing period.

2) Leases-Lessee

The lease payment amount on operating lease is recorded on a straight-line method over the leasing period.

Fiscal year ended March 31, 2020

1) Leases-Lessor

Advantest recognizes the lease transactions that do not transfer substantially all risks and rewards of ownership as property, plant and equipment in the consolidated statement of financial position and recognizes revenue on the straight line basis over the leasing period in the consolidated statement of profit or loss.

2) Leases-Lessee

Advantest recognizes right-of-use asset and lease liability at the inception of a lease contract. At the commencement date, a right-of-use asset is measured based on the amount of the initial measurement of the lease liability and depreciated on a straight-line basis over the lease term. The lease term is determined as the non-cancellable period of a lease, together with periods covered by an option to extend the lease if it is reasonably certain to be exercised and periods covered by an option to terminate the lease if it is reasonable certain not to be exercised.

A lease liability is recognized and measured at the present value of the lease payments that are not paid at the commencement date, discounted using the lessee's incremental borrowing rate. After the commencement date, the lease liability is measured by increasing or reducing the carrying amount to reflect interest on the lease liability and the lease payments made and re-measuring the carrying amount as necessary to reflect lease modifications.

Advantest has elected not to recognize short term leases and leases of low-value assets as right-of-use assets and lease liabilities, but expense over the lease term on a straight-line basis.

(11) Post-Employment Benefits

The Company and certain of its subsidiaries have retirement and severance defined benefit plans covering substantially all of their employees. For each defined benefit plan, the present value of defined benefit obligations, related current service cost and past service cost are calculated using the projected unit credit method. The discount rates are the yields of high quality corporate bonds that have maturity terms approximating those of the obligations which the benefits are expected to be paid. Net defined benefit liability (asset) is measured at the present value of the defined benefit obligation less the fair value of plan assets. Remeasurements of net of liabilities or assets for defined benefit plans are recognized in full as other comprehensive income in the period when they are incurred and reclassified to retained earnings immediately. Past service costs are recognized immediately in profit or loss.

The Company and certain of its subsidiaries have retirement and severance defined contribution plans. Defined contribution plans are post-employment benefit plans in which the employer makes a certain amount of contributions to fund post-employment benefits and does not bear more legal and constructive obligations than the amount contributed. The contribution in defined contribution plans are recognized in profit or loss in the period during which services were provided by employees.

(12) Provisions

Provisions are recognized when Advantest has present legal or constructive obligations as a result of past events, it is probable that outflows of resources embodying economic benefits will be required to settle the obligations, and reliable estimates of the obligations can be made.

When the effect of the time value of money is material, provisions are measured at the present value of the expenditures expected to be required to settle the obligations.

1) Warranty Provisions

Advantest's products are generally subject to warranty, and Advantest provides contractual product warranty services, when the performance of products sold does not meet expected product specifications. Estimated repair expenses over the warranty period are accrued based on the historical ratio of actual repair expenses to corresponding sales, when product revenue is recognized.

2) Asset Retirement Obligation

Estimated amounts for the costs of removing hazardous substances related to property, plant and equipment and restoring rented offices to the original condition are recorded in the provision for asset retirement obligation costs.

(13) Share-Based Compensation

Advantest applies the fair-valued-based method of accounting for share-based compensation and recognizes share-based compensation expenses in the consolidated statement of profit or loss. The cost of employee services received in exchange for an award of equity instruments is measured based on the grant-date fair value of the share options granted to employees. The cost is recognized on the straight line basis over the period during which an employee is required to provide service in exchange for the award. The Black Scholes pricing model is used to estimate the value of share options.

Expected dividend yield is determined by the Company’s dividend ratio of the past and other associated factors. Risk free interest rate is determined by Japanese government bond yield for the period corresponding to expected life. Expected volatility is determined by historical volatility and trend of the Company’s share prices, and other associated factors. Expected life is determined by the Company’s option exercise history, post vesting employment termination behavior for similar grants, and other pertinent factors.

The cost of service received in performance-based stock remuneration plan is measured based on the grant-date fair value of the Company’s shares or any liabilities generated. The cost is recognized over the applicable period.

(14) Revenue

Advantest recognizes revenue based on the five-step model.

Step 1: Identify the contract(s) with a customer

Step 2: Identify the performance obligations (accounting treatment for goods or services separately)

Step 3: Determine the transaction price (amount of consideration)

Step 4: Allocate the transaction price to the performance obligations

Step 5: Recognize revenue when the entity satisfies a performance obligation

Advantest sells test system products of semiconductor and mechatronics-related products such as test handlers that handling semiconductor devices, the revenue for these is recognized when control of such products is transferred to customers as the performance obligation is satisfied based on contractual terms. The timing at which control of such products transferred to customers is determined upon delivery or acceptance.

Additionally, Advantest has performance obligation towards customers on the service contracts. Revenue from such service contracts is recognized over the contract term on the straight-line basis.

(15) Financial Income and Expenses

Financial income mainly consists of dividend income, interest income, foreign exchange gains and changes in the fair value of financial instruments measured at fair value through profit or loss. Dividend income is recognized on the date when the right of Advantest to receive the dividend is established. Interest income is recognized using the effective interest method as incurred.

Financial expenses mainly consist of interest expenses and foreign exchange losses. Interest expenses are recognized using the effective interest method as incurred.

(16) Income Taxes

Current and deferred taxes are stated as income taxes in the consolidated statement of profit or loss except when they relate to business combinations or on items recognized in other comprehensive income or directly in equity.

Current and deferred taxes related to items recognized in other comprehensive income are recognized as other comprehensive income.

1) Current Taxes

Current income taxes are measured at the amount that is expected to be paid to or refunded from the tax authorities. For the calculation of the tax amount, Advantest uses the tax rates and tax laws that have been enacted or substantively enacted by the end of the fiscal year.

2) Deferred Taxes

Deferred income taxes are calculated based on the temporary differences between the amounts used for tax purpose and the carrying amount for assets and liabilities at the fiscal year end. Deferred tax assets are recognized for deductible temporary differences, unused tax credits and unused tax losses to the extent that it is probable that future taxable profit will be available against which they can be utilized. Deferred tax liabilities are recognized for taxable temporary differences.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the fiscal year when the asset is realized or the liability is settled, based on the tax laws that have been enacted or substantively enacted by the fiscal year end.

Deferred tax assets and deferred tax liabilities are not recognized for the following temporary differences:

• taxable temporary differences on initially recognized goodwill

• temporary differences arising from the initial recognition of assets or liabilities in transactions that are not business combinations and at the time of transaction affect neither accounting profit nor taxable profit or tax loss

• taxable temporary differences on investments in subsidiaries to the extent that the timing of the reversal of the temporary difference is controlled and that it is probable the temporary difference will not reverse in the foreseeable future

• deductible temporary differences on investments in subsidiaries to the extent that it is not probable the temporary differences will reverse in the foreseeable future

Deferred tax assets and liabilities are offset when there is a legally enforceable right to set off current tax assets against current tax liabilities and when they relate to income taxes levied by the same tax authority on the same taxable entity (including consolidated tax payments).

(17) Earnings per Share

Basic earnings per share is calculated by dividing net income or loss attributable to owners of the parent by the weighted average number of shares outstanding during the year. Diluted earnings per share reflects the maximum possible dilution from conversion, exercise, or contingent issuance of securities. All potentially dilutive securities are excluded from the calculation in a situation where there is a net loss attributable to owners of the parent.

4. Significant Accounting Judgments, Estimates and Assumptions

The preparation of the consolidated financial statements requires Advantest to make judgments, accounting estimates and assumptions that affect the application of policies and reported amounts of assets, liabilities, income and expenses. These estimates and assumptions are based on the best judgment of management in light of historical experience and various factors deemed to be reasonable according to the situation. The global epidemic of the new coronavirus (COVID-19) is not expected to have a material impact on our estimates and assumptions. Given their nature, however, actual results may differ from those estimates and assumptions.

The estimates and underlying assumptions are continuously reviewed. The effects of a change in these estimates and assumptions are recognized in the period of the change and subsequent periods.

The estimates and assumptions that could have a material effect on the amounts recognized in its consolidated financial statements are as follows:

(1) Inventories

Inventories are measured at the lower of cost or net realizable value. If net realizable value is less than the cost, that difference is accounted for as a write off and recognized as an expense. Advantest may experience substantial losses in cases where the net realizable value drops dramatically as a result of deterioration in the market environment against the forecast.

(2) Impairment of Property, Plant and Equipment, Right-of-Use assets, Goodwill and Intangible Assets

Advantest performs an impairment test for property, plant and equipment, right-of-use assets, goodwill and intangible assets when there is any indication that the recoverable amount is less than the carrying amount of the assets. Goodwill is tested for impairment both annually and when there is any indication of impairment.

The impairment test is performed by comparing the carrying amount and the recoverable amount of assets. If the recoverable amount is less than the carrying amount, impairment loss is recognized. The recoverable amount is mainly calculated based on the discounted cash flow model. Certain assumptions are made for the useful lives and the future cash flows of the assets, discount rate and long-term growth rate. These assumptions are based on the best estimates and judgments of management, but they could be affected by variable and uncertain future economic conditions. Any changes in these assumptions may have a material impact on the consolidated financial statements in future periods.

The method of calculating the recoverable amount of goodwill is included in Goodwill and Intangible Assets (see note 13 for additional details).

(3) Post-Employment Benefits

The Company and certain of its subsidiaries have retirement and severance plans, which are defined benefit and defined contribution plans covering substantially all of their employees. For defined benefit plans, the present value of defined benefit obligations on each of these plans and the service costs are calculated based on actuarial assumptions. These actuarial assumptions require estimates and judgments on variables such as discount rates.

The actuarial assumptions are determined based on the best estimates and judgments made by management; however, there is the possibility that these assumptions may be affected by changes in uncertain future economic conditions, which may have a material impact on the consolidated financial statements in future periods.

These actuarial assumptions and related sensitivity analysis are included in Post-Employment Benefits (see note 20 for additional details).

(4) Provisions

Advantest recognizes warranty provisions in the consolidated statement of financial position.

The provisions are recognized based on the best estimates of the expenditures required to settle the obligations, taking into account risks and uncertainty related to the obligations as of the fiscal year end date.

Expenditures necessary for settling the obligations are calculated by taking all possible future results into account; however, they may be affected by unexpected events or changes in conditions which may have a material impact on the consolidated financial statements in future periods.

The nature and amount of recognized provisions are included in Provisions (see note 19 for additional details).

(5) Income Taxes

Advantest, which conducts business around the world, makes reasonable estimates of income tax to be paid to local tax authorities in accordance with local laws and regulations, and recognizes income tax payable and current tax expense based on these estimates.

Calculating income tax payable and current tax expense requires estimates and judgments on various factors including the interpretation of tax regulations by taxable entities and the tax authority in the jurisdiction or experience of prior tax investigation.

Therefore, there may be differences between the amount recognized as income tax payable and current tax expense and the amount of actual income tax payable and current tax expense. These differences may have a material impact on the consolidated financial statements in future periods.

Additionally, deferred tax assets are recognized to the extent that it is probable that taxable income will be available against which deductible temporary differences can be utilized.

In recognizing the deferred tax assets, Advantest judges the possibility of future taxable income and reasonably estimate the timing and amount of future taxable income based on the business plan.

The timing and amount of taxable income may be affected by variable and uncertain future economic conditions, and changes may have a material impact on the consolidated financial statements in future periods. Advantest estimates future taxable income taking into account deviation of past forecast and actual results as well as social and economic uncertainty due to the global epidemic of the COVID-19.

The contents and amounts related to income taxes are included in the Income Taxes (see note 16 for additional details).

(6) Contingencies

With regard to contingencies, any items that may have a material impact on business in the future are disclosed in light of all the available evidence as of the fiscal year ended and by taking into account the probability of these contingencies and their impact on financial reporting.

5. New Accounting Standards and Interpretations Issued but not yet Applied

There is no material impact from new or revised accounting standards and interpretations that were issued by the date of approval of the consolidated financial statements.

6. Segment Information

(1) Overview of Reporting Segments

Advantest manufactures and sells semiconductor and component test system products and mechatronics-related products such as test handlers and device interfaces. Advantest also engages in research and development activities and provides maintenance and support services associated with these products. Advantest's organizational structure consists of three reportable operating segments, which are the design, manufacturing, and sale of semiconductor and component test systems, mechatronics systems and services, support and others. These reportable operating segments are determined based on the nature of the products and the markets. Segment information is prepared on the same basis that management reviews financial information for operational decision making purposes.

The semiconductor and component test system segment provides customers with test system products for the semiconductor industry and the electronic parts industry. Product lines provided in the semiconductor and component test system segment include test systems for SoC semiconductor devices and test systems for memory semiconductor devices.

The mechatronics system segment provides product lines such as test handlers, mechatronic-applied products, for handling semiconductor devices, device interfaces that serve as interfaces with the devices that are measured and operations related to nano-technology products.

The services, support and others segment consists of comprehensive customer solutions provided in connection with the above segments, test solutions of system level testing for such as semiconductor and modules, support services, sales of consumables, sales of used products, equipment lease business and others.

(2) Information of Reporting Segments

Accounting treatment applied to operating segments is the same as in the note "3. Significant Accounting Policies".

Advantest uses the operating income (loss) before share-based compensation expense for management's analysis of operating segment results.

Share-based compensation expense represents expenses for stock options and performance-based stock remuneration expense.

Segment income (loss) is presented on the basis of operating income (loss) before share-based compensation expense.

Inter-segment sales are based on market prices.

Fiscal year ended March 31, 2019 Millions of Yen

	Semiconductor and Component Test System Business	Mechatronics System Business	Services, Support and Others	Elimination and Corporate	Consolidated
Net sales					
Net sales to unaffiliated customers	211,713	39,229	31,514	—	282,456
Inter-segment sales	4	—	—	(4)	—
Total	211,717	39,229	31,514	(4)	282,456
Segment income (loss) (operating income (loss) before share-based compensation expense)	65,058	(712)	4,242	(3,445)	65,143
Adjustment: Share-based compensation expense	—	—	—	—	(481)
Operating income	—	—	—	—	64,662
Financial income	—	—	—	—	1,626
Financial expenses	—	—	—	—	(77)
Income before income taxes	—	—	—	—	66,211
(Other profit and loss items)					
Depreciation and amortization	2,417	878	1,477	195	4,967

Fiscal year ended March 31, 2020 Millions of Yen

	Semiconductor and Component Test System Business	Mechatronics System Business	Services, Support and Others	Elimination and Corporate	Consolidated
Net sales					
Net sales to unaffiliated customers	197,084	36,293	42,517	—	275,894
Inter-segment sales	70	—	9	(79)	—
Total	197,154	36,293	42,526	(79)	275,894
Segment income (loss) (operating income (loss) before share-based compensation expense)	65,155	(497)	2,966	(8,034)	59,590
Adjustment: Share-based compensation expense	—	—	—	—	(882)
Operating income	—	—	—	—	58,708
Financial income	—	—	—	—	1,045
Financial expenses	—	—	—	—	(1,179)
Income before income taxes	—	—	—	—	58,574
(Other profit and loss items)					
Depreciation and amortization	4,073	1,262	5,099	458	10,892

(Notes) Adjustments to segment income (loss) in Corporate principally represent corporate general and administrative expenses and research and development expenses related to fundamental research activities that are not allocated to operating segments. Due to the revision of post-employment benefits plan, ¥2,530 million income is included for the fiscal year ended March 31, 2019.

(3) Net Sales to Unaffiliated Customers by Segments of Products and Services

The segments of similar products and services are the same as the segments in the report.

(4) Net Sales to Unaffiliated Customers by Region

Millions of Yen

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Japan	14,881	14,789
Americas	13,579	18,521
Europe	7,124	6,064
Asia	246,872	236,520
Total	282,456	275,894

Net sales to unaffiliated customers are based on customer's location. Net sales indicated as Asia were mainly generated in Taiwan, China and Korea in the amount of ¥116,583 million, ¥45,101 million and ¥64,311 million for the fiscal year ended March 31, 2019 and ¥82,517 million, ¥64,521 million and ¥63,355 million for the fiscal year ended March 31, 2020, respectively. Substantially all net sales indicated as Americas were generated in the United States of America.

(5) Non-Current Assets（Property, Plant and Equipment, Right-of-Use assets, Goodwill and Intangible assets, Other Non-Current Assets）by Region

Millions of Yen

	As of March 31, 2019	As of March 31, 2020
Japan	32,360	36,712
Americas	13,538	45,615
Europe	3,025	4,967
Asia	8,336	10,123
Total	57,259	97,417

Non-current assets are those assets located in each geographic area.

Substantially all non-current assets indicated as Americas were located in the United States of America. Substantially all non-current assets indicated as Europe were located in Germany. Non-current assets in Asia were primarily located in Korea, Taiwan, China and Singapore.

(6) Information of Main Customers

There was no customer group that accounted for 10% or more of the net sales for the fiscal year ended March 31, 2019 and 2020.

7. Cash and Cash Equivalents

The breakdown of cash and cash equivalents was as follows:

Millions of Yen

	As of March 31, 2019	As of March 31, 2020
Cash and short-term deposits with maturities of three months or less	119,943	127,703

Cash and cash equivalents are classified as financial assets measured at amortized cost.

The balances of cash and cash equivalents on the consolidated statement of financial position agreed with the respective balances in consolidated statement of cash flows.

8. Trade and Other Receivables

The breakdown of trade and other receivables was as follows:

Millions of Yen

	As of March 31, 2019	As of March 31, 2020
Note Receivables	1,930	2,326
Trade Receivables	48,461	42,139
Other Receivables	1,405	1,970
Less allowance for doubtful accounts	(10)	(9)
Total	51,786	46,426

Trade and other receivables are presented net of the allowance for doubtful accounts in the consolidated statement of financial position.

Trade and other receivables are classified as financial assets measured at amortized cost.

9. Inventories

The breakdown of inventories was as follows:

Millions of Yen

	As of March 31, 2019	As of March 31, 2020
Finished goods	12,772	12,033
Work in process	20,903	20,843
Raw materials and supplies	23,424	26,067
Total	57,099	58,943

Inventory valuation losses recognized as an expense due to the decline in profitability for the fiscal years ended March 31, 2019 and 2020 were ¥6,324 million and ¥3,468 million, respectively.

10. Other Financial Assets

The breakdown of other financial assets was as follows:

Millions of Yen

	As of March 31, 2019	As of March 31, 2020
Financial assets that are measured at fair value through profit or loss		
Debt instruments	215	772
Financial assets that are measured at fair value through other comprehensive income		
Equity instruments	1,072	703
Financial assets measured at amortized cost	1,577	1,392
Less allowance for doubtful accounts	(3)	—
Total	2,861	2,867
Non-current assets	2,861	2,867
Total	2,861	2,867

11. Assets held for sale

The breakdown of assets held for sale was as follows:

Millions of Yen

	As of March 31, 2019	As of March 31, 2020
Assets held for sale	—	199

For the fiscal year ended March 31, 2019

Advantest sold assets on September 12, 2018, which were classified as assets held for sale at the beginning of the fiscal year ended March 31, 2019.

For the fiscal year ended March 31, 2020

Advantest decided to sell a business location this year and classified the land and buildings as assets held for sale. The fair value is measured at the expected sales amount and classified as Level 3 in the fair value hierarchy. The fair value hierarchy is described in Note 30. Financial Instruments. These assets are scheduled to be sold within one year from March 31, 2020.

12. Property, Plant and Equipment, Net

(1) Increase or Decrease Table

Changes in carrying amount of property, plant and equipment were as follows:

Fiscal year ended March 31, 2019 — Millions of Yen

	Land	Buildings	Others	Construction in progress	Total
Balance at beginning of year	10,212	9,659	9,003	358	29,232
Acquisition	—	226	5,673	180	6,079
Acquisition through business combinations	—	—	377	—	377
Sales and disposals	(7)	(2)	(178)	—	(187)
Depreciation	—	(762)	(3,796)	—	(4,558)
Exchange differences	(47)	(69)	(48)	7	(157)
Balance at end of year	10,158	9,052	11,031	545	30,786

Fiscal year ended March 31, 2020 — Millions of Yen

	Land	Buildings	Machinery	Equipment and Furniture	Construction in progress	Total
Balance at beginning of year	10,158	9,052	9,884	1,147	545	30,786
Acquisition	—	642	7,019	1,099	364	9,124
Acquisition through business combinations	—	350	1,614	34	—	1,998
Sales and disposals	—	(2)	(218)	(6)	—	(226)
Reclassification to assets held for sale	(367)	(96)	—	—	—	(463)
Depreciation	—	(736)	(4,049)	(551)	—	(5,336)
Exchange differences	(178)	(382)	(231)	(32)	(14)	(837)
Others	—	20	—	6	—	26
Balance at end of year	9,613	8,848	14,019	1,697	895	35,072

Gross carrying amount, accumulated depreciation and impairment losses and carrying amount of property, plant and equipment were as follows:

Millions of Yen

	Land	Buildings	Others	Construction in progress	Total
As of March 31, 2019					
Gross carrying amount	11,104	29,081	49,135	545	89,865
Accumulated depreciation and impairment losses	946	20,029	38,104	―	59,079
Carrying amount	10,158	9,052	11,031	545	30,786

Millions of Yen

	Land	Buildings	Machinery	Equipment and Furniture	Construction in progress	Total
As of March 31, 2020						
Gross carrying amount	10,554	34,348	46,956	9,417	895	102,170
Accumulated depreciation and impairment losses	941	25,500	32,937	7,720	―	67,098
Carrying amount	9,613	8,848	14,019	1,697	895	35,072

Depreciation expense is included in cost of sales and selling, general and administrative expenses in the consolidated statement of profit or loss.

(2) Impairment Losses

No significant impairment losses were recorded on property, plant and equipment for the years ended March 31, 2019 and 2020, respectively.

(3) Commitments Related to Acquisition of Fixed Assets

Commitments related to acquisition of fixed assets were as follows:

Millions of Yen

	As of March 31, 2019	As of March 31, 2020
Acquisition of Fixed Assets	349	135

13. Goodwill and Intangible Assets

(1) Increase or Decrease Table

Changes in carrying amount of goodwill and intangible assets were as follows:

Fiscal year ended March 31, 2019 — Millions of Yen

	Goodwill	Software	Others	Total
Balance at beginning of year	14,134	969	184	15,287
Acquisition	—	475	41	516
Acquisition through business combinations	10,080	—	—	10,080
Sales and disposals	—	—	(1)	(1)
Amortization	—	(386)	(23)	(409)
Exchange differences	633	12	1	646
Balance at end of year	24,847	1,070	202	26,119

Fiscal year ended March 31, 2020 — Millions of Yen

	Goodwill	Software	Others	Total
Balance at beginning of year	24,847	1,070	202	26,119
Acquisition	—	741	—	741
Acquisition through business combinations	22,560	1	5,613	28,174
Sales and disposals	—	(6)	—	(6)
Amortization	—	(439)	(2,992)	(3,431)
Exchange differences	(488)	(16)	(78)	(582)
Others	—	10	—	10
Balance at end of year	46,919	1,361	2,745	51,025

Gross carrying amount, accumulated amortization and impairment losses and carrying amount of goodwill and intangible assets were as follows:

Millions of Yen

	Goodwill	Software	Others	Total
As of March 31, 2019				
Gross carrying amount	24,847	2,655	285	27,787
Accumulated amortization and impairment losses	—	1,585	83	1,668
Carrying amount	24,847	1,070	202	26,119
As of March 31, 2020				
Gross carrying amount	46,919	3,250	5,829	55,998
Accumulated amortization and impairment losses	—	1,889	3,084	4,973
Carrying amount	46,919	1,361	2,745	51,025

Amortization expense is included in cost of sales and selling, general and administrative expenses in the consolidated statement of profit or loss.

(2) Impairment Test for Goodwill

Carrying amount of goodwill allocated to CGU or CGU group was as follows:

Millions of Yen

CGU or CGU group	As of March 31, 2019	As of March 31, 2020
Semiconductor and component test system business		
-Japan	8,759	8,589
Services, support and others		
-Japan	6,007	5,890
-Advantest Test Solutions, Inc.*	10,081	6,624
-Essai, Inc.*	—	25,816

The recoverable amount of CGU or CGU group is calculated by its value in use based on the business plan for 3 years approved by management and the growth rate. The business plan reflects the past experience using external and internal data, for the cash flows exceeding the period, its value in use is calculated by the growth rate that does not exceed the expected long-term growth rate of the market CGU or CGU group belongs to.

A pre-tax discount rate used for measuring its value in use for fiscal years ended March 31, 2019 and 2020 were 13.7% - 16.1% and 17.0% - 19.2%, respectively. Since the recoverable amount of CGU or CGU group is well above the carrying amount, the probability that the recoverable amount is less than the carrying amount is expected low even when the primary assumption of the goodwill changes to reasonable extent.

* Please see note 32 for Advantest Test Solutions, Inc. and Essai, Inc.

(3) Research and Development Expenses

Research and development expenses included in selling, general and administrative expenses for fiscal years ended March 31, 2019 and 2020 were ¥ 37,852 million and ¥ 40,070 million, respectively.

14. Leases

(1) Leases- Lessor

Advantest provides leases that enable its customers to use its semiconductor test systems. All leases are classified as operating leases. Lease terms range from 1 year to 5 years, and certain of the lease agreements are cancelable.

Fiscal year ended March 31, 2019

Future minimum lease income under noncancelable operating leases was as follows:

Millions of Yen

	As of March 31, 2019
Not later than 1 year	41
Later than 1 year and not later than 5 years	18
Later than 5 years	―
Total	59

Fiscal year ended March 31, 2020

Maturity analysis for operating lease fee was as follows:

Millions of Yen

	Due within 1 year	Due after 1 year through 2 years	Due after 2 years through 3 years	Due after 3 years through 4 years	Due after 4 years through 5 years	Due after 5 years	Total
Leasing fee	88	30	18	―	―	―	136

(2) Leases- Lessee

Fiscal year ended March 31, 2019

Advantest has several noncancelable operating leases, primarily for office space and office equipment. Rent expense, including rental payments for cancelable leases, for fiscal years ended March 31, 2019 was ¥2,079 million.

Future minimum lease payments under noncancelable operating leases were as follows:

Millions of Yen

	As of March 31, 2019
Not later than 1 year	1,042
Later than 1 year and not later than 5 years	2,198
Later than 5 years	204
Total	3,444

Fiscal year ended March 31, 2020

Advantest leases certain office space and office equipment under the lease contracts.

Profit and loss related to right-of-use assets was as follows:

Millions of Yen

	Fiscal year ended March 31, 2020
Depreciation expense of right-of-use assets	
Buildings	1,635
Others	490
Total	2,125
Interest expense related to lease liabilities	135
Expenses related to short-term leases	3
Expenses related to leases of low-value assets	40

Carrying amount related to right-of-use assets was as follows:

Millions of Yen

	As of March 31, 2020
Right-of-use assets	
Buildings	10,358
Others	826
Total	11,184

The increase in right-of-use assets was ¥3,176 million for the fiscal year ended March 31, 2020.

In cases where the lessee is able to exercise an extension option without the lessor's consent, it is considered that the lessee has an extension option. In case where the lessee is able to terminate its lease contract in the middle of the contract, it is considered that the lessee has a termination option. Each of the affiliates exercises these options, as necessary.

Total cash outflows for leases was ¥2,116 million for the fiscal year ended March 31, 2020.

Of the changes in liabilities arising from financing activities, lease liabilities were as follows:

Millions of Yen

	As of April 1, 2019	Adjustments recognized on adoption of IFRS 16	As of April 1, 2019 (After adjustment)	Changes arising from cash flows	Non-cash changes		As of March 31, 2020
					Increase of right-of-use assets	Others	
Lease liabilities	—	10,344	10,344	(2,073)	3,176	(159)	11,288

Maturity analyses for lease liabilities as of March 31, 2020 is disclosed in note 30.

15. Subsidiaries

Major subsidiaries were as follows:

Name	Location	Principal business	Ownership interest Voting rights (%)
Advanfacilities Co., Ltd.	Saitama, Japan	Providing welfare services	100.0
Advantest Laboratories Ltd.	Miyagi, Japan	Research and development of measuring and testing technologies	100.0
Advantest Finance Inc.	Tokyo, Japan	Leasing of the Company's products and sales of used products	100.0
Advantest Kyushu Systems Co., Ltd.	Fukuoka, Japan	Development, sales and support of the Company's products	100.0
Advantest Component, Inc.	Miyagi, Japan	Development and manufacturing of the parts	100.0
Advantest America, Inc.	California, U.S.A.	Development and sales of the Company's products	100.0
Advantest Europe GmbH	Munich, Germany	Development and sales of the Company's products	100.0
Advantest Taiwan Inc.	Hsinchu, Taiwan	Sales of the Company's products	100.0
Advantest (Singapore) Pte. Ltd.	Singapore	Sales of the Company's products	100.0
Advantest Korea Co., Ltd.	Cheonan, Korea	Support for sales of the Company's products	100.0
Advantest (China) Co., Ltd.	Shanghai, China	Support for sales of the Company's products	100.0
Advantest (M) Sdn. Bhd.	Penang, Malaysia	Manufacturing of the Company's products	100.0

16. Income Taxes

(1) Deferred Tax Assets and Liabilities

The breakdown of deferred tax assets and liabilities was as follows:

Millions of Yen

	As of March 31, 2019	As of March 31, 2020
Deferred tax assets		
Inventories	1,403	2,238
Warranty provisions	428	839
Retirement benefit liabilities	4,664	5,329
Accrued expenses	1,321	2,524
Research and development expenses capitalized for tax purposes	1,117	2,119
Operating loss carryforwards	416	458
Property, plant and equipment and Intangible assets	512	1,976
Tax credits	688	505
Lease liabilities	―	2,821
Others	839	944
Total deferred tax assets	11,388	19,753
Deferred tax liabilities		
Net change in fair values of financial assets	(117)	(101)
Undistributed earnings of foreign subsidiaries	(1,742)	(1,428)
Right-of-use assets	―	(2,798)
Property, plant and equipment and Intangible assets	―	(1,027)
Others	―	(611)
Total deferred tax liabilities	(1,859)	(5,965)
Net deferred tax assets	9,529	13,788

Net deferred tax assets were included in the following line items in the consolidated statement of financial position.

Millions of Yen

	As of March 31, 2019	As of March 31, 2020
Deferred tax assets	11,209	15,351
Deferred tax liabilities	1,680	1,563

Changes in net deferred tax assets were as follows:

Millions of Yen

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Net deferred tax assets		
Balance at beginning of year	9,028	9,529
Recognized in profit or loss	593	4,806
Recognized in other comprehensive income	730	778
Acquisition through business combinations	—	(663)
Others	(822)	(662)
Balance at end of year	9,529	13,788

Advantest recognizes deferred tax assets after taking into consideration taxable temporary differences, the forecasted future taxable profits and tax planning.

Deductible temporary differences, operating loss carryforwards and tax credits that are not recognized as deferred tax assets in the consolidated statement of financial position were as follows:

Millions of Yen

	As of March 31, 2019	As of March 31, 2020
Deductible temporary differences	103,412	101,837
Operating loss carryforwards	51,681	23,105
Tax credits	551	539

The expiration dates of operating loss carryforwards and tax credits that were not recognized as deferred tax assets in the consolidated statement of financial position were as follows:

Millions of Yen

	As of March 31, 2019	As of March 31, 2020
Operating loss carryforwards		
Not later than 1 year	1,258	—
Later than 1 year and not later than 5 years	50,223	22,921
Later than 5 years	200	184
Total	51,681	23,105
Tax credits		
Not later than 1 year	—	2
Later than 1 year and not later than 5 years	73	13
Later than 5 years	478	524
Total	551	539

The taxable temporary difference related to investments in subsidiaries for which deferred tax liabilities were not recognized for the fiscal years ended March 31, 2019 and 2020 were not material, respectively.

Deferred tax liabilities are not recognized for this difference for which Advantest can control timing of the reversal and that will unlikely reverse in the foreseeable future.

(2) Income Tax Expense

The breakdown of income tax expense was as follows:

Millions of Yen

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Income tax expense		
Current income tax expense	9,811	9,848
Deferred income tax expense		
Origination and reversal of temporary differences	6,305	5,670
Changes in unrecognized deferred tax assets	(6,919)	(10,472)
Adjustments to deferred tax assets and liabilities due to changes in tax rate	21	(4)
Total	9,218	5,042

Current income tax expense includes tax benefit from operating loss carryforwards that were not recognized as deferred tax assets. The amounts of current income tax expense which were decreased by this for the years ended March 31, 2019 and 2020 were ¥ 9,291 million and ¥8,535 million, respectively.

(3) Reconciliation between Applicable Tax Rate and Effective Tax Rate

Reconciliation between the applicable tax rate and the effective tax rate was as follows:

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Applicable tax rate	30.5%	30.5%
Differences in statutory tax rate of foreign subsidiaries	(1.7)	(0.8)
Tax credits	(5.5)	(5.0)
Non-deductible expenses	0.4	0.4
Undistributed earnings of foreign subsidiaries	1.3	0.6
Changes in unrecognized deferred tax assets	(10.4)	(17.9)
Effect of tax rate changes	0.0	0.0
Others	(0.7)	0.8
Effective tax rate	13.9%	8.6%

The Company and its domestic subsidiaries are primarily affected by the corporation tax, resident tax and business tax. The statutory income tax rate calculated based on these rates for the fiscal years ended March 31, 2019 and 2020 were 30.5% and 30.5%, respectively.

Its foreign subsidiaries are affected by the corporation tax and other taxes at the domicile of each subsidiary.

17. Trade and Other Payables

The breakdown of trade and other payables was as follows:

Millions of Yen

	As of March 31, 2019	As of March 31, 2020
Accounts payables	24,729	26,615
Accrued expenses	15,391	15,226
Other payables	3,822	4,819
Total	43,942	46,660

18. Bonds

(1) The Conditions of Bond Issuance

The summary of the conditions of bond issuance was as follows:

Millions of Yen

Company	Name	Issue date	As of March 31, 2019	As of March 31, 2020	Interest rate (%)	Mortgage	Redemption date
Advantest	Zero Coupon Convertible Bonds due 2019	March 14, 2014	29,872	—	0.000	—	March 14, 2019
Total	—	—	29,872	—	—	—	—

(2) Reconciliation of changes in liabilities relating to cash flows arising from financing activities

Fiscal year ended March 31, 2019

Millions of Yen

	Liabilities
	Bonds
Balance at beginning of year	29,872
Changes from non-cash activities	
Conversion of convertible bonds	(29,947)
Changes from financing cash flows	—
Interest expenses	75
Balance at end of year	—

19. Provisions

The change in warranty provisions for the year ended March 31, 2020 was summarized as follows:

Millions of Yen

	Warranty Provisions
Balance at beginning of year	2,886
Increase during the year	5,281
Decrease due to intended use	(4,821)
Reversal during the year	—
Exchange differences	(11)
Balance at end of year	3,335
Current liabilities	3,335
Total	3,335

Advantest's products are generally subject to warranty, and Advantest provides contractual product warranty services, when the performance of products sold does not meet expected product specifications. Estimated repair expenses over the warranty period are accrued based on the historical ratio of actual repair expenses to corresponding sales, when product revenue is recognized. Most of these expenses are expected to be incurred in the next fiscal year.

20. Post-Employment Benefits

Advantest has post-employment plans as follows:

(Defined benefit corporate pension plan and retirement and severance plans for Japan)

The Company and its domestic subsidiaries have a defined benefit corporate pension plan and unfunded retirement and severance plans (point-based benefits system) covering substantially all employees. The company shifted a part of defined benefit corporate pension plan to defined contribution plan on October 1, 2018.

The assets due to the shift to defined contribution plan will be transitioned for four years. Outstanding amount to be transitioned are included in trade and other payables and other non-current liabilities in the consolidated statement of financial position, respectively. The shift resulted in the gain on the revision of post-employment benefits plan, which is included in other income in the consolidated statement of profit or loss in the fiscal year ended March 31, 2019. The Company and its subsidiaries adopted earlier the amendments to IAS 19 "Employee Benefits", which clarifies accounting treatments for plan amendment, curtailment or settlement in the middle of fiscal year, and service cost, interest cost and interest income from October 1, 2018 to March 31, 2019 are measured based on the revised actuarial assumptions.

The benefits for both defined benefit corporate pension plan and retirement and severance plans (point-based benefits system) are calculated based on accumulated points allocated to employees each year according to their job classification and their performance.

In defined benefit corporate pension plan, in accordance with the Defined-Benefit Corporate Pension Act of Japan, the Company has an obligation to make contributions to Advantest Pension Fund (the Fund) which manages the corporate pension plans. The directors of the Fund are responsible for faithfully executing operations in compliance with laws and regulations, and any orders issued by the Minister of Health, Labor and Welfare, and the Director-General of Regional Bureaus of Health and Welfare based on laws and regulations, as well as the rules of the Fund and the resolution of the Board of Representatives. And the directors are jointly and severally liable for responsible if they fail to manage and operate the Fund. The actual management of the contributions is conducted by trustees in accordance with rules approved by the Board of Representatives.

The Company is required to make contributions to the Fund and obligated to make contributions in the amount stipulated by the Fund. Contributions are also regularly reviewed and adjusted as necessary to the extent permitted by laws and regulations.

Plan assets are managed on the basis of soundness. However, financial instruments have inherent investment risks. Discount rates and other aspects of defined benefit plan obligations are based on pension actuarial assumptions. There is a risk when these pension actuarial assumptions are changed.

The retirement and severance plans (point-based system) are principally unfunded. The company terminated retirement benefit trusts in fiscal year ended March 31, 2020.

(Defined benefit pension plans for foreign subsidiaries)

Certain foreign subsidiaries also have defined benefit pension plans covering substantially all of their employees. Benefits payable under the plans are based on employee compensation levels and years of service.

(Defined contribution plan)

In defined contribution plan, the Company pays fixed contributions over entitlement period, and employees manage the contributed funds by themselves. Benefit is paid by a trustee organization, and the Company’s obligation is limited to the contribution.

(1) Defined Benefit Obligations and Plan Assets

The changes in present value of defined benefit obligations and fair value of plan assets of the Company and certain of its consolidated subsidiaries were as follows:

Japanese Plans

Millions of Yen

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Defined benefit obligations:		
Balance at the beginning of year	59,426	49,815
Service cost	1,551	1,324
Interest cost	414	252
Remeasurements:		
Actuarial (gain) or loss – Changes in demographic assumptions	(494)	240
Actuarial (gain) or loss – Changes in financial assumptions	744	(540)
Benefits paid	(1,257)	(1,585)
Decrease of defined benefit obligations due to the shift to the defined contribution plan	(10,569)	—
Balance at the end of year	49,815	49,506
Plan assets:		
Balance at the beginning of year	34,769	30,394
Interest income	256	153
Remeasurements:		
Actual return on plan assets, excluding interest income	(514)	(632)
Employer contributions	702	569
Benefits paid	(903)	(1,071)
Return of retirement benefit trust	—	(193)
The transfer due to the shift to the defined contribution plan	(3,916)	—
Balance at the end of year	30,394	29,220
Effects of asset ceiling	—	—
Net liability amount recognized in the consolidated statement of financial position	19,421	20,286

Non-Japanese Plans

Millions of Yen

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Defined benefit obligations:		
Balance at the beginning of year	23,390	26,653
Service cost	636	695
Interest cost	513	464
Remeasurements:		
Actuarial (gain) or loss – Changes in demographic assumptions	712	493
Actuarial (gain) or loss – Changes in financial assumptions	1,708	1,178
Benefits paid	(222)	(198)
Exchange differences	(1,164)	(1,108)
Other	1,080	194
Balance at the end of year	26,653	28,371
Plan assets:		
Balance at the beginning of year	7,694	8,546
Interest income	193	155
Remeasurements:		
Actual return on plan assets, excluding interest income	(335)	(884)
Employer contributions	445	477
Plan participants' contributions	179	194
Benefits paid	(133)	(86)
Exchange differences	(360)	(367)
Other	863	—
Balance at the end of year	8,546	8,035
Effects of asset ceiling	—	—
Net liability amount recognized in the consolidated statement of financial position	18,107	20,336

(2) Plan Assets

The fair value of pension plan assets by asset category was as follows:

Japanese Plans

Millions of Yen

	As of March 31, 2019			As of March 31, 2020		
	With quoted market price in an active market	With no quoted market price in an active market	Total	With quoted market price in an active market	With no quoted market price in an active market	Total
Cash and cash equivalents	748	—	748	4,370	—	4,370
Equity securities:						
Japanese companies	991	—	991	1	—	1
Pooled funds	—	10,474	10,474	—	6,256	6,256
Debt securities:						
Pooled funds	—	5,797	5,797	—	5,818	5,818
Hedge funds	—	9,893	9,893	—	9,679	9,679
Life insurance company general accounts and separate accounts	—	2,491	2,491	—	3,096	3,096
Total	1,739	28,655	30,394	4,371	24,849	29,220

Non-Japanese Plans

Millions of Yen

	As of March 31, 2019			As of March 31, 2020		
	With quoted market price in an active market	With no quoted market price in an active market	Total	With quoted market price in an active market	With no quoted market price in an active market	Total
Cash and cash equivalents	3,683	—	3,683	4,667	—	4,667
Equity securities:						
Pooled funds	—	3,306	3,306	—	2,004	2,004
Debt securities:						
Pooled funds	—	1,326	1,326	—	1,119	1,119
Commodities	—	231	231	—	245	245
Total	3,683	4,863	8,546	4,667	3,368	8,035

Investment policies of Advantest are designed to ensure adequate plan assets are available to provide future payments of pension benefits to eligible participants by attaining necessary long-term total returns on plan assets. Taking into consideration the expected returns, associated risks and correlations of returns between asset categories in plan assets, Advantest determines an optimal combination of equity, debt securities and other investments as Policy Asset Allocation (“PAA”). Plan assets are invested in accordance with PAA with mid-term to long-term viewpoint, which is revised periodically to the extent considered necessary to achieve the expected long-term rate of return on plan assets.

The Company and certain of its subsidiaries expect to contribute ¥967 million to defined benefit plans during the following fiscal year.

(3) Actuarial Assumptions

The significant actuarial assumptions used to determine the present value of defined benefit obligations were as follows:

Japanese Plans

	As of March 31, 2019	As of March 31, 2020
Discount rate (%)	0.5	0.6
Rate of compensation increase (%)	2.3	2.3

Non-Japanese Plans

	As of March 31, 2019	As of March 31, 2020
Discount rate (%)	1.7	1.5
Rate of compensation increase (%)	2.6	2.6

The effects on defined benefit obligations of 0.5% increase or decrease in the discount rate were as follows.

The sensitivity analysis is based on an assumption that all other variables other than the one analyzed are held constant. In reality, changes in other assumptions may impact the analysis.

Japanese Plans

Millions of Yen

	Changes in actuarial assumptions	As of March 31, 2019	As of March 31, 2020
Discount rate	0.5% increase	(3,178)	(3,102)
	0.5% decrease	3,512	3,421

Non-Japanese Plans

Millions of Yen

	Changes in actuarial assumptions	As of March 31, 2019	As of March 31, 2020
Discount rate	0.5% increase	(2,371)	(2,527)
	0.5% decrease	2,767	2,954

The weighted average duration of defined benefit obligations was as follows:

Japanese Plans

	As of March 31, 2019	As of March 31, 2020
Weighted average duration (Years)	13	13

Non-Japanese Plans

	As of March 31, 2019	As of March 31, 2020
Weighted average duration (Years)	22	23

(4) Employee Benefit Expenses

The total amount of employee benefit expenses in the consolidated statement of profit or loss for the ended March 31, 2019 and 2020 were ¥70,407 million and ¥72,052 million, respectively.

21. Equity and Other Equity Items

(1) Share Capital

1) Authorized Shares

The number of authorized shares as of March 31, 2019 and 2020 were 440,000,000 ordinary shares.

2) Fully Paid Issued Shares

The movement of the number of issued shares was as follows:

	Number of ordinary issued shares
As of April 1, 2018	199,566,770
Increase (decrease)	―
As of March 31, 2019	199,566,770
Increase (decrease)	―
As of March 31, 2020	199,566,770

The shares issued by the Company are non-par value ordinary shares that have no restriction of rights.

(2) Treasury Shares

The movement of treasury shares was as follows:

	Number of shares
As of March 31, 2019	1,732,515
As of March 31, 2020	1,152,069

(Note) Advantest's share (272,446 shares as of March 31, 2019, 537,830 shares as of March 31, 2020), which is being kept as performance-based stock remuneration in trust account, is included in the number of treasury share at the end of each fiscal period.

(3) Surplus

1) Share Premium

Under the Companies Act of Japan, at least 50% of the proceeds of certain issues of common shares shall be credited to share capital. The remainder of the proceeds shall be credited to additional paid-in capital within share premium.

2) Retained Earnings

The Companies Act provides that a 10% dividend of retained earnings shall be appropriated as additional paid-in capital or as a legal reserve until the aggregate amount of the additional paid-in capital and the legal reserve within retained earnings equals 25% of share capital.

(4) Other Components of Equity

Millions of Yen

	Remeasurements of defined benefit pension plan (Note 1)	Exchange differences on translation of foreign operations (Note 2)	Net change in fair value measurements of equity instruments at fair value through other comprehensive income (Note 3)	Total
As of April 1, 2018	―	1,034	267	1,301
Increase (decrease)	(2,732)	2,209	175	(348)
Transfer to retained earnings	2,732	―	―	2,732
As of March 31, 2019	―	3,243	442	3,685
Increase (decrease)	(2,144)	(3,490)	(169)	(5,803)
Transfer to retained earnings	2,144	―	(111)	2,033
As of March 31, 2020	―	(247)	162	(85)

(Note) 1. Remeasurements of defined benefit pension plan include differences in return on plan assets and interest income on plan assets and differences between actuarial assumptions and actual results.
2. Exchange differences on translation of foreign operations are exchange differences resulting from the translation of financial statements of foreign operations.
3. Net change in fair value measurements of equity instruments at fair value through other comprehensive income is cumulative in nature.

22. Dividends

(1) Dividends Paid

Fiscal year ended March 31, 2019

Resolution	Class of shares	Amount of dividend (Millions of Yen)	Dividend per share (Yen)	Record date	Effective date
Board of Directors' meeting held on May 22, 2018	Ordinary shares	4,118	23	March 31, 2018	June 4, 2018
Board of Directors' meeting held on October 30, 2018	Ordinary shares	9,702	50	September 30, 2018	December 3, 2018

(Note) Dividend of ¥14 million to treasury shares for the BIP Trust and the ESOP Trust is included in the amount of dividend which was resolved at the Board of Directors' meeting held on October 30, 2018.

Fiscal year ended March 31, 2020

Resolution	Class of shares	Amount of dividend (Millions of Yen)	Dividend per share (Yen)	Record date	Effective date
Board of Directors' meeting held on May 22, 2019	Ordinary shares	8,320	42	March 31, 2019	June 4, 2019
Board of Directors' meeting held on October 30, 2019	Ordinary shares	8,151	41	September 30, 2019	December 2, 2019

(Note) 1. Dividend of ¥11 million to treasury shares for the BIP Trust and the ESOP Trust is included in the amount of dividend which was resolved at the Board of Directors' meeting held on May 22, 2019.

2. Dividend of ¥22 million to treasury shares for the BIP Trust and the ESOP Trust is included in the amount of dividend which was resolved at the Board of Directors' meeting held on October 30, 2019.

(2) Dividends Whose Record Date is in the Fiscal Year under Review but Whose Effective Date is in the Following Fiscal Year

Resolution	Class of shares	Amount of dividend (Millions of Yen)	Dividend per share (Yen)	Record date	Effective date
Board of Directors' meeting held on May 21, 2020	Ordinary shares	8,157	41	March 31, 2020	June 2, 2020

(Note) Dividend of ¥22 million to treasury shares for the BIP Trust and the ESOP Trust is included in the amount of dividend.

23. Revenue

(1) Disaggregation of revenue

As disclosed in note 6, Advantest has three reportable operating segments: "semiconductor and component test system business", "mechatronics system business" and "services, support and others". Net sales disaggregated by region and segment were as follows:

Fiscal year ended March 31, 2019 Millions of Yen

	Semiconductor and Component Test System Business	Mechatronics System Business	Services, Support and Others	Elimination and Corporate	Consolidated
Main regions					
Japan	7,285	2,921	4,679	(4)	14,881
Americas	5,778	2,884	4,917	―	13,579
Europe	4,730	344	2,050	―	7,124
Asia	193,924	33,080	19,868	―	246,872
Total	211,717	39,229	31,514	(4)	282,456

Fiscal year ended March 31, 2020 Millions of Yen

	Semiconductor and Component Test System Business	Mechatronics System Business	Services, Support and Others	Elimination and Corporate	Consolidated
Main regions					
Japan	5,941	4,316	4,611	(79)	14,789
Americas	5,951	3,009	9,561	―	18,521
Europe	3,613	337	2,114	―	6,064
Asia	181,649	28,631	26,240	―	236,520
Total	197,154	36,293	42,526	(79)	275,894

The breakdown of semiconductor and component test system business was as follows:

Fiscal year ended March 31, 2019 Millions of Yen

	SoC	Memory	Total
Semiconductor and Component Test System Business	148,635	63,082	211,717

Fiscal year ended March 31, 2020 Millions of Yen

	SoC	Memory	Total
Semiconductor and Component Test System Business	154,931	42,223	197,154

Revenue is accounted for in accordance with the account policy described in the note 3 “Significant Accounting Policies.” The transaction price is measured based on the amount promised in the contracts with customers and includes no significant financing components because there are no contracts with long payment terms from the satisfaction of performance obligation to payment of transaction price. Additionally, there are no significant revenue including variable consideration.

In case there are multiple performance obligations in the contract, transaction price is allocated to each individual performance obligation based on the standalone selling price which is calculated from reasonably available information including prices of similar transactions.

(2) Contract balances

Receivables and liabilities from contracts with customers were as follows:

Fiscal year ended March 31, 2020 Millions of Yen

	The date of initial application (as of April 1, 2018)	As of March 31, 2019	As of March 31, 2020
Receivables from contracts with customers			
- Note and trade receivables	40,495	50,391	44,465
Contract liabilities			
- Advance receipt	6,408	5,576	7,689

Advance receipt is included in “Other current liabilities” in the consolidated statement of financial position.

There are no significant amounts of revenue from the balance of contract liabilities as of April 1, 2018 and 2019, respectively that Advantest will recognize in the following fiscal years onward. Mostly, contract liabilities as of April 1, 2018 and 2019 are recognized as revenue in the fiscal years ended March 31, 2019 and 2020, respectively.

(3) Transaction price allocated to the remaining performance obligations

Advantest applies the practical expedients for exemption on disclosure of information on remaining performance obligations because it has no significant transactions with performance obligation terms exceeding one year.

24. Selling, General and Administrative Expenses

The breakdown of selling, general and administrative expenses was as follows:

Millions of Yen

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Employee benefit expenses	57,856	59,712
Depreciation and amortization	3,872	7,696
Others	31,372	30,343
Total	93,100	97,751

25. Share-Based Compensation

(1) Share Option

Advantest has share-based compensation plans using share options as incentive plans for directors (excluding directors who are audit and supervisory committee members and outside directors), executive officers and executive employees. Share options have been issued to directors, executive officers and certain employees of the Company and its subsidiaries under share option plans approved by the Board of Directors. Options were generally granted with an exercise prices of per share that were equal to the higher of (1) 1.05 times the average price of the Company’s common shares of the preceding month on the date of grant and (2) the closing price of the Company’s common shares traded on the Tokyo Stock Exchange on the date of grant. The options have an exercise period of 4 years for No.13, 3 years for No.14, 15 and 16, respectively.

The exercisable share option plans were as follows:

No.	Number of shares to be issued/ delivered	Grant date	Exercise Period	Settlement Method	Vesting Conditions
13	1,924,000	August 16, 2016	From April 1, 2017 to March 31, 2021	Quotient Clearance	The persons who are director (excluding directors who are audit and supervisory committee members and outside directors), executive officer, employee, adviser, part-time worker or any other similar position of the Company or its subsidiaries after grant date (August 16, 2016) to vesting date (March 31, 2017) are entitled.
14	898,000	December 15, 2017	From April 1, 2019 to March 31, 2022	Quotient Clearance	The persons who are director (excluding directors who are audit and supervisory committee members and outside directors), executive officer, employee, adviser, part-time worker or any other similar position of the Company or its subsidiaries after grant date (December 15, 2017) to vesting date (March 31, 2019) are entitled.
15	418,000	August 10, 2018	From August 11, 2020 to August 10, 2023	Quotient Clearance	The persons who are director (excluding directors who are audit and supervisory committee members and outside directors), executive officer, employee, adviser, part-time worker or any other similar position of the Company or its subsidiaries after grant date (August 10, 2018) to vesting date (August 10, 2020) are entitled.
16	416,000	July 12, 2019	From July 13, 2021 to July 12, 2024	Quotient Clearance	The persons who are director (excluding directors who are audit and supervisory committee members and outside directors), executive officer, employee, adviser, part-time worker or any other similar position of the Company or its subsidiaries after grant date (July 12, 2019) to vesting date (July 12, 2021) are entitled.

The exercise price of the share options is subject to adjustment, if there is a share split or consolidation of shares, or if new shares are issued or treasury shares are sold at a price that is less than the market price.

Share option activity was as follows:

	Fiscal year ended March 31, 2019		Fiscal year ended March 31, 2020	
	Number of shares	Weighted average exercise price (Yen)	Number of shares	Weighted average exercise price (Yen)
Outstanding at beginning of year	2,145,000	1,871	1,978,000	2,155
Granted	418,000	2,540	416,000	3,090
Exercised	(582,000)	1,382	(847,000)	2,016
Expired	—	—	—	—
Forfeited	(3,000)	2,549	—	—
Outstanding at end of year	1,978,000	2,155	1,547,000	2,482
Exercisable at end of year	665,000	1,382	713,000	2,094

Weighted-average share prices as of exercised date were ¥2,692 and ¥4,322 for share option plans exercised during fiscal years ended March 31, 2019 and 2020, respectively.

The outstanding share options were as follows:

As of March 31, 2019

Exercise Price	Outstanding		Exercisable	
	Number of shares	Weighted average remaining contractual life (Years)	Number of shares	Weighted average remaining contractual life (Years)
1,382	665,000	2.0	665,000	2.0
2,540	418,000	4.4	—	—
2,549	895,000	3.0	—	—

As of March 31, 2020

Exercise Price	Outstanding		Exercisable	
	Number of shares	Weighted average remaining contractual life (Years)	Number of shares	Weighted average remaining contractual life (Years)
1,382	278,000	1.0	278,000	1.0
2,540	418,000	3.4	—	—
2,549	435,000	2.0	435,000	2.0
3,090	416,000	4.3	—	—

The fair value of share option was estimated using the Black Scholes pricing model with the following assumptions:

No.	15	16
Expected life (year)	3.51	3.44
Risk-free rate (%)	(0.09)	(0.21)
Expected volatility (%)	36.15	39.33
Expected dividend yield (%)	1.01	1.61

Share-based compensation expenses were ¥336 million and ¥237 million for fiscal years ended March 31, 2019 and 2020, respectively.

(2) Performance-Based Stock Remuneration Plan

1) Outline of the performance-based stock remuneration plan

Advantest has performance-based stock remuneration plan (the “Plan”) for directors (excluding directors who are audit and supervisory committee members and outside directors), executive officer and employees as an incentive.

In the Plan, Advantest contributes funding to the share delivery trust (the “Trust”) whose trust period is approximately 3 years set by itself. The Trust uses the fund to purchase the Company’s shares, and it will give the shares to the members of the Plan depending on the achievement of the designated performance indicators for designated periods after the end of three-consecutive fiscal years started from April 1, 2018 and 2019, respectively.

Eligibility for the Plan is director (excluding directors who are audit and supervisory committee members and outside directors), executive officers or employees over the designated periods.

The number of granted points which are base of the number of shares is calculated by average of performance achievement of designated performance indicators, the consolidated financial results of net sales, net income, operating ratio and ROE for designated periods.

The Plan is booked as share-settled type share-based compensation. The Plan does not have exercise price because deliver the shares as remuneration.

2) Number of estimated granted points and fair value

The fair values of the Plan granted in the fiscal year ended March 31, 2019 and 2020 were ¥2,509 and ¥4,149, respectively. The fair values were calculated based on the market price of the Company’s share at the grant date and expected dividends.

As described in 1), the number of granted points is calculated based on the payment rate between 0% and 150% depending on the achievement of the designated performance indicators for three-consecutive fiscal years, and they will be distributed in a lump. 100% is defined as basic points.

3) Share-based compensation expense

Share-based compensation expenses from the Plan were ¥134 million and ¥534 million for the fiscal year ended March 31, 2019 and 2020, respectively.

4) Basic points activity

Basic points activity was as follows:

	Fiscal year ended March 31, 2019		Fiscal year ended March 31, 2020	
	Number of basic points	Weighted average exercise price (Yen)	Number of basic points	Weighted average exercise price (Yen)
Outstanding at beginning of year	—	—	204,081	2,509
Granted	204,923	2,509	209,660	4,149
Exercised	(154)	2,509	(216)	2,509
Expired	—	—	—	—
Forfeited	(688)	2,509	(4,156)	2,964
Outstanding at end of year	204,081	2,509	409,369	3,344
Exercisable at end of year	—	—	—	—

26. Financial Income and Expenses

(1) Financial Income

The breakdown of financial income was as follows:

Millions of Yen

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Interest income	1,025	806
Financial assets measured at amortized cost		
Dividend income		
Financial assets measured at fair value through other comprehensive income	1	0
Financial assets measured at fair value through profit or loss	—	4
Foreign exchange gain	584	189
Others	16	46
Total	1,626	1,045

(2) Financial Expenses

The breakdown of financial expenses was as follows:

Millions of Yen

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Interest expense		
Financial liabilities measured at amortized cost	77	155
Changes in fair value of the contingent consideration	—	1,024
Total	77	1,179

27. Other Income

The breakdown of other income was as follows:

Millions of Yen

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Gain on the revision of post-employment benefits plan(Note)	2,530	—
Gain on sale of property, plant and equipment	945	—
Others	343	335
Total	3,818	335

(Note) Content of gain on the revision of post-employment benefits plan is described in note 20.

28. Other Comprehensive Income

Each component of other comprehensive income, reclassification adjustments to net income and tax effects were as follows:

Millions of Yen

	Fiscal year ended March 31, 2019			Fiscal year ended March 31, 2020		
	Pretax amount	Tax (expense) or benefit	Net of tax amount	Pretax amount	Tax (expense) or benefit	Net of tax amount
Remeasurements of defined benefit pension plan						
Gains (losses) during the year	(3,491)	759	(2,732)	(2,862)	718	(2,144)
Net change during the year	(3,491)	759	(2,732)	(2,862)	718	(2,144)
Net change in fair value measurements of equity instruments at fair value through other comprehensive income						
Gains (losses) during the year	204	(29)	175	(229)	60	(169)
Net change during the year	204	(29)	175	(229)	60	(169)
Exchange differences on translation of foreign operations						
Gains (losses) during the year	2,209	—	2,209	(3,490)	—	(3,490)
Reclassification adjustments to Net income	—	—	—	—	—	—
Net change during the year	2,209	—	2,209	(3,490)	—	(3,490)
Total other comprehensive income	(1,078)	730	(348)	(6,581)	778	(5,803)

29. Earnings per Share

The basis of calculation of basic earnings per share and diluted earnings per share were as follows:

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Net income attributable to owners of the parent (Millions of Yen)	56,993	53,532
Net income not attributable to owners of the parent (Millions of Yen)	—	—
Net income to calculate basic earnings per share (Millions of Yen)	56,993	53,532
Dilutive effect of convertible bonds (Millions of Yen)	74	—
Net income to calculate diluted earnings per share (Millions of Yen)	57,067	53,532
Weighted average number of ordinary shares—basic	188,501,951	198,180,901
Dilutive effect of stock options	450,684	770,946
Dilutive effect of convertible bonds	9,625,514	—
Dilutive effect of performance-based stock remuneration	9,078	77,264
Weighted average number of ordinary shares—diluted	198,587,227	199,029,111
Basic earnings per share (Yen)	302.35	270.12
Diluted earnings per share (Yen)	287.37	268.96
Financial Instruments not included in the calculation of diluted earnings per share because they have anti-dilutive effect	Certain stock options	————

30. Financial Instruments

(1) Capital Management

Advantest seeks out the most appropriate methods to enhance capital efficiency considering safety and liquidity for the sake of securing the fund.

Advantest raises fund through bonds and bank loans when required. Derivative transactions for speculation purposes is prohibited by Advantest's policy, and limited to transactions to avoid the risks discussed later.

Advantest manages net interest-bearing debt, where cash and cash equivalents are deducted from interest-bearing debt, and capital. The amounts as of each fiscal year end were as follows:

Millions of Yen

	As of March 31, 2019	As of March 31, 2020
Interest-bearing debt(Note 1)	—	—
Cash and cash equivalents	(119,943)	(127,703)
Net interest-bearing debt(Note 2)	(119,943)	(127,703)
Capital (equity attributable to owners of the parent company)	198,731	231,452

(Note) 1. Interest-bearing debt consists of bonds and bank loans. There was no outstanding as of March 31, 2019 and March 31, 2020.

2. The figure represents the net amount of cash and cash equivalents after deducting interest-bearing.

Advantest monitors financial indicators in order to maintain a well-balanced capital structure that ensures an appropriate return on equity and a stable and flexible financial condition for future investment.

Advantest monitors credit ratings for a financial stability and flexibility, and ROE (return on equity) for profitability, while focusing on changes in the domestic and overseas environment.

(2) Basic Policy on Financial Risk Management

Advantest is exposed to financial risks (credit risks, liquidity risks, foreign exchange risks, and market price fluctuation risks) in the process of its management activities and it manages risks based on a specific policy in order to avoid or reduce said risks. The results of risk management are regularly reported by the Accounting Department to management.

Advantest's policy limits derivatives to transactions for the purpose of mitigating risks from transactions based on actual demand. Therefore, Advantest does not transact derivatives for speculation purposes or trading purposes.

(3) Credit Risk

Receivables such as notes and trade receivables, resulting from operating activities of Advantest are exposed to customers' credit risks.

Equity securities held for strategic purposes are exposed to the issuer's credit risks.

Additionally, derivative transactions in order to hedge foreign exchange fluctuation risks are exposed to credit risks of counter party financial institutions.

Advantest strives to mitigate collection risk in accordance with credit management standards and procedures in selling goods and services.

Advantest assesses the credit standing of customers and manages collection date and outstanding balance for each customer to ensure smooth collection of trade receivables.

Advantest minimizes risk exposure by limiting the counterparties to major international banks and financial institutions meeting established credit guidelines.

Any maximum exposure to credit risk in financial assets is stated in the carrying amounts presented in the consolidated statement of financial position.

Aging of Trade and other receivables that are past due but not impaired as of March 31, 2019 was as follows:

Millions of Yen

	As of March 31, 2019				
	Financial assets that are measured at an amount equal to 12-month expected credit losses	Financial assets that are measured at an amount equal to lifetime expected credit losses			Total
		Trade and other receivables	Financial assets whose credit risk has increased significantly	Financial assets whose credit is impaired	
Before due date	1,403	47,120	－	－	48,523
Within 90 days	2	2,731	－	－	2,733
Over 90 days, within 180 days	－	379	－	－	379
Over 180 days	0	161	－	90	251
Total	1,405	50,391	－	90	51,886

Aging of Trade and other receivables as of March 31, 2020 was as follows:

Millions of Yen

	As of March 31, 2020				
	Financial assets that are measured at an amount equal to 12-month expected credit losses	Financial assets that are measured at an amount equal to lifetime expected credit losses			Total
		Trade and other receivables	Financial assets whose credit risk has increased significantly	Financial assets whose credit is impaired	
Before due date	1,924	41,429	—	—	43,353
Within 90 days	34	2,414	—	—	2,448
Over 90 days, within 180 days	12	610	—	—	622
Over 180 days	—	12	—	—	12
Total	1,970	44,465	—	—	46,435

Impairment is accounted for using the allowance for doubtful accounts, not directly reducing the carrying amount of financial assets.

The allowance for doubtful accounts against the financial assets is included in “Trade and other receivables” and “Other financial assets” in the consolidated statement of financial position.

The change in the allowance for doubtful accounts was as follows:

Millions of Yen

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Balance at the beginning of year	51	13
Increase during the year	10	9
Decrease due to intended use	(22)	—
Reversal during the year	(26)	(13)
Exchange differences	0	—
Balance at the end of year	13	9
Current	10	9
Non-current	3	—
Total	13	9

Allowance for doubtful accounts of the financial assets for which credit losses were occurred individually at March 31, 2019 were ¥3 million. Allowance for doubtful accounts which are other than the mentioned above were mostly lifetime expected credit losses of Trade and other receivables.

(4) Liquidity Risk

Advantest establishes a financing plan based on the annual business plan and the Accounting Department monitors and collects information on the balance of liquidity-on-hand and interest-bearing debt and reports it to management.

In addition, Advantest manages liquidity risks with the balance of liquidity-on-hand maintained at a proper level by working out the financing plan on a timely basis, and by taking into consideration the financial environment.

The financial liability balance by maturity was as follows:

As of March 31, 2019

Millions of Yen

	Carrying amount	Contractual cash flow	Due within 1 year	Due after 1 year through 2 years	Due after 2 years through 3 years	Due after 3 years through 4 years	Due after 4 years through 5 years	Due after 5 years
Non-derivative financial liabilities								
Trade and other payables	43,942	43,942	43,942	—	—	—	—	—
Other financial liabilities	916	917	906	8	3	—	—	—
Total	44,858	44,859	44,848	8	3	—	—	—

As of March 31, 2020

Millions of Yen

	Carrying amount	Contractual cash flow	Due within 1 year	Due after 1 year through 2 years	Due after 2 years through 3 years	Due after 3 years through 4 years	Due after 4 years through 5 years	Due after 5 years
Non-derivative financial liabilities								
Trade and other payables	46,660	46,660	46,660	—	—	—	—	—
Lease liabilities	11,288	11,757	2,355	2,266	2,121	1,883	1,861	1,271
Other financial liabilities	1,892	1,892	1,892	—	—	—	—	—
Total	59,840	60,309	50,907	2,266	2,121	1,883	1,861	1,271

(5) Foreign Exchange Risk

1) Foreign Exchange Risk Management

As part of developing its global business, Advantest has foreign currency receivables and payables, which are subject to foreign exchange fluctuation risk.

To manage this risk, Advantest determines its foreign exchange fluctuation risk in each currency every month and, in principle, hedges this risk by using forward exchange transactions.

Depending on foreign exchange market conditions, Advantest may also enter into forward exchange contracts on foreign currency receivables and payables for expected transactions it deems certain to occur.

2) Foreign Exchange Sensitivity Analysis

The table below shows the impact on income before income taxes of a 1% increase in value of the functional currency included U.S. Dollar and the Euro, due to its holdings of financial instruments at the end of each fiscal year, assumed no changes in currencies other than those used.

The impact from the translation of functional currency-denominated financial instruments, assets and liabilities of foreign operations into presentation currency is not included.

Millions of Yen

	Currency	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Impact on income before income taxes	U.S. Dollar	(158)	(458)
	Euro	(37)	(34)

(6) Carrying Amounts and Fair Value of Financial Instruments

Financial instruments are settled mainly on a short-term basis, and their fair values approximate their carrying amounts.

(7) Fair Value Hierarchy of Financial Instruments

Financial instruments measured at fair value on a recurring basis after the initial recognition are classified into three levels of the fair value hierarchy based on the measurement inputs' observability and materiality as follows:

Level 1: Fair value measured at quoted prices for identical assets or liabilities in active markets
Level 2: Fair value measured by direct or indirect observable inputs other than Level 1
Level 3: Fair value measured by significant unobservable inputs

When several inputs are used for a fair value measurement, the level is determined based on the input with the lowest level in the fair value measurement as a whole.

The transfers between levels in the fair value hierarchy are deemed at the beginning of each quarter period.

There were no transfers of financial instruments between Level during the fiscal years ended March 31, 2019 and 2020.

The financial assets and financial liabilities measured at fair value on a recurring basis were classified by hierarchy as follows:

As of March 31, 2019

Millions of Yen

	Level 1	Level 2	Level 3	Total
Financial assets that are measured at fair value through profit or loss				
Debt instruments	–	–	215	215
Financial assets that are measured at fair value through other comprehensive income (Note)				
Equity instruments	–	–	1,072	1,072
Total	–	–	1,287	1,287

As of March 31, 2020 Millions of Yen

	Level 1	Level 2	Level 3	Total
Financial assets that are measured at fair value through profit or loss				
Debt instruments	—	—	772	772
Financial assets that are measured at fair value through other comprehensive income (Note)				
Equity instruments	—	—	703	703
Total financial assets	—	—	1,475	1,475
Financial liabilities that are measured at fair value through profit or loss	—	—	1,487	1,487
Total financial liabilities	—	—	1,487	1,487

(Note) The Company holds equity investments to accomplish expansion of revenue base by maintaining and enforcing relationships with investees. These equity investments are designated as financial assets measured at fair value through other comprehensive income ("FVTOCI"). The fair value of each financial assets measured at FVTOCI as of March 31, 2019 and March 31, 2020 was immaterial.

The movement of financial assets categorized within Level 3 of the fair value hierarchy was as follows:

Millions of Yen

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Balance at beginning of year	698	1,287
Gains or losses		
Profit or loss (Note 1)	—	42
Other comprehensive income (Note 2)	204	(229)
Purchase	384	548
Sales	(0)	(111)
Other	1	(62)
Balance at end of year	1,287	1,475

(Note) 1. Gains or losses recognized in profit or loss are included in financial income and financial expenses of the consolidated statement of profit or loss.

2. Gains or losses recognized in other comprehensive income are presented in net change in fair value measurements of equity instruments at FVTOCI of the consolidated statement of comprehensive income.

The movement of financial liabilities categorized within Level 3 of the fair value hierarchy was as follows:

Millions of Yen

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Balance at beginning of year	―	―
Business Combinations	―	483
Changes in fair value(Note)	―	1,024
Other	―	(20)
Balance at end of year	―	1,487

(Note) Changes in fair value are included in financial expenses of the consolidated statement of profit or loss.

(8) Derivatives and Hedge Accounting

There were no derivatives designated as hedging instruments at March 31, 2019 and 2020.

31. Related Party Disclosures

Management personnel compensation was as follows:

Millions of Yen

	Fiscal year ended March 31, 2019	Fiscal year ended March 31, 2020
Fixed-compensation	245	244
Performance-based bonus	128	121
Share-based compensation expense	62	103
Total	435	468

32. Business Combinations

Fiscal year ended March 31, 2019
(Business combination through acquisition)

(1) Overview of Acquired Business

Name of Company: Astronics Corporation
Description of acquired business: commercial Semiconductor System Level Test business (“Test Systems”)

(2) Overview of Business Combination

Advantest purchased Test Systems from Astronics Corporation. Test Systems is now a fully owned subsidiary of the Company’s U.S. subsidiary, Advantest America, Inc., and is now operating under a newly created entity, Advantest Test Solutions, Inc. Test Systems is highly complementary to Advantest’s existing suite of leading-edge automated test equipment solutions and broadens Advantest’s position in system level test, an increasingly critical test modality to large consumer electronics manufacturers.

(3) Acquisition Date

February 14, 2019

(4) Legal Form of Business Combination

Business acquisition

(5) Acquisition-related Expense

Acquisition-related expense of ¥496 million is included in Selling, general and administrative expenses in the consolidated statement of profit or loss for the fiscal year ended March 31, 2019.

(6) Fair Value of Assets Acquired and Consideration Paid as of the Acquisition Date

The fair value of the assets acquired and consideration paid as of the acquisition date were provisional as of March 31, 2019, but they were revised because the purchase price allocation was completed during the second quarter of the fiscal year ended March 31, 2020.

Millions of Yen

	Provisional fair value	Revision	Revised fair value
Assets acquired			
Inventories	641	—	641
Property, plant and equipment, net	377	—	377
Intangible assets, net	—	3,808	3,808
Assets total	1,018	3,808	4,826
Goodwill	10,080	(3,325)	6,755
Total	11,098	483	11,581
Fair value of consideration paid			
Cash and cash equivalents	11,098	—	11,098
Contingent consideration(Note)	—	483	483
Total	11,098	483	11,581

(Note) The contingent consideration represents an earn-out payment of up to USD35 million based on certain performance milestones. The fair value of the contingent consideration was calculated considering the future sales forecast and the probability of its achievement. The hierarchy of the contingent consideration was Level 3. The changes in fair value of the contingent consideration is included in Financial expenses in the consolidated statement of profit or loss for the fiscal year ended March 31, 2020.

Goodwill generated from this business combination was attributable to the Services, Support and Others segment and was deductible for tax purposes. Goodwill primarily represented a synergy effect with existing businesses and the excess earning power expected from the acquisition.

(7) Impact on the Business Performance

Disclosure of profit and loss information from the acquisition date and pro forma profit and loss information assuming the business combination was conducted at the beginning of the fiscal year ended March 31, 2019 (unaudited information), was omitted because of its immateriality for the consolidated statement of profit or loss.

Fiscal year ended March 31, 2020
(Business combination through acquisition)

(1) Overview of Acquired Business

Name of Company: Essai, Inc.
Description of acquired company: design, manufacture and sales of semiconductor final-test, system-level test sockets and thermal control units
Voting rights ratio after acquisition of shares: 100%

(2) Overview of Business Combination

Advantest America, Inc., the Company's U.S. subsidiary, acquired all outstanding ordinary shares of U.S. company Essai, Inc. ("Essai") on January 29, 2020, and Essai became a wholly owned subsidiary of Advantest America, Inc.

Essai is the leading supplier of semiconductor final-test, system-level test sockets and thermal control units. Essai possesses excellent design capabilities and highly automated manufacturing capabilities that enable it to rapidly deliver products to customers, and its solutions are highly regarded in the industry. In combination with Advantest's final-test equipment and system-level testers, these resources will provide enhanced end-to-end test solutions in the form of test cells including sockets-accuracy assurance, further adding value to Advantest's product portfolio.

(3) Acquisition Date

January 29, 2020

(4) Legal Form of Business Combination

Acquisition of shares

(5) Acquisition-related Expense

Acquisition-related expense of ¥487 million is included in Selling, general and administrative expenses in the consolidated statement of profit or loss for the fiscal year ended March 31, 2020.

(6) Fair Value of Assets Acquired, Liabilities Assumed and Consideration Paid as of the Acquisition Date

Millions of Yen

	Fair value
Assets acquired	
Cash and cash equivalents	6,027
Trade and other receivables	1,578
Other current assets	648
Property, plant and equipment, net	1,998
Right-of-use-assets	942
Intangible assets, net	1,806
Assets total	12,999
Liabilities assumed	
Trade and other payables	1,354
Other current liabilities	233
Long-term debt	2,277
Lease liabilities	942
Deferred tax liabilities	663
Liabilities total	5,469
Goodwill	25,885
Total	33,415
Fair value of consideration paid	
Cash and cash equivalents	33,415

Goodwill generated from this business combination was attributable to the Services, Support and Others segment and was not deductible for tax purposes. Goodwill primarily represented a synergy effect with existing businesses and the excess earning power expected from the acquisition. The assets acquired were provisional as of March 31, 2020 because the purchase price allocation had not been completed. The provisional amount was calculated based on currently available information.

(7) Acquisition of subsidiary

Millions of Yen

	Amount
Consideration paid	33,415
Cash and cash equivalents of the acquired subsidiary	(6,027)
Repayments of the long-term debt	2,277
Acquisition of subsidiary	29,665

(8) Impact on the Business Performance

Disclosure of profit and loss information from the acquisition date and pro forma profit and loss information assuming the business combination was conducted at the beginning of the fiscal year ended March 31, 2020 (unaudited information), was omitted because of its immateriality for the consolidated statement of profit or loss.

TRANSLATION
This is an English translation of the original Independent Auditors Report filed under the Financial Instruments and Exchange Act of Japan, prepared in Japanese language. This report is presented merely as supplemental information. Ernst & Young ShinNihon LLC have not audited English language version of the consolidated financial statements of Advantest Corporation (the “Company”) applicable to the fiscal year from April 1, 2019 through March 31, 2020.

Independent Auditor’s Report

June 26, 2020

The Board of Directors
Advantest Corporation

Ernst & Young ShinNihon LLC

Tokyo, Japan

Certified Public Accountant
Designated and Engagement Partner Makoto Usui

Certified Public Accountant
Designated and Engagement Partner Toshiyuki Matsumoto

Certified Public Accountant
Designated and Engagement Partner Keiichi Wakimoto

Opinion

Pursuant to Article 193-2, Paragraph 1 of the Financial Instruments and Exchange Act, we have audited the accompanying consolidated financial statements of Advantest Corporation and its subsidiaries (the “Group”), which comprise the consolidated statement of financial position as at March 31, 2020, and the consolidated statements of profit or loss, comprehensive income, changes in equity, and cash flows for the year then ended, and the notes to the consolidated financial statements.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as at March 31, 2020, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards (IFRSs) pursuant to the provision of Article 93 of the Regulation for Terminology, Forms and Preparation of Consolidated Financial Statements.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in Japan. Our responsibilities under those standards are further described in the Auditor’s Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in Japan, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and the Audit and Supervisory Committee for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with IFRSs, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern and disclosing, as required by IFRSs, matters related to going concern.

The Audit and Supervisory Committee are responsible for overseeing the Group’s financial reporting process.

Auditor’s Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor’s report that includes our opinion. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

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

・Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

・Consider internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances for our risk assessments, while the purpose of the audit of the consolidated financial statements is not expressing an opinion on the effectiveness of the Group’s internal control.

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

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

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

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

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

We also provide the Audit and Supervisory Committee with a statement that we have complied with the ethical requirements regarding independence that are relevant to our audit of the financial statements in Japan, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

Conflicts of Interest

We have no interest in the Company and its consolidated subsidiaries which should be disclosed in accordance with the Certified Public Accountants Act.

2. Management Policy, Business Environment and Issues to be Addressed etc.

Future expectations included in this section are based on judgements of Advantest as of March 31, 2020**.**

*Foreign exchange assumptions for forecasts of future performance indicators under this mid/long-term management policy are 1USD = 110 yen and 1 EUR = 135 yen.

(1) Advantest's Basic Management Policy

Advantest has established a corporate vision of “Technology Support on the Leading Edge”, and mission is to contribute to the development of society through the development of cutting-edge technologies. As Advantest anticipates that semiconductors will play an increasingly important role in solving social issues, they will pursue customer value through an evolving semiconductor value chain. In carrying out this mission, all executives and employees understand the "The Advantest Way", aim to respect all stakeholders and realize a sustainable society. At the same time, Advantest strives to achieve sustainable development and enhance its corporate value over the mid/long-term.

(2) Management Strategy and Others

Embodying Advantest’s management philosophy of "enabling the leading-edge technology", has formulated a high-level roadmap starting in FY2018, which laid out the next decade of Advantest’s growth policies. It consists of a Grand Design (10 years) and Mid-Term Management Plan (3 years). Within these guidelines, Advantest will strive to create customer value and further enhance corporate value.

1. Grand Design (10 years) FY2018 – FY2027

<Vision Statement>
Adding Customer Value in an Evolving Semiconductor Value Chain

<Strategy>
Advantest’s business today focuses on the development and sales of systems for semiconductor production test. In the future, Advantest will aim to expand its business and expand corporate value by broadening its business domain to include related markets such as semiconductor design and evaluation processes and product/system level test processes, which are carried out before and after semiconductor production processes, respectively.

Toward the achievement of this long-term vision, Advantest will work on four strategic issues: reinforcing core businesses and investing strategically; seeking operational excellence; exploring value to reach the next level; and pioneering new business fields.

<Long-Term Management Goals>
¥300B - ¥400B in annual sales

<Cost / Profit Structure>
Advantest aims to balance sales growth with cost efficiency. Under the new plan, Advantest aims for a cost of sales ratio of 46%, a SG&A rate of 32%, and an operating income margin of 22% when annual sales are at the 300 billion yen level.

2. Mid-Term Plan（3 years）FY2018 – FY2020

<Management Metrics>

The new plan focuses on enhancing corporate value while remaining aware of both improvement of profit and loss and efficient utilization of capital. Based on these priorities, Advantest has determined key management metrics during the mid-term management plan period: sales, operating margin, return on equity (ROE) and earnings per share (EPS). Advantest's targets for the three-year average of each metric from FY2018 to FY2020 are as follows.

	FY2018–FY2020 average Conservative scenario	FY2018–FY2020 average Base scenario
Semiconductor Test Equipment Market Growth Rate	0%	4%
Sales	¥230B	¥250B
Operating Margin	15%	17%
Return on Equity (ROE)	15%	18%
Earnings per share (EPS)	¥135	¥170

<Key Measures>

・Semiconductor and component test system business

- Meet the wave of test demand for more complicated next generation devices such as those used in HPC (High-Performance Computing) and 5G communications
- Maintain Advantest's robust business lead in DRAM and NVM (non-volatile memory)

・Mechatronics business

- Expand sales opportunities by providing integrated test cell solutions and responding to advanced environment test demand

・Services business

- Increase post sales revenue by responding to factory automation needs, expand sales of SSD testers, pursue M&A in closely related markets

・Reinforce business management

- Introduce internal business management and evaluation tools based on ROIC (return on invested capital) to strengthen business management structure.

<Financial Policy & Shareholder Returns>

In order to strengthen its business growth infrastructure and maintain a sound financial status, Advantest aims to create a cumulative free cash flow of 85 to 100 billion yen over the period of the new mid-term management plan. Advantest believes that cash holdings of 50 to 60 billion yen are appropriate to ensure stable business activities. Regarding the use of excess funds, Advantest will prioritize business investments for growth such as M&A, R&D, facility enhancements, etc. Specifically, Advantest will set 100 billion yen as its cumulative total M&A investment frame for the mid-term management plan period.

Regarding shareholder returns, Advantest will continue its policy of improving dividend levels through the growth of earnings per share, based on a semi-annual consolidated payout ratio of 30%. However, if residuals are retained for a long time, Advantest will consider flexibly reviewing its dividend payout ratio and improving total shareholder returns by, for instance, repurchasing stock, taking into consideration of our projected growth investments.

<ESG (Environment Social Governance) Challenges>

Semiconductors will play an increasingly important role in the future in solutions for global social issues. Through semiconductor test, Advantest will contribute to a safer, more secure, more comfortable, and more sustainable future.

In addition, by training global human resources and entrepreneurship and promoting innovative work styles, Advantest aims to form a foundation for achieving its long-term strategic goals and business expansion. Furthermore, in order to make effective use of human capital, Advantest will try to shape its organizational structure into a posture of natural compliance with its business environment and management strategy.

For governance, five of eleven members of Advantest’s Board of Directors are elected outside of the company directors as of June 25, 2020. In addition, out of the eleven directors, two non-Japanese and one female are appointed to ensure the diversity of the directors.

Advantest has joined the Global Compact (UNGC) in May 2019. In April 2020, Advantest have announced support for the recommendations of the TCFD (Task Force on Climate-related Financial Disclosures). Through these efforts, Advantest will strengthen its efforts in areas such as climate change, human rights, labor, environment and anti-corruption and promote ESG management to a higher level.

(3) Business Environment and Important Measures for FY2020

In FY2020, Advantest initially expected the semiconductor market to grow steadily against the backdrop of accelerating digital transformation through 5G communications and HPC (High Performance Computing), as well as an increase in data traffic. However, with the worldwide spread of the new coronavirus (COVID-19), there is growing concern about the future of the global economy. Moreover, the intensifying trade friction between the United States and China makes it difficult to predict the outlook for the electronics industry and the semiconductor manufacturing equipment market, both of which have a close relationship with Advantest. Against this backdrop, in FY2020, Advantest’s top priority will be to respond flexibly to changes in the business environment and strive to ensure business continuity while also aiming to achieve the goals set in the Mid-Term Management Plan, which ends this fiscal year.

On the other hand, although the current business environment is uncertain, the mid/long-term business environment will not change Advantest's long-term market forecast. Advantest predicts that the semiconductor test equipment market will grow in the mid/long-term along with the expansion of the semiconductor market, despite repeated short-term fluctuations. As digital transformation spreads in society, both higher performance and reliability are required for semiconductors. This expansion of social demands increases the importance of semiconductor testing. At present, there is no change in the demand structure of the semiconductor test equipment market. Based on this structure, Advantest expects that the market for semiconductor test equipment will continue to see a certain level of business expansion after 2020, in conjunction with the expansion of commercial 5G communications services.

Under a long-term outlook, Advantest will adhere to the objectives set forth in the Long-Term Management Policy starting from FY2018 Grand Design and the Mid-Term Management Plan, and will pursue the improvement of growth foundations, improvement of periodical earnings and efficient use of capital to achieve these objectives.

< Important Measures for FY2020>

・Continue to invest for mid/long-term growth while flexibly responding to changes in external business environment

・While the market trends that will support Advantest’s mid/long-term growth, such as semiconductor performance gains and the increasing importance of test, remain unchanged, Advantest will promote measures to deepen engagement with important customers and maintain and expand market share

- Maintain and expand market share in the 5G millimeter-wave range semiconductor and high-end memory sectors
- Strengthen partnerships through comprehensive productivity and quality improvement proposals such as factory automation

・Enhance ESG management with climate change response measures

3. Risk Factors

Risks Related to Advantest's Business

The risks related to Advantest's business that may have a significant impact on investor decisions are as follows. However, these are not exhaustive of all risks related to Advantest.

Forward-looking statements in the text are based on the judgments of the Company as of the end of the fiscal year ended March 31, 2020.

a. Advantest's business and results of operations are subject to significant demand volatility in the semiconductor industry

Advantest's business depends largely upon capital expenditures of semiconductor industrial, design and manufacturing companies, fabless semiconductor companies, foundries and test houses. These companies, in turn, determine their capital expenditures and investment levels largely based on current and anticipated market demand for semiconductors and products incorporating semiconductors. Such demand is influenced significantly by overall condition of the global economy. Historically, a reduction rate of capital expenditures of semiconductor manufacturers during downturns in the semiconductor industry, including investments in semiconductor test systems, has typically been much greater than a reduction rate of worldwide semiconductor sales. The semiconductor industry has been highly cyclical with recurring periods of excess inventory, which often have had a severe effect on the semiconductor industry's demand for semiconductor test systems, including those of Advantest.

The global semiconductor market increased by 21.6% in 2017 compared to 2016 due to vigorous growth in demand for a wide range of electronic equipment. In 2018, the semiconductor market increased by 13.7% compared to 2017, by continued high growth from the previous year despite the reduced growth in the second half of the year. In 2019, the semiconductor market decreased by 12.0% compared to 2018, due to the impact of slowdown in global economic growth caused by geopolitical risks such as trade friction between the United State and China.

Global sales of SoC semiconductors increased by 9.6% in 2017, due to solid growth in demand for automotive semiconductor and data center amid the development of advances in automotive electronics. In 2018, worldwide sales of SoC semiconductors increased by 7.3% compared to 2017, due to a strong demand from investments in further functional advancement of smartphones from 2017. In 2019, worldwide sales of SoC semiconductors decreased by 3.7% compared to 2018, due to remaining demand for test equipment for smartphone at a high level throughout the period, despite a decline of end-product demand and capital investment under this economic uncertainty.

In 2017, global sales of memory semiconductors increased by 61.5% compared to 2016, due to vigorous growth in demand for data center-related semiconductors, causing active capital investment in memory semiconductor manufactures. In 2018, worldwide sales of memory semiconductors increased by 27.4% compared to 2017, due to demand from continuous investment in data center from 2017. In 2019, worldwide sales of memory semiconductors decreased by 32.6% compared to 2018, due to an oversupply of memory semiconductors.

The significant volatility in demand for semiconductors is affected by various factors such as:

- the overall state of the global economy;
- trends in the semiconductor industry;
- levels of investment in communications infrastructure and trends of demand in communication devices such as smartphones and wearable devices;

• demand in personal data center, computer and server industries;

• consumer demand for digital consumer products such as TVs, game devices, VR (Virtual Reality) / AR (Augmented Reality) devices;

• trends in the industrial equipment market, including automotive, robotics and medical equipment;

In FY2017, Advantest worked to capture demand for test equipment for memory semiconductors and automotive semiconductors, both of which have shown remarkable growth, as well as to boost sales of peripheral devices for semiconductor testing. Advantest also took steps to increase production capacity in order to keep up with the steep increase in demand. As a result, Advantest's net sales in FY2017 increased by 32.9%, as compared to FY2016, to ¥207,223 million. Gross margin was below that of the last fiscal year due to factors such as a lower proportion of highly profitable products in Advantest's product mix, and the recording of write-down to inventories in nanotechnology. Nonetheless, net income attributable to owners of the parent was ¥18,103 million due to Advantest's efforts to improve operational efficiency. Advantest expanded its market share by demonstrating its strength as a manufacturer with the most comprehensive product portfolio in the semiconductor test equipment industry and capturing demand for new products from a broad range of customers. As a result, Advantest's net sales in FY2018 increased by 36.3%, as compared to FY2017, to ¥282,456 million. Net income attributable to owners of the parent was ¥56,993 million due to an one-off profit of ¥3.5 billion including ¥2,530 million associated with the transfer of a portion of the defined benefit pension plan for the employees of Advantest Corporation and its subsidiaries in Japan to a defined contribution pension plan. In current consolidated fiscal year, major semiconductor manufacturers have actively made efforts to improve semiconductor performance, stimulating demand for semiconductor test equipment. In particular, demand in test equipment for 5G, 4G smartphone semiconductors manufactured with advanced processes remained at a high level throughout the period. However, the memory tester market shrank significantly due to an oversupply of memory semiconductors. Advantest's net sales in FY2019 decreased by 2.3%, as compared to FY2018, to ¥275,894 million. Net income attributable to owners of the parent was ¥53,532 million due to an increase in selling, general and administrative expenses.

Advantest believes that its results are significantly affected by the significant volatility of demand in the semiconductor industry. If there is a significant downturn in the semiconductor industry, Advantest's financial condition and results of operations will be adversely affected including the write-down of inventories due to excess inventory.

To reduce the risk, Advantest is going to be flexible to meet fluctuations in demand by expanding its business into adjacent semiconductor value chain markets such as semiconductor design, evaluation processes and system level test processes. Additionally, Advantest is promoting the use of outsource manufacturing for productions while continuing to strengthen services for the development of a recurring business and new businesses.

b. Advantest's business is subject to economic, political and other risks associated with international operations and sales

Advantest's business is subject to risks associated with conducting business internationally because it manufactures and sells its products, and purchases parts and components from, around the world. In FY2019, 85.7% of Advantest's total net sales came from Asia (excluding Japan), a majority of which consisted of sales in Taiwan, the People's Republic of China ("China") and Korea, 6.7% from the Americas and 2.2% from Europe. Advantest anticipates that net sales from international operations will continue to represent a substantial portion of its total net sales. In addition, some of Advantest's distribution and support subsidiaries are located in the Americas, Europe, and Asian countries, including Taiwan, Singapore, Korea and China, and some of Advantest's suppliers and factories are also located overseas, such as Korea and Malaysia. Accordingly, Advantest's future results could be harmed by a variety of factors, including:

・ risks with respect to a loss of demand for Advantest's products, inability to supply products and services, or a decline in supply capacity due to inability to procure parts due to import and export restrictions and distorted licensing systems in response to protectionist policies such as trade friction between the United States and China;

・ political and economic instability, including economic and political disruptions, disputes, natural calamities, epidemics or other risks related to countries where Advantest procures its components and parts or manufactures and sells its products;

・ risks with respect to disrupting the movement of people and the flow of goods and bringing the entire economy to a standstill caused by epidemics, including infections, spread throughout the world as the global economy develops;

・ risks with respect to procurement due to the closure or reduced operation of suppliers' production facilities in specific regions and the limited means of transportation caused by the pandemic;

・ risks with respect to social and political crises and issues resulting from deterioration in the political, economic relationships, struggle for supremacy, terrorism, war or other conflicts between countries;

・ potentially negative consequences from changes in tax laws or disagreement with National Tax Bureau;

・ risks with respect to international taxation, including transfer pricing regulations;

・ difficulty in staffing and managing widespread operations;

・ differing protection of intellectual property;

・ difficulties in collecting accounts receivable because of distance and different legal rules;

・ risks with respect to decline in the quality of procurement and manufacturing where Advantest's suppliers or manufacturing facilities are located in countries that do not have developed infrastructures in mechanical processing and assembly;

・ risks with respect to delays or stagnation in the manufacture and shipment of products by the shutdown of suppliers and production plants, the occurrence of major local disasters caused by global warming and climate change;

・ risks with respect to increases in cost, delays in delivery or expenses in repairing products where low quality and counterfeit products are mixed into the supply chain;

To reduce the risk, Advantest will work to build a system that is less susceptible to economic and political trends by collecting information on overseas risks in a timely manner, further strengthening customers and suppliers relationships, expanding procurement locations and multipleproduction sites to be more flexible.

c. Advantest has assumed the following risks associated with the spread of the COVID-19

(1) Interruptions to business / reduced efficiency due to possible infection of employees of the Advantest Group, customers, and/or suppliers
(2) Problems caused by long-term restrictions on movement and lockdowns around the world
   i) Declines in product supply capacity due to shortages of manufacturing personnel at the Advantest Group / subcontractors
   ii) Decreased ability to provide customer support due to restrictions on movement
   iii) Declines in product supply capacity due to global supply chain disruptions causing difficulties

in the procurement of materials and components

(3) Decreases in end-product demand and spillover effects to the electronics industry as a whole, and a slowdown in the semiconductor and semiconductor manufacturing equipment markets

(4) Potential significant mid-term changes in the structure of the semiconductor industry resulting from changes in customer supply chains

(5) Changes in Advantest's business environment due to changes in human behavior and society in the post-COVID-19

To reduce the risk, Advantest’s Risk Management Group , which is under the direct control of the president, conducts activities including (1) a implementation of measures that places the highest priority on the safety and health of employees, through telecommuting and banning of business trips, (2) online support for customers, (3) global understanding of production, sales, inventory and logistics conditions, (4) Business Continuity Plan in place if we have infected person, (5) interchange information of best practices and support material among group companies, and (6) cash management, in order to respond to a new coronavirus infection (COVID-19).

d. If Advantest does not introduce new products in a timely manner and at competitive prices that meets customers technical requirements, existing products will become obsolete, which will affect its financial condition and results of operations

Advantest sells its products to several industries that are characterized by rapid technological changes, frequent introduction of new products and services, varying and unpredictable product lifecycles and evolving industry standards. Advantest anticipates that future demand for its products will be driven, in large part, by technological innovation in semiconductor technology, which creates new testing requirements that are not adequately addressed by currently installed semiconductor test systems. Customer needs in response to these technological innovations, and their needs for greater cost-effectiveness and efficiency to respond to the market environment, include:

- test solutions of SoC semiconductors that incorporate more advanced memory semiconductors, logic, analog and sensor circuits;

- test solutions of power semiconductors that control small and large motor drives;

- solutions for complex SOC devices incorporating heterogeneous chips in a single advanced package e.g. 3D integration through TSV (Through Silicon Via) technology;

- solutions of parametric test for measuring and verifying electrical and timing characteristics for the characterization and monitoring of leading-edge semiconductor wafers.

- mechatronics-related products which transport devices faster, more accurately and more stably;

- test solutions of testing technologies that employ self-test circuit designs incorporated into semiconductor chips;

- test solutions of testing technologies that employ test circuit designs for device under test (DUT);

- test solutions of system level testing that guarantees performance of the final products;

- test solutions of testing temperatures for dynamic and delicate control of test environment;

- prompt response and quick repair in the event of failure;

- total solutions that allow customers to reduce their testing costs;

- solution by electron-beam metrology to enable reliable pattern critical dimension measurement or defect review on a leading-edge photomask; and

- solution by electron-beam lithography to reduce turnaround time (TAT) of IC prototyping, and to enable small-volume production of high valued devices.

Advantest also believes demand for its products, including semiconductor and component test systems, is affected by the level of demand for personal computers, high-speed wireless and wireline data services, digital consumer products, advanced driver assistance system (ADAS) and communication devices, such as smartphones, wearable devices and data center. It is likely that advances in technologies used in those products and services will require new testing systems. Without the timely introduction of semiconductor test systems which is capable of effectively testing and measuring equipment that use these new technologies, Advantest's products and services may become technologically obsolete over time.

A failure by Advantest to meet its customers' technical requirements at competitive prices or to deliver conforming equipment in a timely manner may result in its products being replaced by those of a competitor or an alternative technology solution. Furthermore, Advantest's inability to secure sufficient personnel appropriate for the business during a period of recovery or its inability to provide a product that meets requested performance criteria at an acceptable price when required by its customers would severely damage its reputation with such customers and may adversely affect future sales efforts with respect to such customers.

To reduce the risk, Advantest seeks to identify the next technological innovation, new products, and rapid creation of new markets by holding technology exchange events with leading customers and providing opportunities to exchange information on leading-edge solutions. In addition, Advantest conducts basic research on elemental technologies for the next generation, and production engineering from the initial stages of product development to prepare for mass production.

e. Advantest may not ensure management stability and sustainability if a succession plan of CEO and other personnel is not developed or does not function

Advantest formulates a succession plan of CEOs and other personnel by the Board of Directors, which plays a central role in formulating plans, after the Nomination and Compensation Committee deliberating. However, if the succession plan is not developed or does not work, management stability and sustainability may not be ensured.

To reduce the risk, Advantest recognizes the importance of succession planning, the Nomination and Compensation Committee is deliberating (1) required human resource requirements, (2) selection of candidates, (3) development of candidates over time, (4) identification of candidates by Nomination and Compensation Committee members and (5) selection of candidates.

f. Advantest's dependence on a sole source or a limited number of suppliers for its components and parts may prevent it from delivering its products on a timely basis or its failure to meet the demand for its products upon a sudden expansion of the markets may adversely affect its future market share and financial results

Advantest relies on suppliers to perform some of the assembly requirements for its products. In addition, many of the components used in Advantest's semiconductor and component test systems and mechatronics systems are produced by suppliers based on Advantest's specifications. Advantest's reliance on these suppliers may give it less control over the manufacturing process and exposes it to significant risks, especially inadequate manufacturing capacity, late delivery, substandard quality, lack of labor availability and high costs. In addition, Advantest depends on a sole source or a limited number of suppliers for a portion of its components and parts. Advantest does not maintain long-term supply agreements with most of its suppliers, and it purchases most of its components and parts through individual purchase orders. If a supplier becomes unable to provide components or parts in the volumes needed and at acceptable prices, or if a supplier withdraws from business thereby stopping production or sales of custom or general components and parts that Advantest uses or will use in the future, or a large scale natural disaster or electricity shortage occurs, Advantest would have to identify and procure acceptable replacements. Advantest may lose its capacity to supply test systems if it becomes unable to procure acceptable replacements. Suppliers have typically adjusted their production capacity through the reduction of production lines and personnel. Therefore, if the market for semiconductor and component test systems and mechatronics systems were to suddenly expand, Advantest would require significant increases in production capabilities including personnel, as well as materials, components and supplies from suppliers, in order to fully capitalize on such expansion. Furthermore, the markets for semiconductors and other specialized components had, in the past, experienced periods of inadequate supply to meet demand. Moreover, there may be a shortage of components if a large-scale natural disaster or electricity shortage occurs. The process of selecting suppliers and of identifying suitable replacement components and parts is lengthy and may result in Advantest being unable to deliver products meeting customer requirements in a timely manner. Advantest has, in the past, been unable to deliver its products according to production schedules primarily due to the inability of suppliers to supply components and parts based on Advantest’s specifications and by other shortages in components and parts. Moreover, a deterioration in the financial position of Advantest’s suppliers reflecting the decline in the economic environment or the failure of Advantest to adjust to large increases in demand for its products during the period of recovery in demand could result in Advantest losing one or more of its existing large-volume customers or losing the opportunity to establish a strong relationship with potential large-volume customers with which it currently does little or no business. Such failure may adversely affect Advantest’s future market share and its financial results.

To reduce the risk, in accordance with for product design best practices, taking into account the latest technology, determined by Advantest internal working group. By doing so, Advantest is able to create and update a standard parts list of multiple potential suppliers, taking into account the parts lifecycle, while also looking to standardize parts and designs, and to build a systems which are not overly reliant on specific suppliers. In addition, it is important to consider various risks when selecting suppliers for components and parts. Furthermore, when selecting these suppliers, Advantest takes various risks into consideration and search for the best partners, and continuously evaluate and review them.

g. Advantest faces substantial competition in its businesses and, if Advantest does not maintain or expand its market share, its business may be harmed

Advantest faces substantial competition throughout the world. Advantest’s primary competitors in the semiconductor and component test system market include, among others, Teradyne, Inc., Cohu, Inc., YIK Corp., UniTest Inc. and EXICON Ltd. In the mechatronics system related market, Advantest also competes with Cohu, Inc., TechWing, Inc., and Hon. Technologies, Inc. in test handler devices, and with TSE Co., Ltd., ESA Electronics Pte Ltd.、TFE Inc. and TechWing, Inc. in device interfaces. Some of Advantest’s competitors have greater financial and other resources than Advantest.

Advantest faces many challenges in its businesses, including increased pressure from customers to produce semiconductor and component test systems and mechatronics systems that reduce testing costs or from customers who have developed internal test solutions. For device interfaces, acquisition of vendors that supply core technical components by Advantest’s competitors, or leakage of the manufacturing technology of printed circuit boards, may result in reduced testing costs by customers or difficulty by Advantest to realize its products’ full performance.

To compete effectively and maintain and expand its market share, Advantest must continue to enhance its business processes to lower the cost of its products or introduce enhancements that lower overall testing costs. Advantest also expects its competitors to continue to introduce new products with improvements in price and performance, as well as increasing their customer service and support offerings, and Advantest expects new market participants to launch low-price testers. Significant increases in competition may weaken Advantest's earnings.

To reduce the risk, Advantest strives to understand customer needs, analyze the competitive landscape, and provide unique technologies and value-added solutions to ensure that our products remain competitiveness.

h. Advantest may not be able to meet the targets set in its strategies and mid/long-term management goals

The attainment of goals such as those in mid/long-term management goals are subject to various internal and external factors, including the general economic and market conditions in which Advantest and its customers operate, the level of competition, the level of corporate capital expenditure, the level of demand for Advantest's products and fluctuations in exchange rates. As a result, any strategies and mid/long-term management goals and targets (as amended from time to time) should not be treated as forecasts of future results. There can be no assurance that Advantest's strategies to accomplish mid/long-term management plans and implementation of such strategies will be successful, that the implementation of its strategies will have the intended effects, that the mid/long-term management goals or other targets (whether quantitative or qualitative, and as amended from time to time) will be met, or that such goals, targets and aims will not be changed in the future by Advantest's management.

To achieve these targets, Board of Directors and Board of Managing Directors and the Internal Control Committee conduct risk analysis to continuously verify scenarios of what changes will have an impact on performance.

i. Advantest has top tier customers that account for a significant part of the net sales and thus has risk of losing those customers or fluctuations in their investment. Additionally, Advantest may not be able to recover trade receivables if top tier customers experiences a deterioration in their financial position

Advantest's success depends on its continued ability to develop and manage relationships with its major customers. A small number of such major customers currently account for a significant portion of its net sales. Sales to Advantest's five largest customers accounted for approximately 37% in FY2018 and approximately 30% in FY2019. The success and loss of one or more of these major customers, changes in their capital expenditures or failure of their main products could materially harm Advantest's business. Furthermore, if Advantest's major customers experience deterioration in their financial position and are unable to fulfill their payment obligations to Advantest in accordance with the applicable terms, Advantest's business, results of operations and financial position may be adversely affected.

To reduce the risk, Advantest seeks to gain broad customer base by entering new markets and developing new customers and emerging market, while paying attention to operating efficiency.

j. Advantest's product lines are facing price pressure

Price pressure on Advantest's businesses is adversely affecting Advantest's operating margins. Irrespective of the trend in the demand for semiconductors, there is ongoing price pressure on semiconductors, which puts continuous pressure on the market price for products in the Semiconductor and Component Test System Segment and Mechatronics System Segment. During periods when there is rapid decrease in semiconductor prices, semiconductor manufacturers, foundries, and test houses, which are Advantest's customers, seek to increase their production capacities while minimizing their capital expenditures. In addition, increased competition in the market for digital consumer products, personal computers, mobile devices such as smartphones and wearable devices, data servers and automotive semiconductors have driven down prices of these goods, subsequently creating price pressure on Advantest's product lines. If prices of semiconductors continue to decline, customers may postpone capital expenditures on new equipment by remodeling or adapting the usage of existing equipment. In recent years, the number of customers adopting two-vendor systems has increased, and it making Advantest face further price pressure. If price pressure further increases in the future, Advantest's financial condition and results of operations may be adversely affected.

To reduce the risk, Advantest attempts to maintain product price at a level that satisfies their customers by providing our proprietary technologies and solutions of high value solution. At the same time, Advantest works continuously to improve profitability by reducing production costs.

k. Fluctuations in exchange rates could reduce Advantest's profitability

The majority of Advantest's net sales are derived from products sold to customers located outside of Japan. Of Advantest's FY2019 net sales, 94.6% were from products sold to overseas customers. Approximately 66% of Advantest's net sales in FY2019 were derived from currencies other than the Japanese yen, predominantly the U.S. dollar. If the Japanese yen becomes strong relative to foreign currencies (mostly the U.S. dollar), it may adversely affect Advantest's sales because it cannot necessarily pass on product price.

With respect to the Euro, if the Japanese yen weakens, there may be a negative impact on Advantest's profitability since there are currently more costs incurred in Euro than net sales derived in Euro.

In addition, significant fluctuations in the exchange rate between the Japanese yen and foreign currencies, especially the U.S. dollar, could require Advantest to lower its prices with respect to foreign sales of its products that are priced in Japanese yen, and reduce the Japanese yen equivalent amounts of its foreign sales for products that are based in U.S. dollars or other foreign currencies, thereby reducing its profitability overall. These fluctuations could also cause prospective customers to push out or delay orders because of the increased relative cost of Advantest's products. In the past, there have been significant fluctuations in the exchange rate between the Japanese yen and the foreign currencies in which Advantest's sales are denominated.

Furthermore, Advantest's consolidated financial statements for a particular period or for a particular date will be affected by changes in the prevailing exchange rates of the currencies in which subsidiaries of Advantest prepare their financial statements against the Japanese yen. Foreign exchange rate fluctuations may have an effect on those amounts not denominated in yen which are translated into yen for Advantest's consolidated financial statements, and depending on the direction of the foreign exchange fluctuation, it may have an adverse effect on Advantest's reported financial position, results of operations and net assets.

To reduce the risk, in addition to rebalancing currency holdings, Advantest strives to reduce the impact of currency fluctuations through the use of foreign exchange contracts and other financial instruments, and balance sheet management to ensure that foreign currency denominated assets and liabilities are offset.

l. Advantest may not recoup costs incurred in the development of new products

Enhancements to existing products and the development of new generations of products are, in most cases, costly processes. Furthermore, because the decision to purchase semiconductor and component test systems products and mechatronics systems generally involves a significant commitment of capital, the sale of this equipment typically involves a lengthy sales period and requires Advantest to expend substantial funds and sales efforts to secure the sale. Advantest's enhancements or new generations of products may not generate net sales in excess of development and sales costs if, for example, these new enhancements or products are quickly rendered obsolete by changing customer preferences, the introduction by Advantest's competitors of products embodying new technologies or features, the introduction by Advantest's customers of new products that require different testing functions or the failure of the market for Advantest's customer's products to grow at the rate, or to the levels, anticipated by Advantest. In some cases, Advantest must anticipate industry trends and develop products in advance of the commercialization of its customers' products. This requires Advantest to make significant investments in product development well before it determines the commercial viability of these innovations. If Advantest's customers fail to introduce their devices in a timely manner or the market rejects their devices, Advantest may not recover its investments in product development through sales in significant volume.

To reduce the risk, Advantest attempts to improve return on investment by developing product roadmaps that meet customer needs through technology exchange meetings, improving development efficiency through the creation of product platforms, and strengthening marketing through proactive evaluation of investment returns with ROIC and innovative product development.

m. The market for Advantest's major products is highly concentrated, and Advantest may not be able to increase sales of its products because of limited opportunities

The market for test systems for memory semiconductors in the Semiconductor and Component Test System Segment is highly concentrated, with a small number of large semiconductor manufacturers, foundries and test houses accounting for a large portion of total sales in the semiconductor and component test system industry. Advantest believes that this market concentration could become even more severe in the future as larger semiconductor device manufacturers, foundries and test houses acquire semiconductor market participants, and as corporate restructuring, such as elimination and consolidation of businesses, progresses. Advantest's ability to increase sales will depend in large part upon its ability to obtain or increase orders from large-volume customers. Furthermore, in the event there is an over-supply of semiconductor and component test system products on the second-hand market reflecting, among others, restructuring within the industry, or delay to meet the specific needs of Advantest's customers, Advantest faces an additional risk of losing its sales opportunities.

To reduce the risk, Advantest develops products for a variety of applications to strengthen customer partnerships and avoid missed opportunities. On the other hand, Advantest aims to expand its business domain by launching new businesses and M&A.

n. Goodwill and intangible assets resulting from Advantest business acquisitions could have a material adverse effect on Advantest's financial condition and results of operations due to significant impairment charge

If there is any indication of impairment for property, plant and equipment, goodwill and intangible assets, the assets are tested for impairment. Goodwill is tested for impairment both annually and when there is any indication of impairment. An impairment loss is recognized if the recoverable amount of an asset, cash-generating unit (CGU) or CGU group is less than its carrying amount. Especially, if goodwill and intangible assets resulting from acquisitions do not have the expected synergy effects, Advantest may be required to record a significant impairment charge, which could have a material adverse effect on Advantest's financial condition and results of operations.

To reduce the risk, when acquiring a business through M&A and other means, investments should be made taking into consideration the time it will take to recover the capital cost. Furthermore, after the acquisition, Advantest will be able to organically function in terms of strategy, sales network, management system, employee awareness and information systems. In order to achieve synergies, Advantest will execute Post Merger Integration (PMI) plan and aim to realize the effects as soon as possible.

o. If Advantest's main facilities for research and development, production or information technology systems for its businesses, or the facilities of its subcontractors and suppliers, were to experience catastrophic loss, its results of operations would be seriously harmed

Advantest's main facilities for research and development for its Semiconductor and Component Test

Systems and Mechatronics System Segments production, as well as Advantest's service bases, are located in Gunma Prefecture, Saitama Prefecture and Miyagi Prefecture in Japan. In addition, the main system server and the network hub are maintained in system centers approved by the Information System Management System, or ISMS, and local network servers are located in certain operations offices in Japan.

Japan is a region that is susceptible to frequent earthquakes. If Advantest's facilities, particularly its semiconductor and component test system manufacturing factories, were to experience a catastrophic loss from, but not limited to, earthquakes or floods, it would materially disrupt Advantest's operations, delay production, shipments and revenue, and may result in large expenses to repair or replace the facilities. Advantest has insurance to cover most potential losses at its manufacturing facilities, other than those that result from earthquakes. However, this insurance may not be adequate to cover all possible losses. Similar disruptions to Advantest's business may occur if the facilities of Advantest's subcontractors and suppliers or if the facilities of Advantest's information system network were to experience a catastrophic loss.

Advantest has prepared itself for crises such as large-scale natural disasters, and each department of Advantest has documented its own disaster-response procedures and manuals. Furthermore, in order to prevent any disruption of its core businesses, or in case of suspension, to re-start the suspended businesses, including the recovery of important facilities, in the shortest possible time, Advantest formulated and implemented a "Business Continuity Plan". However, if such Business Continuity Plan is not effective, Advantest's core businesses could be disrupted at a time of crisis, such as large-scale natural disasters, and could take a substantial amount of time to recover.

To reduce the risk, Advantest has a developed a business continuity plan to ensure that business operations are not interfered with decentralizing production facilities and suppliers. Additionally, Advantest stores corporate records and data in a cloud system.

p. Advantest may not be able to recover its capital expenditures

Advantest continues to make capital expenditures. From FY 2012 through FY2013, Advantest built a new factory in South Korea in order to increase its share of sales to major Korean customers. The factory began operating in May 2013. Advantest may not be able to recover the capital expenditures for such projects within the assumed timeframe, or at all, if it cannot achieve the assumed volume of sales due to customers cutting back on capital expenditures or if intense competition with competitors results in a reduction in unit prices. In such event, the asset would be subject to impairment, which may have an adverse impact on Advantest's profitability.

To reduce the risk, Advantest decides capital expenditures after the review of return on investment based upon capital cost. Advantest also continues to monitor the expected growth rate which is an investment effect, and continue to consider the optimal future investment decision.

q. Advantest's financial position and business result may be negatively affected by damage of credit or brand power

Advantest may experience damage of credit and brand power by a decline in the performance and reliability of a product or an act that violates laws or social ethics which may result in suspension of trading, sanctions or other social measures.

To reduce the risk, Advantest undertakes design review at the initial design stage and cross-references with the quality assurance division to provide products with high reliability. Advantest also established the Compliance Committee to maintain the credibility, and it performs activities to raise awareness of legal compliance that have been carried out.

r. Chemicals used by Advantest may become subject to more stringent regulations, and Advantest may be required to incur significant costs in adapting to new requirements

Advantest uses chemicals in the manufacturing of its products, the manufacture, processing and distribution of which are subject to environmental related laws, regulations and rules of Japanese governmental agencies, as well as by various industry organizations and other regulatory bodies in other countries. These regulatory bodies may strengthen existing regulations governing chemicals used by Advantest and may also begin to regulate other chemicals used by Advantest. While Advantest is taking measures to eliminate toxic substances included in parts used to manufacture its products, Advantest uses solder, which contains lead for mounting electronic parts and components for its products except for some of them, in order to ensure the reliability of its products as a matter of priority. Further, as a method to cool some of its semiconductor and component test systems and mechatronics systems, Advantest uses fluorinated liquid which use is not currently regulated by laws. Advantest believes that it is in compliance with regulations with respect to the use of chemicals by promoting environmental policies for its products with the focus on ensuring the safety and the reliability of its products; however, Advantest must be prepared to adapt to regulatory requirements in all relevant countries as requirements change. Advantest may be required to incur significant cost in adapting to new requirements. Any failure by Advantest to comply with applicable government or industry regulations could result in restrictions on its ability to carry on with or expand sales of its products.

To reduce the risk, Advantest seeks to find alternative technology as well as monitor environmental regulations for chemical materials.

s. Advantest is at risk of not being able to raise funds when necessary

As for the working capital requirements, Advantest shall appropriate the cash and deposits earned from its operating activities. In the event that it becomes necessary to raise funds due to an acquisition or a sudden downturn in economic conditions, it may issue bonds or borrow funds from financial institutions. In the event of financial market instability or a reduction in Advantest's credit rating due to a deterioration of creditworthiness, there is no guarantee that Advantest will be able to procure funds in a timely manner, which could affect the results of operations and financial position.

To reduce the risk, Advantest have built a strong financial position to withstand sharp demand fluctuations. Furthermore, Advantest maintains friendly relations with several financial institutions to enable the immediate borrowing of funds and the establishment of commitment lines when necessary.

t. Advantest could suffer significant liabilities, litigation costs or licensing expenses or be prevented from selling its products if it is infringing on the intellectual property of third parties

Advantest may be unknowingly infringing on the intellectual property rights of third parties and may be held responsible for that infringement. To date, Advantest has not been the subject of a material intellectual property claim. However, any future litigation regarding patents or other intellectual property infringement could be costly and time consuming and divert management and key personnel from Advantest’s business operations. If Advantest loses a claim, it may be forced to pay significant damages, pay license fees, modify its products or processes, stop making products or stop using processes. A license could be very expensive to obtain or may not be available at all. Changing Advantest’s products or processes to avoid infringing on the rights of third parties may be costly or impractical.

To reduce the risk, Advantest makes an effort to conduct research on intellectual property to not infringe on other companies' intellectual property throughout R&D stage and prior to product shipment.

u. Advantest may be unable to protect its proprietary rights due to the difficulty of Advantest gaining access to, and investigating, the products believed to infringe on Advantest's intellectual property rights

Advantest relies on patents, utility model rights, design rights, trademarks and copyrights obtained in various countries to actively protect its proprietary rights. For instance, with respect to the device interface market, Advantest has taken legal action based on its patent and utility model rights against manufacturers that sell replicas of Advantest's products and, in some instances, has obtained injunctions against sales of such replicas. Advantest's business could have a material adverse effect upon Advantest's market share and business results if Advantest is unable to protect its proprietary rights.

While, in general, it is difficult for Advantest to gain access to, and investigate, the products believed to infringe on its intellectual property rights. Therefore, Advantest cannot ensure that its intellectual property rights will provide meaningful protection of its proprietary rights.

Nevertheless, Advantest believes it is important to protect its intellectual property rights from third party infringement and will continue to monitor infringement of its intellectual property. Avantest will also communicate compliance to the customers.

v. The labor market is very competitive, and Advantest's business could have a material adverse effect upon Advantest's business operations and business results if Advantest is unable to hire and retain diverse technical experts and important staff for operations

In order to develop business in the rapidly changing electronics industry, Advantest needs to secure a diverse range of human resources who are familiar with R&D, manufacturing, marketing, sales and maintenance services and other technical experts. In addition, Advantest believes it is important to continuously develop and maintain human resources with management capabilities such as business strategy and organizational management.

Therefore, in addition to hiring new graduates, Advantest employs and secures a wide range of experienced personnel on a global basis, continuously review personnel systems and conduct employee education, as well as strive to establish and develop employees.

However, the competition for continuously hiring and retaining the necessary personnel is fierce. If Advantest does not proceed as planned or becomes less attractive to employees, it would result in the outflow of human resources due to the group's system becoming unattractive caused by a delay of improvements in the working environment. Thus, Advantest's business could have a material adverse effect upon Advantest's business operations and business results.

To reduce the risk, in addition to recruiting based on long-term view and job rotation upon a global basis, Advantest tries to stabilize the workforce by improving the working environment and improving engagement.

w. If Advantest is unable to promptly proceed with Digital Transformation of Core systems and processes on business, Advantest's business results could have a material adverse effect

Digital Transformation is an initiative to increase the competitiveness of companies with data and digital technologies. There are high expectations for digital transformation in a wide range of fields, including the utilization using IoT and artificial intelligence to revolutionize manufacturing floor, the creation of new value through the sharing of data between production facilities and logistics, and the response to changes in the business environment brought about by the COVID-19.

However, as proceeding with Digital Transformation if Advantest is unable to make full use of date due to the aging, complexity, and black-boxing of existing IT systems, or to keep resources for IT investment that utilizes new digital technology due to funds and human resources are dedicated the maintenance of existing systems, it loses competitiveness, the maintenance cost of the old system becomes high, or system problems and data loss occur by the retirement of system maintenance operation person in charge or the aging of the population, Advantest's business results could have a material adverse effect.

To reduce the risk, Advantest reviews IT systems and considers applications continuity and alternatives to new market technologies. Advantest is also working to expand the Digital Workplace (Workplaces created by digital technologies) concept worldwide and connect it to opportunities for organizations to innovate.

x. Damage, interference or interruption to Advantest's information technology networks and systems could hinder business continuity and lead to substantial costs or harm Advantest's reputation

Advantest relies on various information technology networks and systems, some of which are managed by third parties, to process, transmit and store electronic information, including confidential data, personal information and to carry out and support a variety of business activities, including manufacturing, research and development, supply chain management, sales and accounting. Advantest has the Information Security Committee to create policies on information security measures. The IT section builds and operates the information and technology network and system based on the above-mentioned policies. However, attacks by hackers or computer viruses, wrongful use of the information security system, careless use, accidents or disasters could undermine the defenses established by Advantest and disrupt business continuity, which could not only risk leakage or tampering of information but could also result in a legal claim, litigation, damages liability or an obligation to pay fines. If this were to occur, Advantest's reputation could be harmed, Advantest could incur substantial costs, and it may have a material adverse effect upon Advantest's financial condition and results of operation.

To reduce the risk, Advantest constantly monitors cyber-attacks to enhance their detection and establishes a CISRT (Computer Incident Security Response Team) system to promptly respond to accidents. At the same time, Advantest strives to improve employee awareness through regular information security education.

y. Product defects and any damages stemming from Advantest's product liability could harm Advantest's reputation among existing and potential customers and could have a material adverse effect upon Advantest's business results and financial condition

Advantest manufactures its products in accordance with internationally accepted quality control standards such as ISO 9001. However, Advantest cannot guarantee that there are no defects in its products. Advantest maintains product liability insurance but cannot guarantee that such insurance will sufficiently cover the ultimate amount of damages with respect to Advantest's liabilities. Therefore, shipping stoppage and delivery delay due to quality defects of parts or manufacturing defects of products, large scale accidents due to product defects or any discovery of defects in its products could harm Advantest's reputation for not adequately addressing defects, could cause Advantest to incur higher costs, could result in claims for damages and could have a material adverse effect upon Advantest's business results and financial condition.

To reduce the risk, Advantest seeks to secure products reliability by checking with the quality assurance division.

4. Management's Discussion and Analysis
(1) Analysis of Results of Operations

1) Statement of Operations

	Fiscal year ended March 31, 2019 (Millions of Yen)	Fiscal year ended March 31, 2020 (Millions of Yen)	Change (Millions of Yen)	Change (%)
Net sales	282,456	275,894	(6,562)	(2.3)
Cost of sales	(128,417)	(119,397)	9,020	(7.0)
Selling, general and administrative expenses	(93,100)	(97,751)	(4,651)	5.0
Other income (expenses), net	3,723	(38)	(3,761)	—
Operating income	64,662	58,708	(5,954)	(9.2)
Operating income ratio	22.9%	21.3%	(1.6)%	—
Financial income (expenses), net	1,549	(134)	(1,683)	—
Income before income taxes	66,211	58,574	(7,637)	(11.5)
Income taxes	(9,218)	(5,042)	4,176	(45.3)
Net income	56,993	53,532	(3,461)	(6.1)
Net income attributable to: Owners of the parent	56,993	53,532	(3,461)	(6.1)

During Advantest’s FY2019, the global economy was affected by the extended concern over the prolonged trade friction of protectionist trade policies and the global epidemic of the new coronavirus (COVID-19) since the beginning of 2020 which has increased further uncertainties. Although different restrictions have been imposed in each country, our production system is severely restricted at the moment due to travel bans and lockdowns caused by the COVID-19. Our support capabilities have also declined due to the inability of our engineers to move freely. In addition, supply chains around the world are also fragmented, and we have encountered procurement problem,

Amid this economic uncertainty, end-product demand and capital investment in a wide range of industries including electronics, automobiles, and industrial equipment slumped, and semiconductor demand suffered the impact of these declines. The semiconductor market in 2019 resulted in negative growth, opposing to the strong growth of 2018. As a result, many semiconductor manufacturers, especially in the memory sector, which has become more sensitive to inventory excesses, have been making production adjustments and reviewing their capital investment plans.

On the other hand, demand for semiconductor test equipment is influenced by not only device production volumes but also semiconductor technological evolution. As advanced processes enable the integration of more circuits on semiconductors, the performance of chips is improving and the importance of semiconductor reliability is increasing. As a result, the complexity of functional test and semiconductor test time are also increasing and stimulating test equipment demand.

The current consolidated fiscal year, major semiconductor manufacturers have actively made efforts to improve semiconductor performance, stimulating demand for semiconductor test equipment. In particular, demand for test equipment for 5G, 4G smartphone semiconductors manufactured with advanced processes remained at a high level throughout the period. However, the memory tester market shrank significantly due to an oversupply of memory semiconductors.

Regarding the future impact of COVID-19, although some countries are constrained in terms of production due to the restrictions on movement, but we do not anticipate that it will be obstacle because other countries are compensating for these declines. However, we think the rapid deterioration of the global economy will eventually affect not only problems on the supply side but also the semiconductor market and semiconductor manufacturing equipment market. It is still hard to predict how much impact it will have on demand, so we will try to respond flexibly by monitoring the situation carefully and attentively exchanging detailed information with our customers on the situation.

Average currency exchange rates in the current fiscal year were 1 USD to 109 JPY (110 JPY in the previous fiscal year) and 1 EUR to 121 JPY (129 JPY in the previous fiscal year).

Net sales

Although demand for test equipment for 5G, 4G smartphone semiconductors remained at a high level throughout the period, the memory tester market shrank significantly due to an oversupply of memory semiconductors. Advantest's net sales decreased by ¥6,562 million or 2.3%, compared to FY2018 to ¥275,894 million in FY2019.

Cost of sales

In FY2019, cost of sales decreased by ¥9,020 million, or 7.0%, compared to FY2018 to ¥119,397 million. This decrease was mainly due to decrease in net sales. Cost of sales to net sales ratio was 43.3%, a decrease of 2.2% from FY2018 because of a higher proportion of profitable products in Advantest's product mix.

Selling, general and administrative expenses

In FY2019, selling, general and administrative expenses increased by ¥4,651 million, or 5.0%, compared to FY2018, totaling to ¥97,751 million in addition to decrease of net sales due to increased Advantest's R&D and support personnel resources for enhancement in future growth foundation, partially offset by the decrease in net sales.

Other income (expenses), net

In FY2019, other income (expense), net decreased by ¥3,761 million compared to FY2018 to a loss of ¥38 million. This decrease was mainly due to other income in FY2018 including an one-off profit of ¥3.5 billion including ¥2,530 million associated with the transfer of a portion of the defined benefit pension plan for the employees of Advantest and its subsidiaries in Japan to a defined contribution pension plan in addition to a loss from the sale of fixed assets recognized in FY2019.

Operating income

As a result of the above, in FY2019, Advantest's operating income decreased by ¥5,954 million, or 9.2%, compared to FY2018, resulting in operating income of ¥58,708 million. Operating income to net sales ratio was 21.3%, a decrease of 1.6% from FY2018.

Financial income (expenses), net

In FY2019, net financial income decreased by ¥1,683 million compared to FY2018 to a loss of ¥134 million. This was mainly due to the expense arising from changes in the fair value of the contingent consideration included in the business transfer and a decrease in foreign exchange gains compared to the previous year due to the fall of the euro against the dollar.

Income before income taxes

As a result of the above, income before income taxes decreased by ¥7,637 million, or 11.5%, compared to FY2018, resulting in income before income taxes of ¥58,574 million in FY2019.

Income taxes

In FY2019, Advantest's effective tax rate was 8.6%, while the effective income tax rate for FY2018 was 13.9%. For more details on income taxes of Advantest in FY2019 and FY2018, see note 16 under "Notes to Consolidated Financial Statements" in "1. Consolidated Financial Statements".

Net income attributable to owners of the parent

As a result of the above, in FY2019, Advantest's net income attributable to owners of the parent decreased by ¥3,461 million, or 6.1%, compared to FY2018, resulting in an income of ¥53,532 million. Net income attributable to owners of the parent to net sales ratio was 19.4%, a decrease of 0.8% from FY2018.

2) Result of Production, Orders received and Sales

a. Production results

Advantest manufacturing is principally based on customer orders, and since the production results are similar to sales results, production results are not listed.

b. Orders received and Backlog by Segment

The results of orders received for the fiscal year ended March 31, 2020 by segment are as follows.

	Orders received (Millions of Yen)	Change (%)	Backlog (Millions of Yen)	Change (%)
Semiconductor and Component Test System Segment	192,592	(6.9)	40,702	(10.1)
Mechatronics System Segment	36,240	(4.0)	12,713	(0.4)
Services, Support and Others Segment	59,087	92.6	37,585	123.3
Elimination	(79)	―	―	―
Total	287,840	4.6	91,000	21.6

(Note) 1. Amounts are excluding consumption tax and others, including inter-segment internal transfer sales.

2. The main reason for decrease in orders received in the “Service, Support and Others Segment” is described in “3) Operations by Segment”.

c. Sales results

The results of sales for the fiscal year ended March 31, 2020 by segment are as follows.

	Amount (Millions of Yen)	Change (%)
Semiconductor and Component Test System Segment	197,154	(6.9)
Mechatronics System Segment	36,293	(7.5)
Services, Support and Others Segment	42,526	34.9
Elimination	(79)	―
Total	275,894	(2.3)

(Note) 1. Amounts are excluding consumption tax and others, including inter-segment internal transfer sales.

2. There were no customers whose sales accounted for more than 10% of total sales in the previous or current fiscal year.

3) Operations by Segment

Semiconductor and Component Test System Segment

In FY2019, net sales of Advantest’s Semiconductor and Component Test System Segment was accounted for 71.5% of total net sales.

In the Semiconductor & Component Test System segment, orders and net sales were sluggish overall as a result of lower end-product demand. In particular, orders for display-related test equipment decreased significantly. On the other hand, a number of major manufacturers of application processors and baseband processors, the core semiconductors used in smartphones, are aggressively developing next-generation products for 5G and preparing for mass production of these devices, which sustained strong demand for smartphone SoC test equipment. Additionally, as data center investment began to recover, orders for test systems for HPC (high performance computing) SoCs, mainly logic semiconductors, increased, and in the second half of the year, customers also recovered their appetite for investment in memory test systems.

As a result, net sales of Advantest’s Semiconductor and Component Test System Segment for FY2019 decreased by ¥14,563 million, or 6.9%, compared to FY2018 to ¥197,154 million, and segment income increased by ¥97 million, or 0.1%, compared to FY2018 to ¥65,155 million.

Mechatronics System Segment

In FY2019, net sales of Advantest's Mechatronics System Segment accounted for 13.2% of total net sales.

In the Mechatronics System Segment, orders for nanotechnology products were sluggish due to lumpiness in customer investment schedules. Additionally, the prolonged slowdown in the memory semiconductor market impacted sales of test equipment peripherals, which are highly correlated to the memory test business.

As a result, net sales of Advantest's Mechatronics System Segment for FY2019 decreased by ¥2,936 million, or 7.5%, compared to FY2018 to ¥36,293 million, and segment loss improved by ¥215 million compared to a loss of ¥712 million for FY2018 to a loss of ¥497 million.

Services, Support and Others Segment

In FY2019, net sales of Advantest's Services, Support and Others Segment accounted for 15.4% of total net sales.

In the Services, Support and Others Segment, in addition to stable demand for services, the system level test business that Advantest acquired from US company Astronics Corporation in February 2019 delivered strong orders. Essai, Inc., another US company acquired in January 2020, also contributed to robust expansion of this segment's business. Furthermore, as SSDs (Solid State Drives) gained popularity, demand for SSD test systems also increased. On the other hand, amortization of intangible assets in this segment increased in the form of one-time expenses related to the acquisition of Essai and the transfer of Astronics' business.

As a result, net sales of the Services, Support and Others Segment increased by ¥11,012 million, or 34.9%, compared to FY2018 to ¥42,526 million, and segment income decreased by ¥1,276 million, or 30.1%, compared to FY2018 to ¥2,966 million.

4) Sales by Geographic Markets

Advantest's overseas sales as a percentage of total sales was 94.6% for FY2019 (94.7% in FY2018).

Japan

Net sales in Japan decreased by ¥92 million, or 0.6%, compared to FY2018 to ¥14,789 million in FY2019.

Asia (excluding Japan)

Net sales in Asia (excluding Japan) decreased by ¥10,352 million, or 4.2%, compared to FY2018 to ¥236,520 million in FY2019. This decrease was mainly due to a weak demand of SoC test systems for display driver ICs, and memory test systems for DRAM in Taiwan, and strong demand of SoC test systems for semiconductors used in smartphones such as application processors in China.

Americas

Net sales in the Americas increased by ¥4,942 million, or 36.4%, compared to FY2018 to ¥18,521 million in FY2019.

Europe

Net sales in Europe decreased by ¥1,060 million, or 14.9%, compared to FY2018 to ¥6,064 million in FY2019.

(2) Analysis of Financial Condition and Cash Flows

1) Liquidity and Capital Resources

In accordance with Advantest's funding and treasury policy, which is overseen and controlled by its Accounting Department, Advantest funds its cash needs through cash from operating activities and cash and cash equivalents on hand, and is able to procure funds as necessary through issuance of debt and equity securities in domestic and foreign capital markets and through obtainment of bank loans.

If conditions in the semiconductor industry, and thus the semiconductor and component test system industry, experience a downturn in the mid-term, Advantest may need to fund future capital expenditures and other working capital needs through the incurrence of issuance of debt or dilutive issuances of equity securities.

Advantest issued ¥25.0 billion in corporate bonds in Japan on May 25, 2012, of which ¥10.0 billion was repaid in May 2015 and ¥15.0 billion was repaid in May 2017.

Advantest issued Zero Coupon Convertible Bonds (Euroyen bonds with stock acquisition rights) in the aggregate principal amount of ¥30.0 billion on March 14, 2014. These were exercised by February 28, 2019 and no bonds remain outstanding.

2) Cash Flows

Advantest's cash and cash equivalents balance increased by ¥7,760 million to ¥127,703 million as of March 31, 2020.

Cash flows from operating activities

Net cash provided by operating activities was ¥66,475 million, as a result of ¥58,574 million in income before income taxes, decrease of ¥6,125 million in trade and other receivables and increase of ¥1,907 million in inventories, and an adjustment of noncash items such as depreciation. Net cash provided by operating activities increased by ¥21,683 million in FY2019 compared to ¥44,792 million in FY2018. The main reason for the increase in FY2019 was due to the decrease in trade and other receivables.

Cash flows from investing activities

Net cash used in investing activities was ¥38,819 million in FY2019, of which payments for acquisition of subsidiary was accounted for ¥29,665 million, purchases of property, plant and equipment was accounted for ¥8,141 million and others. The increase by ¥22,904 million compared to ¥15,915 million in FY2018 was primarily due to the payments for acquisition of subsidiary in FY2019.

Cash flows from financing activities

Net cash used in financing activities was ¥17,916 million in FY2019, of which dividends paid was accounted for ¥16,427 million and others. The increase by ¥4,192 million in FY2019, compared to net cash used by financing activities in the amount of ¥13,724 million in FY2018 was primarily due the payments of dividend.

3) Assets, Liabilities and Equity

Total assets as of March 31, 2020 amounted to ¥355,777 million, an increase of ¥51,197 million compared to March 31, 2019, primarily due to an increase of ¥24,906 million in goodwill and intangible assets due to payments for acquisition of subsidiary, an increase of ¥11,184 million in right-of-use assets and an increase of ¥7,760 million in cash and cash equivalents.

The amount of total liabilities as of March 31, 2020 was ¥124,325 million, an increase of ¥18,476 million compared to March 31, 2019, primarily due to an increase of ¥11,288 million in lease liabilities.

The amount of total equity or equity attributable to owners of the parent as of March 31, 2020 was ¥231,452 million, an increase of ¥32,721 million compared to March 31, 2019 primarily due to an increase of retained earnings and disposition of treasury stock.

Equity attributable to owners of the parent to assets ratio was 65.1% as of March 31, 2020, a decrease of 0.1 percentage points from March 31, 2019.

(3) Progress of Mid-Term Plan

The FY 2019 is the second year of the mid-term business plan. Over past two years, due to the expansion of the tester market and Advantest's market share gains, results have exceeded the target values of all KPIs under the base scenario.

	FY2018	FY2019	Mid-Term Plan (FY2018-FY2020 Average)	
			Conservative	Base
Sales	¥282.5B	¥275.9B	¥230.0B	¥250.0B
Operating Margin	22.9%	21.3%	15%	17%
Return on Equity (ROE)	35.3%	24.9%	15%	18%
Earnings per share (EPS)	¥302	¥270	¥135	¥170

(4) Factors materially affecting Advantest's business results and financial condition

Factors materially affecting Advantest's business results and financial condition refer to "3. Risk Factors".

(5) Significant Accounting Estimates and Assumptions used in such estimates

Advantest prepares the consolidated financial statements in accordance with the IFRS issued by the International Accounting Standard Board.

The preparation of the consolidated financial statements requires Advantest to make judgments, accounting estimates and assumptions that affect the application of policies and reported amounts of assets, liabilities, income and expenses. These estimates and assumptions are based on the best judgment of management in light of historical experience and various factors deemed to be reasonable according to the situation. The global epidemic of the COVID-19 is not expected to have a material impact on Advantest's estimates and assumptions. However, given their nature, actual results may differ from those estimates and assumptions.

Advantest's important accounting policies and estimates are described in "note 3 and note 4" under "Notes to Consolidated Financial Statements" in "1. Consolidated Financial Statements".

5. Material contracts

During FY2019 Advantest America, Inc., the Company's U.S. subsidiary, entered into a stock transfer agreement to acquire U.S. company Essai, Inc.

The details are described in "note 32 under "Notes to Consolidated Financial Statements" in "1. Consolidated Financial Statements".

6. Research and Development

In order to support technology on the leading-edge, Advantest undertakes research and development initiatives to develop products which play a central role in the area of measuring technologies to support electronics, information and communications, and semiconductor manufacturing. Advantest's research and development focuses on the development of new products and the improvement of existing products. In particular, in the Semiconductor and Component Test System Segment, a large and ongoing investment in research and development is necessary in order to maintain market competitiveness and to provide many types of products that meet the various needs of the customers. Advantest also conducts research of basic technologies. Advantest's expenditures for research and development were approximately ¥37.9 billion in FY 2018 and approximately ¥40.1 billion in FY 2019. Advantest employs over 1,000 engineers and other personnel in its research and development division.

The contents and achievements for FY 2019 of Advantest's research and development activities include:

Basic Technology

- development of electro-optic devices, optical sources, and photonic integrated circuits for optical measurements and test systems;

- development of magnetic sensors and signal processing algorism technologies for ultra-high sensitivity magnetic measurements and their applications;

- component technologies of pin-electronics, test vector and timing generation and DC parametric testing for semiconductor and component test systems;

- development of wideband signal analysis methods and algorithms used for semiconductor and component test systems or millimeter wave measurement;

- development of compound semiconductor, including less-distortion, high-voltage large-current or high-speed high-frequency devices used for semiconductor and component test systems;

- development of near future interface test technologies for multi-level signaling, new protocol and optical port; and

- development of a novel calibration methodology for ultra-high speed signal integrity and tens of thousands channels.

Semiconductor and Component Test System Segment

- development of semiconductor and component test systems that enable testing of super high speed memory semiconductors at actual motion speed;

- development of semiconductor and component test systems that enhance the functionality of testing of DRAM semiconductors and flash memory semiconductors and require less floor space;

- development of high speed memory burn in system to enable reliability and functionality testing on high parallel memory devices;

- development of semiconductor and component test systems that have the capacity to simultaneously test multiple complex SoC semiconductors with large pin counts and require less floor space;

- development of semiconductor and component test systems with specialized applications;

- development of semiconductor and component test systems for devices that operate at extremely high frequencies such as millimeter wave communication standards and for networks that carry extremely high density transmissions;

• development of high speed transmission technologies for high speed large pin counts and high speed transmission signal contact technologies;

• development of application software for interface between the semiconductor designing environment and semiconductor and component test systems, as well as development of software to analyze defective semiconductors; and

• development of systems that impress the physical stimulus on each sensor.

Mechatronics System Segment

• development of test handlers for memory semiconductors enabling measuring of multiple semiconductors with high throughput testing;

• development of test handlers for SoC semiconductors that respond to diversified device types and packages;

• development of real Active Thermal Control technology with high speed response and high reliability for high power devices;

• development of core technology; vision alignment for fine pitch and small package by high density device;

• development of the device interface (substrate/circuit technology) to measure high speed device;

• development of conveyance technology and the device interface which supports miniaturization and fine pitches of semiconductors;

• development of probe card for testing memory devices on wafer;

• development of advanced electron-beam metrology systems for leading-edge photomask to measure pattern critical dimension, and to review, analyze defects found on a sample; and

• development of advanced electron-beam lithography system enabling high-resolution/accuracy patterning on a wide variety of substrate.

Services, Support and Others Segment

• development of system level testing technologies and methods to test semiconductor components and modules to ensure compliance of the device in its final integrated product environment;

• development of test sockets with large pin counts, high speed response and high reliability for high power devices, and development of thermal control units;

• development of technologies and systems with particle measurement methods or bio-sensor devices to detect various microorganisms, including biological products; and

• Development of technologies and systems that apply optics and magnetism to check and diagnose living organisms.

Advantest has research and development facilities in Japan, Europe, the U.S. and China.

Advantest promotes joint development efforts between its various research facilities to capitalize on the capabilities of its researchers worldwide. Advantest's research and development team for semiconductor and component test systems in Japan works closely with Advantest research and development teams in Europe and the U.S. for the development of hardware and software.

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Corporate Governance is posted on the Company's website.
URL: https://www.advantest.com/en/investors/management-policy/corporate-governance