

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 10-Q

QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the quarterly period ended **June 30, 2019**

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission file number: **001-38855**

Nasdaq, Inc.

(Exact name of registrant as specified in its charter)

Delaware

52-1165937

(State or Other Jurisdiction of Incorporation or Organization)

(I.R.S. Employer Identification No.)

151 W. 42nd Street, New York, New York 10036

(Address of Principal Executive Offices) (Zip Code)

Registrant's telephone number, including area code:

+1 212 401 8700

No changes

(Former name, former address and former fiscal year, if changed since last report)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, \$0.01 par value per share	NDAQ	The Nasdaq Stock Market
1.75% Senior Notes due 2029	NDAQ29	The Nasdaq Stock Market
3.875% Senior Notes due 2021	NDAQ21	The Nasdaq Stock Market
1.750% Senior Notes due 2023	NDAQ23	The Nasdaq Stock Market

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
Emerging growth company	<input type="checkbox"/>		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

<u>Class</u>	<u>Outstanding at July 26, 2019</u>
Common Stock, \$0.01 par value per share	164,687,750 shares

Part I. FINANCIAL INFORMATION

Item 1.	Financial Statements	2
	Condensed Consolidated Balance Sheets - June 30, 2019 (unaudited) and December 31, 2018	2
	Condensed Consolidated Statements of Income - Three and Six Months Ended June 30, 2019 and 2018 (unaudited)	3
	Condensed Consolidated Statements of Comprehensive Income - Three and Six Months Ended June 30, 2019 and 2018 (unaudited)	4
	Condensed Consolidated Statements of Changes in Stockholders' Equity - Three and Six Months Ended June 30, 2019 and 2018 (unaudited)	5
	Condensed Consolidated Statements of Cash Flows - Six Months Ended June 30, 2019 and 2018 (unaudited)	6
	Notes to Condensed Consolidated Financial Statements (unaudited)	7
Item 2.	Management's Discussion and Analysis of Financial Condition and Results of Operations	34
Item 3.	Quantitative and Qualitative Disclosures About Market Risk	53
Item 4.	Controls and Procedures	54
Part II. OTHER INFORMATION		53
Item 1.	Legal Proceedings	53
Item 1A.	Risk Factors	53
Item 2.	Unregistered Sales of Equity Securities and Use of Proceeds	53
Item 3.	Defaults Upon Senior Securities	54
Item 4.	Mine Safety Disclosures	54
Item 5.	Other Information	54
Item 6.	Exhibits	54
SIGNATURES		56

About this Form 10-Q

Throughout this Form 10-Q, unless otherwise specified:

- “Nasdaq,” “we,” “us” and “our” refer to Nasdaq, Inc.
- “Nasdaq Baltic” refers to collectively, Nasdaq Tallinn AS, Nasdaq Riga, AS, and AB Nasdaq Vilnius.
- “Nasdaq BX” refers to the cash equity exchange operated by Nasdaq BX, Inc.
- “Nasdaq BX Options” refers to the options exchange operated by Nasdaq BX, Inc.
- “Nasdaq Clearing” refers to the clearing operations conducted by Nasdaq Clearing AB.
- “Nasdaq GEMX” refers to the options exchange operated by Nasdaq GEMX, LLC.
- “Nasdaq ISE” refers to the options exchange operated by Nasdaq ISE, LLC.
- “Nasdaq MRX” refers to the options exchange operated by Nasdaq MRX, LLC.
- “Nasdaq Nordic” refers to collectively, Nasdaq Clearing AB, Nasdaq Stockholm AB, Nasdaq Copenhagen A/S, Nasdaq Helsinki Ltd, and Nasdaq Iceland hf.
- “Nasdaq PHLX” refers to the options exchange operated by Nasdaq PHLX LLC.
- “Nasdaq PSX” refers to the cash equity exchange operated by Nasdaq PHLX LLC.
- “The Nasdaq Options Market” refers to the options exchange operated by The Nasdaq Stock Market LLC.
- “The Nasdaq Stock Market” refers to the cash equity exchange operated by The Nasdaq Stock Market LLC.

* * * * *

Nasdaq also provides as a tool for the reader the following list of abbreviations and acronyms that are used throughout this Quarterly Report on Form 10-Q.

401(k) Plan: Voluntary Defined Contribution Savings Plan	BWise: BWise Beheer B.V. and its subsidiaries
2016 Credit Facility: \$400 million senior unsecured term loan facility repaid in full and terminated in June 2019	CCP: Central Counterparty
2017 Credit Facility: \$1 billion senior unsecured revolving credit facility which matures on April 25, 2022	EMIR: European Market Infrastructure Regulation
2019 Notes: \$500 million aggregate principal amount of senior unsecured floating rate notes repaid in full on maturity in March 2019	Equity Plan: Nasdaq Equity Incentive Plan
2020 Notes: \$600 million aggregate principal amount of 5.55% senior unsecured notes repaid in full and terminated in May 2019	ESPP: Nasdaq Employee Stock Purchase Plan
2021 Notes: €600 million aggregate principal amount of 3.875% senior unsecured notes due June 7, 2021	ETF: Exchange Traded Fund
2023 Notes: €600 million aggregate principal amount of 1.75% senior unsecured notes due May 19, 2023	ETP: Exchange Traded Product
2024 Notes: \$500 million aggregate principal amount of 4.25% senior unsecured notes due June 1, 2024	eVestment: eVestment, Inc. and its subsidiaries
2026 Notes: \$500 million aggregate principal amount of 3.85% senior unsecured notes due June 30, 2026	Exchange Act: Securities Exchange Act of 1934, as amended
2029 Notes: €600 million aggregate principal amount of 1.75% senior unsecured notes due March 28, 2029	FASB: Financial Accounting Standards Board
ASU: Accounting Standards Update	FICC: Fixed Income and Commodities Trading and Clearing
	FINRA: Financial Industry Regulatory Authority
	Form 10-K: Annual Report on Form 10-K for the fiscal year ended December 31, 2018 that was filed with the SEC on February 22, 2019
	IPO: Initial Public Offering
	ISE: U.S. Exchange Holdings, Inc. and its subsidiaries
	LIBOR: London Interbank Offered Rate

NFX: Nasdaq Futures, Inc.

NPM: The NASDAQ Private Market, LLC

NSCC: National Securities Clearing Corporation

OCC: The Options Clearing Corporation

OTC: Over-the-Counter

PSU: Performance Share Unit

SaaS: Software as a Service

SEC: U.S. Securities and Exchange Commission

SERP: Supplemental Executive Retirement Plan

SFSA: Swedish Financial Supervisory Authority

S&P: Standard & Poor's

S&P 500: S&P 500 Stock Index

TSR: Total Shareholder Return

U.S. GAAP: U.S. Generally Accepted Accounting Principles

* * * * *

NASDAQ, the NASDAQ logos, and other brand, service or product names or marks referred to in this report are trademarks or service marks, registered or otherwise, of Nasdaq, Inc. and/or its subsidiaries. FINRA and TRADE REPORTING FACILITY are registered trademarks of FINRA.

* * * * *

This Quarterly Report on Form 10-Q includes market share and industry data that we obtained from industry publications and surveys, reports of governmental agencies and internal company surveys. Industry publications and surveys generally state that the information they contain has been obtained from sources believed to be reliable, but we cannot assure you that this information is accurate or complete. We have not independently verified any of the data from third-party sources nor have we ascertained the underlying economic assumptions relied upon therein. Statements as to our market position are based on the most currently available market data. For market comparison purposes, The Nasdaq Stock Market data in this Quarterly Report on Form 10-Q for IPOs is based on data generated internally by us, which includes best efforts underwritings; therefore, the data may not be comparable to other publicly-available IPO data. Data in this Quarterly Report on Form 10-Q for new listings of equity securities on The Nasdaq Stock Market is based on data generated internally by us, which includes best efforts underwritings, issuers that switched from other listing venues, closed-end funds and ETPs. Data in this Quarterly Report on Form 10-Q for IPOs and new listings of equity securities on the Nasdaq Nordic and Nasdaq Baltic exchanges and Nasdaq First North also is based on data generated internally by us. IPOs and new listings data is presented as of period end. While we are not aware of any misstatements regarding industry data presented herein, our estimates involve risks and uncertainties and are subject to change based on various factors. We refer you to the "Risk Factors" section in our Form 10-K.

* * * * *

Nasdaq intends to use its website, ir.nasdaq.com, as a means for disclosing material non-public information and for complying with SEC Regulation FD and other disclosure obligations.

Forward-Looking Statements

The SEC encourages companies to disclose forward-looking information so that investors can better understand a company's future prospects and make informed investment decisions. This Quarterly Report on Form 10-Q contains these types of statements. Words such as "may," "will," "could," "should," "anticipates," "envisions," "estimates," "expects," "projects," "intends," "plans," "believes" and words or terms of similar substance used in connection with any discussion of future expectations as to industry and regulatory developments or business initiatives and strategies, future operating results or financial performance, and other future developments identify forward-looking statements. These include, among others, statements relating to:

- our strategy and 2019 outlook;
- the integration of acquired businesses, including accounting decisions relating thereto;
- the scope, nature or impact of acquisitions, divestitures, investments, joint ventures or other transactional activities;
- the effective dates for, and expected benefits of, ongoing initiatives, including transactional activities and other strategic, restructuring, technology, de-leveraging and capital allocation initiatives;
- our products, order backlog and services;
- the impact of pricing changes;
- tax matters;
- the cost and availability of liquidity and capital; and
- any litigation, or any regulatory or government investigation or action, to which we are or could become a party or which may affect us.

Forward-looking statements involve risks and uncertainties. Factors that could cause actual results to differ materially from those contemplated by the forward-looking statements include, among others, the following:

- our operating results may be lower than expected;
- our ability to successfully integrate acquired businesses or divest sold businesses or assets, including the fact that any integration or transition may be more difficult, time consuming or costly than expected, and we may be unable to realize synergies from business combinations, acquisitions, divestitures or other transactional activities;
- loss of significant trading and clearing volumes or values, fees, market share, listed companies, market data products customers or other customers;
- our ability to develop and grow our non-trading businesses, including our technology and analytics offerings;
- our ability to keep up with rapid technological advances and adequately address cybersecurity risks;
- economic, political and market conditions and fluctuations, including interest rate and foreign currency risk, inherent in U.S. and international operations;
- the performance and reliability of our technology and technology of third parties on which we rely;
- any significant error in our operational processes;
- our ability to continue to generate cash and manage our indebtedness; and
- adverse changes that may occur in the litigation or regulatory areas, or in the securities markets generally, or increased regulatory oversight domestically or internationally.

Most of these factors are difficult to predict accurately and are generally beyond our control. You should consider the uncertainty and any risk related to forward-looking statements that we make. These risk factors are more fully described in the "Risk Factors" section in our Form 10-K. You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this report. You should carefully read this entire Quarterly Report on Form 10-Q, including "Part I. Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations" and the condensed consolidated financial statements and the related notes. Except as required by the federal securities laws, we undertake no obligation to update any forward-looking statement, release publicly any revisions to any forward-looking statements or report the occurrence of unanticipated events. For any forward-looking statements contained in any document, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995.

PART I - FINANCIAL INFORMATION
Item 1. Financial Statements.
Nasdaq, Inc.
Condensed Consolidated Balance Sheets
(in millions, except share and par value amounts)

	June 30, 2019	December 31, 2018
	(unaudited)	
Assets		
Current assets:		
Cash and cash equivalents	\$ 333	\$ 545
Restricted cash	30	41
Financial investments, at fair value	259	268
Receivables, net	415	384
Default funds and margin deposits	3,161	4,742
Other current assets	165	390
Total current assets	4,363	6,370
Property and equipment, net	390	376
Goodwill	6,382	6,363
Intangible assets, net	2,304	2,300
Operating lease assets	365	—
Other non-current assets	328	291
Total assets	\$ 14,132	\$ 15,700
Liabilities		
Current liabilities:		
Accounts payable and accrued expenses	\$ 149	\$ 198
Section 31 fees payable to SEC	170	109
Accrued personnel costs	119	199
Deferred revenue	333	194
Other current liabilities	132	253
Default funds and margin deposits	3,161	4,742
Short-term debt	467	875
Total current liabilities	4,531	6,570
Long-term debt	3,022	2,956
Deferred tax liabilities, net	510	501
Operating lease liabilities	343	—
Other non-current liabilities	175	224
Total liabilities	8,581	10,251
Commitments and contingencies		
Equity		
Nasdaq stockholders' equity:		
Common stock, \$0.01 par value, 300,000,000 shares authorized, shares issued: 171,288,122 at June 30, 2019 and 170,709,425 at December 31, 2018; shares outstanding: 165,389,235 at June 30, 2019 and 165,165,104 at December 31, 2018	2	2
Additional paid-in capital	2,713	2,716
Common stock in treasury, at cost: 5,898,887 shares at June 30, 2019 and 5,544,321 shares at December 31, 2018	(327)	(297)
Accumulated other comprehensive loss	(1,666)	(1,530)
Retained earnings	4,829	4,558
Total Nasdaq stockholders' equity	5,551	5,449
Total liabilities and equity	\$ 14,132	\$ 15,700

See accompanying notes to condensed consolidated financial statements.

Nasdaq, Inc.
Condensed Consolidated Statements of Income
(Unaudited)
(in millions, except per share amounts)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Revenues:				
Market Services	\$ 665	\$ 649	\$ 1,304	\$ 1,384
Corporate Services	123	120	243	243
Information Services	194	175	387	348
Market Technology	79	66	156	126
Other revenues	—	17	10	77
Total revenues	1,061	1,027	2,100	2,178
Transaction-based expenses:				
Transaction rebates	(331)	(308)	(661)	(657)
Brokerage, clearance and exchange fees	(107)	(104)	(182)	(240)
Revenues less transaction-based expenses	623	615	1,257	1,281
Operating expenses:				
Compensation and benefits	169	173	344	370
Professional and contract services	30	34	68	71
Computer operations and data communications	33	30	65	62
Occupancy	24	23	48	49
General, administrative and other	40	25	56	47
Marketing and advertising	10	10	20	19
Depreciation and amortization	48	53	96	106
Regulatory	8	8	15	16
Merger and strategic initiatives	5	(10)	14	—
Total operating expenses	367	346	726	740
Operating income	256	269	531	541
Interest income	3	2	6	5
Interest expense	(31)	(37)	(68)	(75)
Net gain on divestiture of businesses	—	41	27	41
Other investment income	1	8	1	8
Net income from unconsolidated investees	10	5	55	7
Income before income taxes	239	288	552	527
Income tax provision	65	126	131	188
Net income attributable to Nasdaq	\$ 174	\$ 162	\$ 421	\$ 339
Per share information:				
Basic earnings per share	\$ 1.05	\$ 0.98	\$ 2.54	\$ 2.04
Diluted earnings per share	\$ 1.04	\$ 0.97	\$ 2.52	\$ 2.02
Cash dividends declared per common share	\$ 0.47	\$ —	\$ 0.91	\$ 0.82

See accompanying notes to condensed consolidated financial statements.

Nasdaq, Inc.
Condensed Consolidated Statements of Comprehensive Income
(Unaudited)
(in millions)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Net income	\$ 174	\$ 162	\$ 421	\$ 339
Other comprehensive loss:				
Foreign currency translation losses	(29)	(185)	(135)	(261)
Income tax benefit (expense) ⁽¹⁾	8	54	(1)	(61)
Foreign currency translation, net	(21)	(131)	(136)	(322)
Employee benefit plan income tax expense ⁽¹⁾	—	—	—	(7)
Total other comprehensive loss, net of tax	(21)	(131)	(136)	(329)
Comprehensive income attributable to Nasdaq	\$ 153	\$ 31	\$ 285	\$ 10

⁽¹⁾ Includes a reclassification of the stranded tax effects, for the six months ended June 30, 2018, related to the Tax Cuts and Jobs Act. See “Tax Cuts and Jobs Act,” of Note 17, “Income Taxes,” for further discussion.

See accompanying notes to condensed consolidated financial statements.

Nasdaq, Inc.
Condensed Consolidated Statements of Changes in Stockholders' Equity
(Unaudited)
(in millions, except share amounts)

	Three Months Ended June 30,				Six Months Ended June 30,			
	2019		2018		2019		2018	
	Shares	\$	Shares	\$	Shares	\$	Shares	\$
Common stock	165,701,483	2	166,946,592	2	165,165,104	2	167,441,030	2
Additional paid-in capital								
Beginning balance		2,732		2,926		2,716		3,024
Share repurchase program	(538,449)	(50)	(2,670,574)	(241)	(538,449)	(50)	(3,929,520)	(340)
Share-based compensation	42,606	20	58,887	18	917,010	36	1,308,900	33
Stock option exercises, net	44,742	1	53,805	1	53,408	1	88,000	2
Other employee stock activity	146,241	10	127,349	8	146,728	10	127,363	(7)
Ending balance		2,713		2,712		2,713		2,712
Common stock in Treasury, at Cost								
Beginning balance		(327)		(289)		(297)		(247)
Other employee stock activity	(7,388)	—	(12,655)	(1)	(354,566)	(30)	(532,369)	(43)
Ending balance		(327)		(290)		(327)		(290)
Accumulated Other Comprehensive Loss								
Beginning balance		(1,645)		(1,060)		(1,530)		(862)
Other comprehensive loss ⁽¹⁾		(21)		(131)		(136)		(329)
Ending balance		(1,666)		(1,191)		(1,666)		(1,191)
Retained Earnings								
Beginning balance		4,732		4,147		4,558		3,963
Net income		174		162		421		339
Other comprehensive loss		—		—		—		142
Cash dividends declared per common share		(77)		—		(150)		(135)
Ending balance		4,829		4,309		4,829		4,309
Total Stockholders' Equity	165,389,235	\$ 5,551	164,503,404	\$ 5,542	165,389,235	\$ 5,551	164,503,404	\$ 5,542

⁽¹⁾ Includes a reclassification of the stranded tax effects, for the six months ended June 30, 2018, related to the Tax Cuts and Jobs Act. See "Tax Cuts and Jobs Act," of Note 17, "Income Taxes," for further discussion.

See accompanying notes to condensed consolidated financial statements.

Nasdaq, Inc.
Condensed Consolidated Statements of Cash Flows
(Unaudited)
(in millions)

	Six Months Ended June 30,	
	2019	2018
Cash flows from operating activities:		
Net income	\$ 421	\$ 339
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	96	106
Share-based compensation	36	33
Deferred income taxes	(1)	(36)
Reversal of certain Swedish tax benefits	—	41
Net gain on divestiture of businesses	(27)	(41)
Net income from unconsolidated investees	(55)	(7)
Other reconciling items included in net income	15	9
Net change in operating assets and liabilities, net of effects of divestiture and acquisitions:		
Receivables, net	(20)	(52)
Other assets	(186)	40
Accounts payable and accrued expenses	(37)	11
Section 31 fees payable to SEC	61	97
Accrued personnel costs	(78)	(53)
Deferred revenue	112	131
Other liabilities	186	36
Net cash provided by operating activities	523	654
Cash flows from investing activities:		
Purchases of securities	(311)	(250)
Proceeds from sales and redemptions of securities	309	158
Proceeds from divestiture of businesses	108	294
Acquisition of business, net of cash and cash equivalents acquired	(193)	—
Purchases of property and equipment	(63)	(45)
Other investing activities	(13)	(6)
Net cash provided by (used in) investing activities	(163)	151
Cash flows from financing activities:		
Proceeds from (repayments of) commercial paper, net	192	(212)
Repayments of debt obligations	(1,215)	(115)
Payment of debt extinguishment cost	(11)	—
Proceeds from issuances of long-term debt, net of issuance costs	680	—
Repurchases of common stock	(50)	(340)
Dividends paid	(150)	(135)
Proceeds received from employee stock activity	11	10
Payments related to employee shares withheld for taxes	(30)	(43)
Net cash used in financing activities	(573)	(835)
Effect of exchange rate changes on cash and cash equivalents and restricted cash	(10)	(13)
Net decrease in cash and cash equivalents and restricted cash	(223)	(43)
Cash and cash equivalents and restricted cash at beginning of period	586	399
Cash and cash equivalents and restricted cash at end of period	\$ 363	\$ 356
Supplemental Disclosure Cash Flow Information		
Cash paid for:		
Interest	\$ 85	\$ 89
Income taxes, net of refund	\$ 129	\$ 99

See accompanying notes to condensed consolidated financial statements.

Nasdaq, Inc.

Notes to Condensed Consolidated Financial Statements (Unaudited)

1. Organization and Nature of Operations

Nasdaq is a leading global provider of trading, clearing, exchange technology, listing, information and public company services. Through its diverse portfolio of solutions, Nasdaq enables customers to plan, optimize and execute their business vision with confidence, using proven technologies that provide transparency and insight for navigating today's global capital markets. As the creator of the world's first electronic stock market, its technology powers more than 100 marketplaces in 50 countries. Nasdaq is home to approximately 4,000 total listings with a market value of approximately \$14 trillion.

We manage, operate and provide our products and services in four business segments: Market Services, Corporate Services, Information Services and Market Technology.

Market Services

Our Market Services segment includes our Equity Derivative Trading and Clearing, Cash Equity Trading, FICC and Trade Management Services businesses. We operate multiple exchanges and other marketplace facilities across several asset classes, including derivatives, commodities, cash equity, debt, structured products and ETPs. In addition, in some countries where we operate exchanges, we also provide broker services, clearing, settlement and central depository services. Our transaction-based platforms provide market participants with the ability to access, process, display and integrate orders and quotes. The platforms allow the routing and execution of buy and sell orders as well as the reporting of transactions, providing fee-based revenues.

In the U.S., we operate six electronic options exchanges and three cash equity exchanges. The Nasdaq Stock Market, the largest of our cash equities exchanges, is the largest single venue of liquidity for trading U.S.-listed cash equities. We also operate an electronic platform for trading of U.S. Treasuries and NFX, a U.S. based designated contract market which lists cash-settled energy derivatives based on key energy benchmarks including oil, natural gas and U.S. power. In addition, we also operate a Canadian exchange for the trading of certain Canadian-listed securities.

In Europe, we operate exchanges in Stockholm (Sweden), Copenhagen (Denmark), Helsinki (Finland), and Reykjavik (Iceland), as well as the clearing operations of Nasdaq Clearing, as Nasdaq Nordic. We also operate exchanges in Tallinn (Estonia), Riga (Latvia) and Vilnius (Lithuania) as Nasdaq Baltic. Collectively, Nasdaq Nordic and Nasdaq Baltic offer trading in cash equities, depository receipts, warrants, convertibles, rights, fund units and ETFs, as well as trading and clearing of derivatives and clearing of resale and repurchase agreements.

Nasdaq Commodities is the brand name for Nasdaq's European commodity-related products and services. Nasdaq Commodities' offerings include derivatives in oil, power,

natural gas and carbon emission markets, seafood, electricity certificates and clearing services. These products are listed on two of Nasdaq's derivatives exchanges, Nasdaq Oslo ASA and NFX.

Through our Trade Management Services business, we provide market participants with a wide variety of alternatives for connecting to and accessing our markets via a number of different protocols used for quoting, order entry, trade reporting, and connectivity to various data feeds. We also provide data center services, including co-location to market participants, whereby we offer firms cabinet space and power to house their own servers and other equipment within our data centers. Our broker services operations offer technology and customized securities administration solutions to financial participants in the Nordic market.

In March 2019, we entered into an agreement to sell Nordic Fund Market, an electronic mutual fund service which is a small part of our Broker Services business. The closing of this transaction, which is subject to regulatory approvals and customary closing conditions, is expected to occur in the second half of 2019.

Corporate Services

Our Corporate Services segment includes our Listing Services and Corporate Solutions businesses.

Our Listing Services business includes our U.S. and European Listing Services businesses. We operate a variety of listing platforms around the world to provide multiple global capital raising solutions for private and public companies. Our main listing markets are The Nasdaq Stock Market and the Nasdaq Nordic and Nasdaq Baltic exchanges. Through Nasdaq First North, our Nordic and Baltic operations also offer alternative marketplaces for smaller companies and growth companies. Our Listing Services business also includes NPM, which provides liquidity solutions for private companies and private funds.

In December 2018, we launched a Corporate Bond exchange for the listing and trading of corporate bonds. The new exchange operates pursuant to The Nasdaq Stock Market exchange license and is powered by the Nasdaq Financial Framework.

As of June 30, 2019, there were 3,080 total listings on The Nasdaq Stock Market, including 374 ETPs. The combined market capitalization was approximately \$13.3 trillion. In Europe, the Nasdaq Nordic and Nasdaq Baltic exchanges, together with Nasdaq First North, were home to 1,029 listed companies with a combined market capitalization of approximately \$1.5 trillion.

Our Corporate Solutions business serves corporate clients, including companies listed on our exchanges and private companies. We help organizations enhance their ability to understand and expand their global shareholder base, and improve corporate governance through our suite of advanced technology, analytics, and consultative services. In March 2019, we sold our BWISE enterprise governance, risk and compliance

software platform and in April 2018, we sold our Public Relations Solutions and Digital Media Services businesses. See Note 5, “Acquisitions and Divestitures,” for further discussion. As of March 2019, our Corporate Solutions business includes our Investor Relations Intelligence and Governance Solutions businesses.

As of December 31, 2018, Bwise was classified as held for sale. See Note 6, “Assets and Liabilities Held for Sale,” for further discussion.

For segment reporting purposes, we have included the revenues and expenses of Bwise and the Public Relations Solutions and Digital Media Services businesses in corporate items. These businesses were part of the Corporate Solutions business, within our Corporate Services segment, prior to the date of sale. For discussion of business segments, see Note 19, “Business Segments.”

Information Services

Our Information Services segment includes our Market Data, Index and Investment Data & Analytics businesses.

Our Market Data business sells and distributes historical and real-time quote and trade information to the sell-side, the buy-side, retail online brokers, proprietary trading shops, other venues, internet portals and data distributors. Our market data products enhance transparency of market activity within our exchanges and provide critical information to professional and non-professional investors globally.

Our Index business develops and licenses Nasdaq-branded indexes, associated derivatives, and financial products and also provides custom calculation services for third-party clients. As of June 30, 2019, we had 341 ETPs licensed to Nasdaq’s indexes which had \$203 billion in assets under management.

Our Investment Data & Analytics business is a leading content and analytics cloud-based solutions provider used by asset managers, investment consultants and asset owners to help facilitate better investment decisions.

Market Technology

Our Market Technology segment is a leading global technology solutions provider and partner to exchanges, clearing organizations, central securities depositories, regulators, banks, brokers, buy-side firms and corporate businesses. Our Market Technology business is the sales channel for our complete global offering to other marketplaces.

Market Technology provides technology solutions for trading, clearing, settlement, surveillance and information dissemination to markets with wide-ranging requirements, from the leading markets in the U.S., Europe and Asia to emerging markets in the Middle East, Latin America, and Africa. Our marketplace solutions can handle a wide array of

assets, including cash equities, equity derivatives, currencies, various interest-bearing securities, commodities and energy products, and are currently powering more than 100 marketplaces in 50 countries. Market Technology also provides market surveillance services to broker-dealer firms worldwide, as well as risk management solutions.

2. Basis of Presentation and Principles of Consolidation

The condensed consolidated financial statements are prepared in accordance with U.S. GAAP and include the accounts of Nasdaq, its wholly-owned subsidiaries and other entities in which Nasdaq has a controlling financial interest. When we do not have a controlling interest in an entity but exercise significant influence over the entity’s operating and financial policies, such investment is accounted for under the equity method of accounting. We recognize our share of earnings or losses of an equity method investee based on our ownership percentage. See “Equity Method Investments,” of Note 8, “Investments,” for further discussion of our equity method investments.

The accompanying condensed consolidated financial statements reflect all adjustments which are, in the opinion of management, necessary for a fair statement of the results. These adjustments are of a normal recurring nature. All significant intercompany accounts and transactions have been eliminated in consolidation.

As permitted under U.S. GAAP, certain footnotes or other financial information can be condensed or omitted in the interim condensed consolidated financial statements. The information included in this Quarterly Report on Form 10-Q should be read in conjunction with the consolidated financial statements and accompanying notes included in Nasdaq’s Form 10-K. The year-end condensed balance sheet data was derived from the audited financial statements, but does not include all disclosures required by U.S. GAAP.

On January 1, 2019, we adopted ASU 2016-02, “Leases,” or ASU 2016-02. See Note 3, “Significant Accounting Policies Update,” for further discussion.

Certain prior year amounts have been reclassified to conform to the current year presentation.

The preparation of condensed consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts and the disclosure of contingent amounts in the condensed consolidated financial statements and accompanying notes. Actual results could differ from those estimates.

Subsequent Events

We have evaluated subsequent events through the issuance date of this Quarterly Report on Form 10-Q.

Recent Accounting Pronouncements

Accounting Standard	Description	Effective Date	Effect on the Financial Statements or Other Significant Matters
<p>Goodwill</p> <p>In January 2017, the FASB issued ASU 2017-04, "Simplifying the Test for Goodwill Impairment."</p>	<p>This ASU simplifies how an entity is required to test goodwill for impairment and removes the second step of the goodwill impairment test, which required a hypothetical purchase price allocation if the fair value of a reporting unit is less than its carrying amount. Goodwill impairment will now be measured using the difference between the carrying amount and the fair value of the reporting unit and the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. The amendments in this ASU should be applied on a prospective basis.</p>	<p>January 1, 2020, with early adoption permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017.</p>	<p>We will adopt this standard on January 1, 2020. We do not anticipate a material impact on our consolidated financial statements at the time of adoption of this new standard as the carrying amounts of our reporting units have been less than their corresponding fair values in recent years. However, changes in future projections, market conditions and other factors may cause a change in the excess of fair value of our reporting units over their corresponding carrying amounts.</p>
<p>Financial Instruments - Credit Losses</p> <p>In June 2016, the FASB issued ASU 2016-13, "Measurement of Credit Losses on Financial Instruments."</p>	<p>This ASU changes the impairment model for certain financial instruments. The new model is a forward looking expected loss model and will apply to financial assets subject to credit losses and measured at amortized cost and certain off-balance sheet credit exposures. This includes loans, held-to-maturity debt securities, loan commitments, financial guarantees and net investments in leases, as well as trade receivables. For available-for-sale debt securities with unrealized losses, credit losses will be measured in a manner similar to today, except that the losses will be recognized as allowances rather than reductions in the amortized cost of the securities.</p>	<p>January 1, 2020, with early adoption permitted as of January 1, 2019.</p>	<p>We will adopt this standard on January 1, 2020 and are currently assessing the impact that this standard will have on our consolidated financial statements. Any impact will be recognized as a cumulative-effect adjustment to retained earnings as of the effective date to align our credit loss methodology with the new standard.</p>

3. Significant Accounting Policies Update

Our significant accounting policies are detailed in Note 2, "Summary of Significant Accounting Policies," in our Form 10-K. A significant change to our accounting policies as a result of adopting ASU 2016-02 is discussed below.

We adopted ASU 2016-02 on January 1, 2019, and elected the optional transition method to initially apply the standard at the January 1, 2019 adoption date. As a result, we applied the new lease standard prospectively to our leases existing or commencing on or after January 1, 2019. Comparative periods presented were not restated upon adoption. Similarly, new disclosures under the standard were made for periods beginning January 1, 2019, and not for prior comparative periods. Prior periods will continue to be reported under guidance in effect prior to January 1, 2019. In addition, we elected the package of practical expedients permitted under the transition guidance within the standard, which among other things, allowed us to not reassess contracts to determine if they contain leases, lease classification and initial direct costs. The standard did not impact our statements of income and had no impact on our cash flows.

We have operating leases which are primarily real estate leases for our U.S. and European headquarters and for general office

space. These leases have varying lease terms ranging from 3 months to 17 years. We determine if an arrangement is a lease at inception. Operating leases are included in operating lease assets, other current liabilities, and operating lease liabilities in our condensed consolidated balance sheets as of June 30, 2019. As of June 30, 2019, we do not have any finance leases.

Operating lease assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. Operating lease assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. Since our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. The operating lease asset also includes any lease payments made and excludes lease incentives. Our lease terms include options to extend or terminate the lease when we are reasonably certain that we will exercise that option. Lease expense for lease payments is recognized on a straight-line basis over the lease term. Certain of our lease agreements include rental payments adjusted periodically for inflation based on an index or rate. These payments are included in the initial measurement of the operating lease liability and operating lease asset. However,

rental payments that are based on a change in an index or a rate are considered variable lease payments and are expensed as incurred.

We have lease agreements with lease and non-lease components, which are accounted for as a single performance obligation to the extent that the timing and pattern of transfer are similar for the lease and non-lease components and the lease component qualifies as an operating lease. We do not recognize lease liabilities and operating lease assets for leases with a term of 12 months or less. We recognize these lease payments on a straight-line basis over the lease term.

Our lease agreements do not contain any material residual value guarantees or material restrictions or covenants.

We sublease certain real estate to third parties. Our sublease portfolio consists of operating leases.

The following table provides supplemental balance sheet information related to Nasdaq's operating leases:

Leases	Balance Sheet Classification	June 30, 2019
		(in millions)
Assets:		
Operating lease assets	Operating lease assets	\$ 365
Liabilities:		
Current lease liabilities	Other current liabilities	\$ 61
Non-current lease liabilities	Operating lease liabilities	343
Total lease liabilities		\$ 404

The following table summarizes Nasdaq's lease cost:

	Three Months Ended June 30, 2019	Six Months Ended June 30, 2019
(in millions)		
Operating lease cost ⁽¹⁾	\$ 19	\$ 39
Variable lease cost	7	12
Sublease income	(2)	(3)
Total lease cost	\$ 24	\$ 48

⁽¹⁾ Includes short-term lease cost, which was immaterial.

The following table reconciles the undiscounted cash flows for each of the first five years and total of the remaining years to the operating lease liabilities recorded in our condensed consolidated balance sheet.

	June 30, 2019
(in millions)	
2019 ⁽¹⁾	\$ 40
2020	76
2021	66
2022	44
2023	39
Thereafter	261
Total lease payments	526
Less: interest ⁽²⁾	(122)
Present value of lease liabilities⁽³⁾	\$ 404

⁽¹⁾ Represents the estimated lease payments to be made for the remaining six months of 2019.

⁽²⁾ Calculated using the interest rate for each lease.

⁽³⁾ Includes the current portion of \$61 million.

Total lease payments in the above table exclude \$128 million of legally binding minimum lease payments for leases signed but not yet commenced related to the expansion of our world headquarters. These leases will commence in 2020 with a lease term of 16 years.

The following table provides information related to Nasdaq's lease term and discount rate:

	June 30, 2019
Weighted-average remaining lease term (in years)	10.4
Weighted-average discount rate	4.6%

The following table provides supplemental cash flow information related to Nasdaq's operating leases:

	Six Months Ended June 30, 2019
(in millions)	
Cash paid for amounts included in the measurement of operating lease liabilities	\$ 38
Lease assets obtained in exchange for new operating lease liabilities	\$ 20

4. Revenue From Contracts With Customers

Disaggregation of Revenue

The following tables summarize the disaggregation of revenue by major product and service and by segment for the three and six months ended June 30, 2019 and 2018:

	Three Months Ended June 30, 2019				
	Market Services	Corporate Services	Information Services	Market Technology	Consolidated
	(in millions)				
Transaction-based trading and clearing, net	\$ 154	\$ —	\$ —	\$ —	\$ 154
Trade management services	73	—	—	—	73
Listing services	—	74	—	—	74
Corporate solutions	—	49	—	—	49
Market data products	—	—	100	—	100
Index	—	—	55	—	55
Investment data & analytics	—	—	39	—	39
Market technology	—	—	—	79	79
Revenues less transaction-based expenses	\$ 227	\$ 123	\$ 194	\$ 79	\$ 623

	Three Months Ended June 30, 2018					
	Market Services	Corporate Services	Information Services	Market Technology	Other Revenues	Consolidated
	(in millions)					
Transaction-based trading and clearing, net	\$ 164	\$ —	\$ —	\$ —	\$ —	\$ 164
Trade management services	73	—	—	—	—	73
Listing services	—	72	—	—	—	72
Corporate solutions	—	48	—	—	—	48
Market data products	—	—	98	—	—	98
Index	—	—	50	—	—	50
Investment data & analytics	—	—	27	—	—	27
Market technology	—	—	—	66	—	66
Other revenues	—	—	—	—	17	17
Revenues less transaction-based expenses	\$ 237	\$ 120	\$ 175	\$ 66	\$ 17	\$ 615

For the three months ended June 30, 2019, approximately 64.0% of Market Services revenues were recognized at a point in time and 36.0% were recognized over time. For the three months ended June 30, 2018, approximately 65.0% of Market Services revenues were recognized at a point in time and 35.0% were recognized over time. Substantially all revenues from the Corporate Services, Information Services and Market Technology segments were recognized over time for both the three months ended June 30, 2019 and 2018.

Six Months Ended June 30, 2019

	Market Services	Corporate Services	Information Services	Market Technology	Other Revenues	Consolidated
	(in millions)					
Transaction-based trading and clearing, net	\$ 315	\$ —	\$ —	\$ —	\$ —	\$ 315
Trade management services	146	—	—	—	—	146
Listing services	—	145	—	—	—	145
Corporate solutions	—	98	—	—	—	98
Market data products	—	—	200	—	—	200
Index	—	—	109	—	—	109
Investment data & analytics	—	—	78	—	—	78
Market technology	—	—	—	156	—	156
Other revenues	—	—	—	—	10	10
Revenues less transaction-based expenses	\$ 461	\$ 243	\$ 387	\$ 156	\$ 10	\$ 1,257

Six Months Ended June 30, 2018

	Market Services	Corporate Services	Information Services	Market Technology	Other Revenues	Consolidated
	(in millions)					
Transaction-based trading and clearing, net	\$ 339	\$ —	\$ —	\$ —	\$ —	\$ 339
Trade management services	148	—	—	—	—	148
Listing services	—	144	—	—	—	144
Corporate solutions	—	99	—	—	—	99
Market data products	—	—	197	—	—	197
Index	—	—	100	—	—	100
Investment data & analytics	—	—	51	—	—	51
Market technology	—	—	—	126	—	126
Other revenues	—	—	—	—	77	77
Revenues less transaction-based expenses	\$ 487	\$ 243	\$ 348	\$ 126	\$ 77	\$ 1,281

For both the six months ended June 30, 2019 and 2018, approximately 65.0% of Market Services revenues were recognized at a point in time and 35.0% were recognized over time. Substantially all revenues from the Corporate Services, Information Services and Market Technology segments were recognized over time for both the six months ended June 30, 2019 and 2018.

* * * * *

Contract Balances

Substantially all of our revenues are considered to be revenues from contracts with customers. The related accounts receivable balances are recorded in our Condensed Consolidated Balance Sheets as receivables which are net of allowance for doubtful accounts of \$12 million as of June 30, 2019 and \$13 million as of December 31, 2018. The changes in the balance between periods were immaterial. We do not have obligations for warranties, returns or refunds to customers.

For the majority of our contracts with customers, except for our market technology and listings services contracts, our performance obligations are short-term in nature and there is no significant variable consideration.

We do not have revenues recognized from performance obligations that were satisfied in prior periods. We have elected

not to provide disclosures about transaction price allocated to unsatisfied performance obligations if contract durations are less than one year. Excluding our market technology contracts, for contract durations that are one-year or greater, materially all of the transaction price allocated to unsatisfied performance obligations is included in deferred revenue. For our market technology contracts, the portion of transaction price allocated to unsatisfied performance obligations is shown in the table below. Deferred revenue primarily represents our contract liabilities related to our fees for annual and initial listings, market technology, corporate solutions and information services contracts. Deferred revenue is the only significant contract asset or liability as of June 30, 2019. See Note 9, "Deferred Revenue," for our discussion on deferred revenue balances, activity, and expected timing of recognition.

Transaction Price Allocated to Remaining Performance Obligations

As stated above, for contract durations that are one-year or greater, we do not have a material portion of transaction price allocated to unsatisfied performance obligations that are not included in deferred revenue other than for our market technology contracts. For our market technology contracts, the following table summarizes the amount of the transaction price allocated to performance obligations that are unsatisfied as of June 30, 2019:

	(in millions)
2019 ⁽¹⁾	\$ 150
2020	286
2021	132
2022	86
2023	46
2024 and thereafter	86
Total	\$ 786

⁽¹⁾ Represents performance obligations to be recognized over the remaining six months of 2019.

Market technology deferred revenue, as discussed in Note 9, “Deferred Revenue,” to the condensed consolidated financial statements, represents consideration received that is yet to be recognized as revenue for unsatisfied performance obligations.

5. Acquisitions and Divestitures

2019 Divestiture and Acquisition

We completed the following divestiture and acquisition in 2019. Financial results of each transaction are included in our condensed consolidated financial statements from the date of each divestiture or acquisition.

2019 Divestiture

In March 2019, we sold our BWISE enterprise governance, risk and compliance software platform, which was part of our Corporate Solutions business within our Corporate Services segment, to SAI Global and recognized a pre-tax gain on the sale of \$27 million, net of disposal costs (\$20 million after tax). The pre-tax gain is included in net gain on divestiture of businesses in the Condensed Consolidated Statements of Income for the six months ended June 30, 2019.

As of December 31, 2018, the assets and liabilities of BWISE were held for sale. See Note 6, “Assets and Liabilities Held For Sale,” for further discussion.

2019 Acquisition

	Purchase Consideration	Total Net Assets Acquired	Total Net Deferred Tax Liability	Acquired Intangible Assets	Goodwill
	(in millions)				
Cinnober	\$ 219	\$ 22	\$ (19)	\$ 79	\$ 137

In January 2019, we acquired Cinnober, a Swedish financial technology provider to brokers, exchanges and clearinghouses worldwide for \$219 million. Cinnober is part of our Market Technology segment.

Nasdaq used cash on hand to fund this acquisition.

The amounts in the table above represent the preliminary allocation of purchase price as of June 30, 2019 and are subject to revision during the remainder of the measurement period, a period not to exceed 12 months from the acquisition date. Adjustments to the provisional values, which may include tax and other estimates, during the measurement period will be recorded in the reporting period in which the adjustment amounts are determined. Changes to amounts recorded as assets and liabilities may result in a corresponding adjustment to goodwill.

See “Intangible Assets” below for further discussion of intangible assets acquired in the Cinnober acquisition.

2018 Acquisition and Divestiture

We completed an acquisition during the year ended December 31, 2018 and a divestiture in April 2018. Financial results of each transaction are included in our condensed consolidated financial statements from the date of the acquisition or divestiture.

2018 Acquisition

Acquisition of Quandl

In November 2018, we acquired Quandl, Inc., a leading provider of alternative and core financial data. Quandl is part of our Information Services segment.

Nasdaq used issuances of commercial paper to fund this acquisition.

2018 Divestiture

In April 2018, we sold our Public Relations Solutions and Digital Media Services businesses which were part of our Corporate Solutions business to West Corporation. A pre-tax gain of \$41 million, net of disposal costs (\$19 million after tax) was included in the Condensed Consolidated Statements of Income in the second quarter of 2018. A post-closing working capital adjustment of \$8 million (\$5 million after tax) was included in the Condensed Consolidated Statements of Income in the third quarter of 2018 bringing the net gain on the sale to \$33 million (\$14 million after tax) for the nine months ended September 30, 2018. The pretax gain of \$41 million is included in gain on divestiture of businesses in the Condensed Consolidated Statements of Income for the three and six months ended June 30, 2018.

Through a multi-year partnership with West, Nasdaq will continue to provide eligible Nasdaq-listed clients with access to public relations, webcasting and webhosting products and services as part of the terms of the transaction.

As part of the terms of the transaction, we provided transition services to West, such as technology, finance and facilities related services until mid-2019, and the compensation received for such transition services was reflected as a reduction to the underlying expenses incurred by Nasdaq to provide such transition services.

Intangible Assets

The following table presents the details of the customer relationships intangible asset at the date of acquisition for Cinnober which was the significant acquired intangible asset for this acquisition. All acquired intangible assets with finite lives are amortized using the straight-line method.

	(\$ in millions)
Customer relationships	\$ 67
Discount rate used	9.5%
Estimated average useful life	13 years

Customer Relationships

Customer relationships represent the non-contractual and contractual relationships with customers.

Methodology

Customer relationships were valued using the income approach, specifically an excess earnings method. The excess earnings method examines the economic returns contributed by the identified tangible and intangible assets of a company, and then isolates the excess return that is attributable to the intangible asset being valued.

Discount Rate

The discount rates used reflect the amount of risk associated with the hypothetical cash flows for the customer relationships

relative to the overall business. In developing a discount rate for the customer relationships, we estimated a weighted-average cost of capital for the overall business and we employed this rate when discounting the cash flows. The resulting discounted cash flows were then tax-effected at the applicable statutory rate.

For our acquisition of Cinnober, a discounted tax amortization benefit was added to the fair value of the assets under the assumption that the customer relationships would be amortized for tax purposes over a period of 5 years.

Estimated Useful Life

We estimate the useful life based on the historical behavior of the customers and a parallel analysis of the customers using the excess earnings method.

Pro Forma Results and Acquisition-related Costs

The condensed consolidated financial statements for the three and six months ended June 30, 2019 include the financial results of the above acquisitions from the date of each acquisition. Pro forma financial results have not been presented since these acquisitions both individually and in the aggregate were not material to our financial results.

Acquisition-related costs for the transactions described above were expensed as incurred and are included in merger and strategic initiatives expense in the Condensed Consolidated Statements of Income.

6. Assets and Liabilities Held For Sale

In 2018, we decided to sell BWISE, our enterprise governance, risk and compliance software platform and this business was recorded as held for sale as of December 31, 2018. BWISE was part of our Corporate Solutions business within our Corporate Services segment.

We determined that we met all of the criteria to classify the assets and liabilities of BWISE as held for sale. The disposal of BWISE did not represent a strategic shift that would have a major effect on our operations and financial results and was, therefore, not classified as discontinued operations. As a result of this classification, the assets and liabilities of this business were recorded at the lower of their carrying amount or fair value less costs to sell.

In February 2019, we entered into an agreement to sell BWISE and in March 2019, we completed the sale and recognized a pre-tax gain on the sale of \$27 million, net of disposal costs (\$20 million after tax). See "2019 Divestiture," of Note 5, "Acquisitions and Divestitures," for further discussion.

Based on the sales price in the agreement, no impairment charge was recorded at the time of the sale as the carrying amount of the net assets was less than the sales price in the agreement less costs to sell.

Major Classes of Assets and Liabilities Held For Sale

The carrying amounts of the major classes of assets and liabilities that were classified as held for sale at December 31, 2018 were as follows:

	December 31, 2018	
	(in millions)	
Receivables, net	\$	13
Property and equipment, net		10
Goodwill ⁽¹⁾		47
Intangible assets, net ⁽²⁾		16
Other assets		3
Total assets held for sale⁽³⁾	\$	89
Deferred tax liabilities	\$	4
Deferred revenue		12
Other current liabilities		4
Total liabilities held for sale⁽⁴⁾	\$	20

(1) The assignment of goodwill was based on the relative fair value of the disposal group and the portion of the remaining reporting unit.

(2) Primarily represents customer relationships.

(3) Included in other current assets in the Condensed Consolidated Balance Sheets as of December 31, 2018.

(4) Included in other current liabilities in the Condensed Consolidated Balance Sheets as of December 31, 2018.

* * * * *

7. Goodwill and Acquired Intangible Assets

Goodwill

The following table presents the changes in goodwill by business segment during the six months ended June 30, 2019:

	Market Services	Corporate Services	Information Services	Market Technology	Total
	(in millions)				
Balance at December 31, 2018	\$ 3,430	\$ 455	\$ 2,333	\$ 145	\$ 6,363
Goodwill acquired	—	—	—	137	137
Foreign currency translation adjustment	(58)	(6)	(43)	(11)	(118)
Balance at June 30, 2019	\$ 3,372	\$ 449	\$ 2,290	\$ 271	\$ 6,382

The goodwill acquired for Market Technology shown above relates to our acquisition of Cinnober. See “2019 Acquisition,” of Note 5, “Acquisitions and Divestitures,” for further discussion.

Goodwill represents the excess of purchase price over the value assigned to the net assets, including identifiable intangible assets, of a business acquired. Goodwill is allocated to our reporting units based on the assignment of the fair values of each reporting unit of the acquired company. We test goodwill for impairment at the reporting unit level annually, or in interim

periods if certain events occur indicating that the carrying amount may be impaired, such as changes in the business climate, poor indicators of operating performance or the sale or disposition of a significant portion of a reporting unit. There was no impairment of goodwill for the six months ended June 30, 2019 and 2018; however, events such as extended economic weakness or unexpected significant declines in operating results of a reporting unit may result in goodwill impairment charges in the future.

Acquired Intangible Assets

The following table presents details of our total acquired intangible assets, both finite- and indefinite-lived:

	June 30, 2019				December 31, 2018			
	Gross Amount	Accumulated Amortization	Net Amount	Weighted-Average Useful Life (in Years)	Gross Amount	Accumulated Amortization	Net Amount	Weighted-Average Useful Life (in Years)
	(in millions)				(in millions)			
Finite-Lived Intangible Assets								
Technology	\$ 65	\$ (18)	\$ 47	9	\$ 54	\$ (15)	\$ 39	9
Customer relationships	1,599	(484)	1,115	18	1,532	(456)	1,076	18
Other	18	(3)	15	8	17	(2)	15	8
Foreign currency translation adjustment	(160)	52	(108)		(149)	64	(85)	
Total finite-lived intangible assets	\$ 1,522	\$ (453)	\$ 1,069		\$ 1,454	\$ (409)	\$ 1,045	
Indefinite-Lived Intangible Assets								
Exchange and clearing registrations	\$ 1,257	\$ —	\$ 1,257		\$ 1,257	\$ —	\$ 1,257	
Trade names	121	—	121		122	—	122	
Licenses	52	—	52		52	—	52	
Foreign currency translation adjustment	(195)	—	(195)		(176)	—	(176)	
Total indefinite-lived intangible assets	\$ 1,235	\$ —	\$ 1,235		\$ 1,255	\$ —	\$ 1,255	
Total intangible assets	\$ 2,757	\$ (453)	\$ 2,304		\$ 2,709	\$ (409)	\$ 2,300	

Amortization expense for acquired finite-lived intangible assets was \$26 million for the three months ended June 30, 2019, \$28 million for the three months ended June 30, 2018, \$51 million for the six months ended June 30, 2019, and \$56 million for the six months ended June 30, 2018. Amortization expense decreased in 2019 primarily due to certain assets becoming fully amortized in the fourth quarter of 2018, partially offset by additional amortization expense associated with acquired intangible assets in 2019. These amounts are included in depreciation and amortization expense in the Condensed Consolidated Statements of Income.

The estimated future amortization expense (excluding the impact of foreign currency translation adjustments of \$108 million as of June 30, 2019) of acquired finite-lived intangible assets as of June 30, 2019 is as follows:

	(in millions)
2019 ⁽¹⁾	\$ 53
2020	105
2021	104
2022	101
2023	98
2024 and thereafter	716
Total	\$ 1,177

⁽¹⁾ Represents the estimated amortization to be recognized for the remaining six months of 2019.

8. Investments

The following table presents the details of our investments:

	June 30, 2019	December 31, 2018
	(in millions)	
Trading securities	\$ 251	\$ 259
Available-for-sale investment securities	8	9
Financial investments, at fair value	\$ 259	\$ 268
Equity method investments	\$ 147	\$ 135
Equity securities	\$ 68	\$ 44

Financial Investments, at Fair Value

Trading Securities

Trading securities, which are included in financial investments, at fair value in the Condensed Consolidated Balance Sheets, are primarily comprised of highly rated European government debt securities, of which \$180 million as of June 30, 2019 and \$166 million as of December 31, 2018, are assets primarily utilized to meet regulatory capital requirements, mainly for our clearing operations at Nasdaq Clearing.

Available-for-Sale Investment Securities

As of June 30, 2019 and December 31, 2018, available-for-sale investment securities, which are included in financial investments, at fair value in the Condensed Consolidated Balance Sheets, were primarily comprised of commercial paper. As of June 30, 2019 and December 31, 2018, the cumulative unrealized gains and losses on these securities were immaterial.

Equity Method Investments

As of June 30, 2019 and December 31, 2018, our equity method investments primarily included our equity interest in OCC.

The carrying amounts of our equity method investments are included in other non-current assets in the Condensed Consolidated Balance Sheets.

Net income recognized from our equity interest in the earnings and losses of these equity method investments was \$10 million for the three months ended June 30, 2019, \$5 million for the three months ended June 30, 2018, \$55 million for the six months ended June 30, 2019, and \$7 million for the six months ended June 30, 2018.

The change for the three and six months ended June 30, 2019 compared with the same periods in 2018 is primarily due to an increase in income recognized from our investment in OCC. Following the disapproval of the OCC capital plan in February 2019, described below, OCC suspended customer rebates and dividends to owners, including the unpaid dividend on 2018 results which Nasdaq expected to receive in March 2019. In 2018, we recorded \$16 million of income relating to our share of OCC's net income. We were not able to determine the impact of the disapproval of the OCC capital plan on OCC's 2018 net

income until March 2019, when OCC's 2018 financial statements were made available to us. As a result, in March 2019, we recognized an additional \$36 million of income relating to our share of OCC's net income for the year ended December 31, 2018. In March 2019 and in June 2019, we also recognized our share of OCC's quarterly 2019 net income which was \$9 million in both the first and second quarters of 2019.

OCC Capital Plan

In March 2015, OCC implemented a capital plan under which the options exchanges that are OCC's stockholders contributed \$150 million of new equity capital to OCC, committed to make future replenishment capital contributions under certain circumstances, and received commitments regarding future dividend payments and related matters. Nasdaq PHLX and ISE each contributed \$30 million of new equity capital under the OCC capital plan. OCC adopted specific policies with respect to fees, customer refunds and stockholder dividends, which envisioned an annual dividend equal to the portion of OCC's after-tax income that exceeded OCC's capital requirements after payment of refunds to OCC's clearing members (such refunds were generally 50% of the portion of OCC's pre-tax income that exceeded OCC's capital requirements). In 2018, 2017 and 2016, OCC disbursed annual dividends under the capital plan and Nasdaq, as the beneficial owner of shares held by Nasdaq PHLX and ISE, received \$13 million in 2018, \$10 million in 2017 and \$4 million in 2016. The dividend recorded by Nasdaq in 2016 did not include the dividend due to ISE because our acquisition of ISE was completed in June 2016, after that year's dividend had been paid.

In February 2016, after the SEC approved the rule change establishing the OCC capital plan, certain industry participants appealed that approval in the U.S. Court of Appeals. In February 2019, on remand from the Court of Appeals, the SEC disapproved the OCC rule change that established the capital plan. OCC began a phased return of capital contributed under the capital plan, and we received \$44 million in February 2019, with the remainder to be repaid at a later date. As a result of the SEC's disapproval of the rule change, we are also released from any future capital replenishment obligations under the 2015 capital plan.

Equity Securities

The carrying amounts of our equity securities are included in other non-current assets in the Condensed Consolidated Balance Sheets. We elected the measurement alternative for primarily all of our equity securities as they do not have a readily determinable fair value. Under the measurement alternative, these securities are measured at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. For the six months ended June 30, 2019, no impairment charges were recorded on our equity securities and there were no upward or downward adjustments recorded. As of December 31, 2018, our equity securities primarily represent various strategic investments made through our corporate venture program. As of June 30, 2019, our equity securities represent various strategic investments made through our c

orporate venture program and investments acquired through various acquisitions.

* * * * *

9. Deferred Revenue

Deferred revenue represents consideration received that is yet to be recognized as revenue. The changes in our deferred revenue during the six months ended June 30, 2019 are reflected in the following table:

	Initial Listing Revenues	Annual Listings Revenues	Market Technology Revenues	Corporate Solutions Revenues	Information Services Revenues	Other ⁽¹⁾	Total
	(in millions)						
Balance at December 31, 2018	\$ 66	\$ 4	\$ 75	\$ 36	\$ 80	\$ 20	\$ 281
Deferred revenue billed in the current period, net of recognition	18	118	28	30	67	6	267
Revenue recognized that was included in the beginning of the period	(16)	(2)	(29)	(28)	(58)	(7)	(140)
Translation adjustment	(2)	—	(4)	—	—	(1)	(7)
Balance at June 30, 2019	<u>\$ 66</u>	<u>\$ 120</u>	<u>\$ 70</u>	<u>\$ 38</u>	<u>\$ 89</u>	<u>\$ 18</u>	<u>\$ 401</u>

⁽¹⁾ Primarily includes deferred revenue from U.S. listing of additional shares fees which will continue to run-off as a result of the implementation of our all-inclusive annual fee. Listing of additional shares fees are included in our Listing Services business. The deferred revenue billed in the current period, net of recognition primarily pertains to our Market Services business.

As of June 30, 2019, we estimate that our deferred revenue will be recognized in the following years:

	Initial Listing Revenues	Annual Listings Revenues	Market Technology Revenues	Corporate Solutions Revenues	Information Services Revenues	Other ⁽¹⁾	Total
	(in millions)						
Fiscal year ended:							
2019 ⁽²⁾	\$ 12	\$ 120	\$ 35	\$ 31	\$ 67	\$ 7	\$ 272
2020	24	—	27	7	22	7	87
2021	13	—	8	—	—	3	24
2022	9	—	—	—	—	1	10
2023	5	—	—	—	—	—	5
2024 and thereafter	3	—	—	—	—	—	3
Total	<u>\$ 66</u>	<u>\$ 120</u>	<u>\$ 70</u>	<u>\$ 38</u>	<u>\$ 89</u>	<u>\$ 18</u>	<u>\$ 401</u>

⁽¹⁾ Other primarily includes revenues from U.S. listing of additional shares fees which are included in our Listing Services business.

⁽²⁾ Represents the estimated amortization to be recognized for the remaining six months of 2019.

The timing of recognition of our deferred market technology revenues is primarily dependent upon the completion of customization and any significant modifications made pursuant to existing market technology contracts. As such, as it relates to market technology revenues, the timing represents our best estimate.

10. Debt Obligations

The following table presents the changes in the carrying amount of our debt obligations during the six months ended June 30, 2019:

	December 31, 2018	Additions	Payments, Accretion and Other	June 30, 2019
Short-term debt:	(in millions)			
Commercial paper	\$ 275	\$ 1,866	\$ (1,674)	\$ 467
Senior unsecured floating rate notes repaid on March 22, 2019	500	—	(500)	—
5.55% senior unsecured notes repaid on May 1, 2019 ⁽¹⁾	599	—	(599)	—
\$400 million senior unsecured term loan facility repaid on June 28, 2019 (average interest rate of 4.00% for the period January 1, 2019 through June 28, 2019)	100	—	(100)	—
Total short-term debt	1,474	1,866	(2,873)	467
Long-term debt:				
3.875% senior unsecured notes due June 7, 2021	686	—	(6)	680
4.25% senior unsecured notes due June 1, 2024	497	—	—	497
1.75% senior unsecured notes due May 19, 2023	682	—	(5)	677
3.85% senior unsecured notes due June 30, 2026	496	—	1	497
1.75% senior unsecured notes due March 28, 2029	—	665	9	674
\$1 billion senior unsecured revolving credit facility due April 25, 2022 (average interest rate of 5.60% for the period January 1, 2019 through June 30, 2019)	(4)	15	(14)	(3)
Total long-term debt	2,357	680	(15)	3,022
Total debt obligations	\$ 3,831	\$ 2,546	\$ (2,888)	\$ 3,489

⁽¹⁾ Balance was reclassified to short-term debt as of March 31, 2019.

Commercial Paper Program

Our U.S. dollar commercial paper program is supported by our 2017 Credit Facility which provides liquidity support for the repayment of commercial paper issued through the commercial paper program. See “2017 Credit Facility” below for further discussion of our 2017 Credit Facility. The effective interest rate of commercial paper issuances fluctuates as short term interest rates and demand fluctuate. The fluctuation of these rates due to market conditions may impact our interest expense.

As of June 30, 2019, commercial paper notes in the table above reflect the aggregate principal amount, less the unamortized discount which is being accreted through interest expense over the life of the applicable notes. The original maturities of these notes range from 13 days to 63 days and the weighted-average maturity is 29 days. The weighted-average effective interest rate is 2.64% per annum.

Senior Unsecured Notes

Our senior unsecured notes were all issued at a discount. As a result of the discount, the proceeds received from each issuance were less than the aggregate principal amount. As of June 30, 2019, the amounts in the table above reflect the aggregate principal amount, less the unamortized debt discount and the unamortized debt issuance costs which are being accreted through interest expense over the life of the applicable notes. Our senior unsecured notes are general unsecured obligations

of ours and rank equally with all of our existing and future unsubordinated obligations and they are not guaranteed by any of our subsidiaries. The senior unsecured notes were issued under indentures that, among other things, limit our ability to consolidate, merge or sell all or substantially all of our assets, create liens, and enter into sale and leaseback transactions.

Upon a change of control triggering event (as defined in the various note indentures), the terms require us to repurchase all or part of each holder’s notes for cash equal to 101% of the aggregate principal amount purchased plus accrued and unpaid interest, if any.

Senior Unsecured Floating Rate Notes

In March 2019, we used net proceeds from the sale of commercial paper and cash on hand and repaid all of our 2019 Notes.

Nasdaq issued the 2019 Notes in September 2017. The 2019 Notes paid interest quarterly in arrears at a rate equal to the three-month U.S. dollar LIBOR as determined at the beginning of each quarterly period plus 0.39% per annum until March 22, 2019.

Early Extinguishment of 5.55% Senior Unsecured Notes Due 2020

Nasdaq issued the 2020 Notes in January 2010. The 2020 Notes paid interest semiannually at a rate of 5.55% per annum.

In May 2019, we primarily used the net proceeds from the 2029 Notes to repay in full and terminate our 2020 Notes. For further discussion of the 2029 Notes, see “1.75% Senior Unsecured Notes Due 2029” below. In connection with the early extinguishment of the 2020 Notes, we recorded a pre-tax charge of \$11 million, which primarily included a make-whole redemption price premium. This charge is included in general, administrative and other expense in the Condensed Consolidated Statements of Income for both the three and six months ended June 30, 2019.

3.875% Senior Unsecured Notes Due 2021

In June 2013, Nasdaq issued the 2021 Notes. The 2021 Notes pay interest annually at a rate of 3.875% per annum until June 7, 2021 and such rate may vary with Nasdaq’s debt rating up to a rate not to exceed 5.875%.

The 2021 Notes have been designated as a hedge of our net investment in certain foreign subsidiaries to mitigate the foreign exchange risk associated with certain investments in these subsidiaries. The decrease in the carrying amount of \$6 million noted in the “Payments, Accretion and Other” column in the table above primarily reflects the translation of the 2021 Notes into U.S. dollars and is recorded in accumulated other comprehensive loss within stockholders’ equity in the Condensed Consolidated Balance Sheets as of June 30, 2019.

4.25% Senior Unsecured Notes Due 2024

In May 2014, Nasdaq issued the 2024 Notes. The 2024 Notes pay interest semiannually at a rate of 4.25% per annum until June 1, 2024 and such rate may vary with Nasdaq’s debt rating up to a rate not to exceed 6.25%.

1.75% Senior Unsecured Notes Due 2023

In May 2016, Nasdaq issued the 2023 Notes. The 2023 Notes pay interest annually at a rate of 1.75% per annum until May 19, 2023 and such rate may vary with Nasdaq’s debt rating up to a rate not to exceed 3.75%.

The 2023 Notes have been designated as a hedge of our net investment in certain foreign subsidiaries to mitigate the foreign exchange rate risk associated with certain investments in these subsidiaries. The decrease in the carrying amount of \$5 million noted in the “Payments, Accretion and Other” column in the table above primarily reflects the translation of the 2023 Notes into U.S. dollars and is recorded in accumulated other comprehensive loss within stockholders’ equity in the Condensed Consolidated Balance Sheets as of June 30, 2019.

3.85% Senior Unsecured Notes Due 2026

In June 2016, Nasdaq issued the 2026 Notes. The 2026 Notes pay interest semiannually at a rate of 3.85% per annum until June 30, 2026 and such rate may vary with Nasdaq’s debt rating up to a rate not to exceed 5.85%.

1.75% Senior Unsecured Notes Due 2029

In April 2019, Nasdaq issued the 2029 Notes at a discount. As a result of the discount, the proceeds received from the issuance were less than the aggregate principal amount.

The 2029 Notes are unsecured, pay interest annually in arrears, beginning on March 28, 2020 at a rate of 1.75% per annum until March 28, 2029 and such rate may vary with Nasdaq’s debt rating up to a rate not to exceed 3.75%. The 2029 Notes may be redeemed by Nasdaq at any time, subject to a make-whole amount. The proceeds from the 2029 Notes, approximately \$665 million after deducting the underwriting discount and expenses of this offering, were primarily used to redeem the 2020 Notes. For further discussion of the 2020 Notes, see “5.55% Senior Unsecured Notes Due 2020” above.

The 2029 Notes have been designated as a hedge of our net investment in certain foreign subsidiaries to mitigate the foreign exchange risk associated with certain investments in these subsidiaries. The increase in the carrying amount of \$9 million noted in the “Payments, Accretion and Other” column in the table above reflects the translation of the 2029 Notes into U.S. dollars and is recorded in accumulated other comprehensive loss within stockholders’ equity in the Condensed Consolidated Balance Sheets as of June 30, 2019.

Credit Facilities

Early Extinguishment of 2016 Credit Facility

In March 2016, Nasdaq entered into the 2016 Credit Facility. Under our 2016 Credit Facility, borrowings bore interest on the principal amount outstanding at a variable interest rate based on either the LIBOR or the base rate (or other applicable rate with respect to non-dollar borrowings), plus an applicable margin that varied with Nasdaq’s debt rating.

In June 2019, we used proceeds from issuances of commercial paper to repay in full and terminate our 2016 Credit Facility.

2017 Credit Facility

In April 2017, Nasdaq entered into the 2017 Credit Facility. The 2017 Credit Facility consists of a \$1 billion five-year revolving credit facility (with sublimits for non-dollar borrowings, swingline borrowings and letters of credit), which replaced a former credit facility. Nasdaq intends to use funds available under the 2017 Credit Facility for general corporate purposes and to provide liquidity support for the repayment of commercial paper issued through the commercial paper program. Nasdaq is permitted to repay borrowings under our 2017 Credit Facility at any time in whole or in part, without penalty.

As of June 30, 2019, no amounts were outstanding on the 2017 Credit Facility. The \$3 million balance represents unamortized debt issuance costs which are being accreted through interest expense over the life of the credit facility. Of the \$1 billion that is available for borrowing, \$469 million provides liquidity support for the commercial paper program and for a letter of credit. As such, as of June 30, 2019, the total remaining amount available under the 2017 Credit Facility was \$531 million. See “Commercial Paper Program” above for further discussion of our commercial paper program.

Under our 2017 Credit Facility, borrowings under the revolving credit facility and swingline borrowings bear interest on the principal amount outstanding at a variable interest rate based

on either the LIBOR or the base rate (as defined in the credit agreement) (or other applicable rate with respect to non-dollar borrowings), plus an applicable margin that varies with Nasdaq's debt rating. We are charged commitment fees of 0.125% to 0.4%, depending on our credit rating, whether or not amounts have been borrowed. These commitment fees are included in interest expense and were not material for both the three and six months ended June 30, 2019 and 2018.

The 2017 Credit Facility contains financial and operating covenants. Financial covenants include a minimum interest expense coverage ratio and a maximum leverage ratio. Operating covenants include, among other things, limitations on Nasdaq's ability to incur additional indebtedness, grant liens on assets, dispose of assets and make certain restricted payments. The facility also contains customary affirmative covenants, including access to financial statements, notice of defaults and certain other material events, maintenance of properties and insurance, and events of default, including cross-defaults to our material indebtedness.

The 2017 Credit Facility includes an option for Nasdaq to increase the available aggregate amount by up to \$500 million, subject to the consent of the lenders funding the increase and certain other conditions.

Other Credit Facilities

We also have credit facilities related to our Nasdaq Clearing operations in order to provide further liquidity. Credit facilities, which are available in multiple currencies, totaled \$211 million as of June 30, 2019 and \$220 million as of December 31, 2018 in available liquidity, none of which was utilized.

Debt Covenants

As of June 30, 2019, we were in compliance with the covenants of all of our debt obligations.

11. Retirement Plans

Defined Contribution Savings Plan

We sponsor a 401(k) Plan for U.S. employees. Employees are immediately eligible to make contributions to the plan and are also eligible for an employer contribution match at an amount equal to 100.0% of the first 6.0% of eligible employee contributions. Savings plan expense included in compensation and benefits expense in the Condensed Consolidated Statements of Income was \$3 million for both the three months ended June 30, 2019 and 2018, \$6 million for the six months ended June 30, 2019, and \$7 million for six months ended June 30, 2018.

Pension and Supplemental Executive Retirement Plans

We maintain non-contributory, defined-benefit pension plans, non-qualified SERPs for certain senior executives and other post-retirement benefit plans for eligible employees in the U.S., collectively referred to as the Nasdaq Benefit Plans. Our pension plans and SERPs are frozen. Future service and salary for all participants do not count toward an accrual of benefits under the pension plans and SERPs. Most employees outside the U.S. are covered by local retirement plans or by applicable

social laws. Benefits under social laws are generally expensed in the periods in which the costs are incurred. The total expense for these plans is included in compensation and benefits expense in the Condensed Consolidated Statements of Income and was \$5 million for both the three months ended June 30, 2019 and 2018, \$10 million for the six months ended June 30, 2019, and \$11 million for the six months ended June 30, 2018.

12. Share-Based Compensation

We have a share-based compensation program for employees and non-employee directors. Share-based awards granted under this program include stock options, restricted stock (consisting of restricted stock units), and PSUs. For accounting purposes, we consider PSUs to be a form of restricted stock.

Summary of Share-Based Compensation Expense

The following table shows the total share-based compensation expense resulting from equity awards and the 15.0% discount for the ESPP for the three and six months ended June 30, 2019 and 2018 in the Condensed Consolidated Statements of Income:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
	(in millions)			
Share-based compensation expense before income taxes	\$ 20	\$ 18	\$ 36	\$ 33
Income tax benefit	(6)	(5)	(10)	(9)
Share-based compensation expense after income taxes	\$ 14	\$ 13	\$ 26	\$ 24

Common Shares Available Under Our Equity Plan

As of June 30, 2019, we had approximately 10.3 million shares of common stock authorized for future issuance under our Equity Plan.

Restricted Stock

We grant restricted stock to most active employees. The grant date fair value of restricted stock awards is based on the closing stock price at the date of grant less the present value of future cash dividends. Restricted stock awards granted generally vest 25.0% on the second anniversary of the grant date, 25.0% on the third anniversary of the grant date, and 50.0% on the fourth anniversary of the grant date.

Summary of Restricted Stock Activity

The following table summarizes our restricted stock activity for the six months ended June 30, 2019:

	Restricted Stock	
	Number of Awards	Weighted-Average Grant Date Fair Value
Unvested balances at January 1, 2019	1,583,375	\$ 68.62
Granted	576,036	\$ 84.46
Vested	(477,052)	\$ 59.15
Forfeited	(102,894)	\$ 72.16
Unvested balances at June 30, 2019	1,579,465	\$ 77.00

As of June 30, 2019, \$73 million of total unrecognized compensation cost related to restricted stock is expected to be recognized over a weighted-average period of 1.9 years.

PSUs

PSUs are based on performance measures that impact the amount of shares that each recipient will receive upon vesting. We have two performance-based long-term PSU programs for certain officers, a one-year performance-based program and a three-year cumulative performance-based program that focuses on TSR.

One-Year PSU Program

The grant date fair value of PSUs under the one-year performance-based program is based on the closing stock price at the date of grant less the present value of future cash dividends. Under this program, an eligible employee receives a target grant of PSUs, but may receive from 0.0% to 150.0% of the target amount granted, depending on the achievement of performance measures. These awards vest ratably on an annual basis over a three-year period commencing with the end of the one-year performance period. Compensation cost is recognized over the performance period and the three-year vesting period based on the probability that such performance measures will be achieved, taking into account an estimated forfeiture rate.

During 2018, certain grants of PSUs with a one-year performance period exceeded the applicable performance parameters. As a result, an additional 51,914 units above target were considered granted in the first quarter of 2019 and are included in the below table.

Three-Year PSU Program

Under the three-year performance-based program, each eligible individual receives PSUs, subject to market conditions, with a three-year cumulative performance period that vest at the end of the performance period. Compensation cost is recognized over the three-year vesting period, taking into account an estimated forfeiture rate, regardless of whether the market condition is satisfied, provided that the requisite service period has been completed. Performance will be determined by comparing Nasdaq's TSR to two peer groups, each weighted

50.0%. The first peer group consists of exchange companies, and the second peer group consists of all companies in the S&P 500. Nasdaq's relative performance ranking against each of these groups will determine the final number of shares delivered to each individual under the program. The payout under this program will be between 0.0% and 200.0% of the number of PSUs granted and will be determined by Nasdaq's overall performance against both peer groups. However, if Nasdaq's TSR is negative for the three-year performance period, regardless of TSR ranking, the payout will not exceed 100.0% of the number of PSUs granted. We estimate the fair value of PSUs granted under the three-year PSU program using the Monte Carlo simulation model, as these awards contain a market condition.

Certain grants of PSUs that were issued in 2016 with a three-year performance period exceeded the applicable performance parameters. As a result, an additional 99,622 units above target were considered granted in the first quarter of 2019 and are included in the below table.

The following weighted-average assumptions were used to determine the weighted-average fair values of the PSU awards granted under the three-year PSU program for the six months ended June 30, 2019:

	Six Months Ended June 30,	
	2019	2018
Weighted-average risk free interest rate ⁽¹⁾	2.26%	2.36%
Expected volatility ⁽²⁾	16.5%	18.7%
Weighted-average grant date share price	\$89.00	\$ 86.24
Weighted-average fair value at grant date	\$97.65	\$ 116.86

(1) The risk-free interest rate for periods within the expected life of the award is based on the U.S. Treasury yield curve in effect at the time of grant.

(2) We use historic volatility for PSU awards issued under the three-year PSU program, as implied volatility data could not be obtained for all the companies in the peer groups used for relative performance measurement within the program.

In addition, the annual dividend assumption utilized in the Monte Carlo simulation model is based on Nasdaq's dividend yield at the date of grant.

Summary of PSU Activity

The following table summarizes our PSU activity for the six months ended June 30, 2019:

	PSUs			
	One-Year Program		Three-Year Program	
	Number of Awards	Weighted-Average Grant Date Fair Value	Number of Awards	Weighted-Average Grant Date Fair Value
Unvested balances at January 1, 2019	314,231	\$ 74.01	837,750	\$ 96.57
Granted ⁽¹⁾	179,599	\$ 83.56	397,553	\$ 96.55
Vested	(8,207)	\$ 64.91	(431,751)	\$ 93.25
Forfeited	(20,958)	\$ 74.86	(6,101)	\$ 103.29
Unvested balances at June 30, 2019	464,665	\$ 77.82	797,451	\$ 98.31

⁽¹⁾ Includes target awards granted and certain additional awards granted based on overachievement of performance parameters.

As of June 30, 2019, \$17 million of total unrecognized compensation cost related to the one-year PSU program is expected to be recognized over a weighted-average period of 1.6 years. For the three-year PSU program, \$45 million of total unrecognized compensation cost is expected to be recognized over a weighted-average period of 1.6 years.

Stock Options

In January 2017, our CEO received 268,817 performance-based non-qualified stock options which will vest one-third annually over a three-year period, with each vesting contingent upon the achievement of annual performance parameters. On January 29, 2019, Nasdaq's management compensation committee and board of directors determined that the performance goal for 2018 was met, resulting in the settlement of the second tranche of the grant. There were no stock option awards granted during the six months ended June 30, 2019.

The weighted-average grant date fair value for the 2017 grant was \$66.68. We estimated the fair value of this stock option award using the Black-Scholes valuation model using the following assumptions:

Expected life (in years)	6
Weighted-average risk free interest rate	2.1%
Expected volatility	25.6%
Dividend yield	1.92%

Our computation of expected life was based on an estimate of the average length of time between option grant and exercise. The interest rate for periods within the expected life of the award was based on the U.S. Treasury yield curve in effect at the time of grant. Our computation of expected volatility was an estimate

of the future upward/downward fluctuations in the underlying share price. We used Nasdaq's historical volatility for the trailing 6-year period as of the grant date. Our computation of dividend yield was based on annualized dividends expressed as a percentage of share price.

Summary of Stock Option Activity

A summary of stock option activity for the six months ended June 30, 2019 is as follows:

	Number of Stock Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in millions)
Outstanding at January 1, 2019	447,716	\$ 49.25	5.51	\$ 14
Exercised	(53,408)	21.02		
Forfeited	(25)	20.10		
Outstanding at June 30, 2019	394,283	\$ 52.91	5.56	\$ 17
Exercisable at June 30, 2019	305,927	\$ 48.87	4.99	\$ 14

The net cash proceeds from the exercise of 44,742 stock options for the three months ended June 30, 2019 and 53,408 stock options for the six months ended June 30, 2019 was \$1 million in both periods. We received net cash proceeds of \$1 million from the exercise of 53,805 stock options for the three months ended June 30, 2018 and \$2 million from the exercise of 88,000 stock options for the six months ended June 30, 2018.

The aggregate intrinsic value in the above table represents the total pre-tax intrinsic value (i.e., the difference between our closing stock price on June 28, 2019 of \$96.17 and the exercise price, times the number of shares) based on stock options with an exercise price less than Nasdaq's closing price of \$96.17 as of June 28, 2019, which would have been received by the option holders had the option holders exercised their stock options on that date. This amount can change based on the fair market value of our common stock. The total number of in-the-money stock options exercisable as of June 30, 2019 was 0.3 million and the weighted-average exercise price was \$48.87. As of June 30, 2018, 0.3 million outstanding stock options were exercisable and the weighted-average exercise price was \$35.98.

The total pre-tax intrinsic value of stock options exercised was \$3 million for the three months ended June 30, 2019, \$4 million for the six months ended June 30, 2019, \$4 million for the three months ended June 30, 2018, and \$6 million for the six months ended June 30, 2018.

ESPP

We have an ESPP under which approximately 1.7 million shares of our common stock have been reserved for future issuance as of June 30, 2019. Under our ESPP, employees may purchase shares having a value not exceeding 10.0% of their annual

compensation, subject to applicable annual Internal Revenue Service limitations. We record compensation expense related to the 15.0% discount that is given to our employees which totaled \$2 million for both the six months ended June 30, 2019 and 2018.

13. Nasdaq Stockholders' Equity

Common Stock

As of June 30, 2019, 300,000,000 shares of our common stock were authorized, 171,288,122 shares were issued and 165,389,235 shares were outstanding. The holders of common stock are entitled to one vote per share, except that our certificate of incorporation limits the ability of any person to vote in excess of 5.0% of the then-outstanding shares of Nasdaq common stock.

Common Stock in Treasury, at Cost

We account for the purchase of treasury stock under the cost method with the shares of stock repurchased reflected as a reduction to Nasdaq stockholders' equity and included in common stock in treasury, at cost in the Condensed Consolidated Balance Sheets. Shares repurchased under our share repurchase program are currently retired and canceled and are therefore not included in the common stock in treasury balance. When treasury shares are reissued, they are recorded at the average cost of the treasury shares acquired. We held 5,898,887 shares of common stock in treasury as of June 30, 2019 and 5,544,321 shares as of December 31, 2018, most of which are related to shares of our common stock repurchased for the settlement of employee tax withholding obligations arising from the vesting of restricted stock and PSUs.

Share Repurchase Program

In January 2018, our board of directors authorized an additional \$500 million for the share repurchase program, increasing the aggregate authorized amount to \$726 million.

These purchases may be made from time to time at prevailing market prices in open market purchases, privately-negotiated

transactions, block purchase techniques or otherwise, as determined by our management. The purchases are primarily funded from existing cash balances. The share repurchase program may be suspended, modified or discontinued at any time. The share repurchase program has no defined expiration date.

The following is a summary of our share repurchase activity, reported based on settlement date, for the six months ended June 30, 2019 and 2018:

	Six Months Ended June 30,	
	2019	2018
Number of shares of common stock repurchased	538,449	3,929,520
Average price paid per share	\$ 92.84	\$ 86.58
Total purchase price (in millions)	\$ 50	\$ 340

As discussed above in "Common Stock in Treasury, at Cost," shares repurchased under our share repurchase program are currently retired and cancelled. As of June 30, 2019, the remaining amount authorized for share repurchases under the program was \$282 million.

Other Repurchases of Common Stock

During the first six months of 2019, we repurchased 354,566 shares of our common stock in settlement of employee tax withholding obligations arising from the vesting of restricted stock and PSUs.

Preferred Stock

Our certificate of incorporation authorizes the issuance of 30,000,000 shares of preferred stock, par value \$0.01 per share, issuable from time to time in one or more series. As of June 30, 2019 and December 31, 2018, no shares of preferred stock were issued or outstanding.

* * * * *

Cash Dividends on Common Stock

During the first six months of 2019, our board of directors declared the following cash dividends:

Declaration Date	Dividend Per Common Share	Record Date	Total Amount Paid	Payment Date
			(in millions)	
January 29, 2019	\$ 0.44	March 15, 2019	\$ 73	March 29, 2019
April 23, 2019	0.47	June 14, 2019	77	June 28, 2019
			<u>\$ 150</u>	

The total amount paid of \$150 million was recorded in retained earnings in the Condensed Consolidated Balance Sheets at June 30, 2019.

In July 2019, the board of directors approved a regular quarterly cash dividend of \$0.47 per share on our outstanding common stock. The dividend is payable on September 27, 2019 to shareholders of record at the close of business on September 13, 2019. The estimated amount of this dividend is \$78 million. Future declarations of quarterly dividends and the establishment of future record and payment dates are subject to approval by the board of directors.

Our board of directors maintains a dividend policy with the intention to provide stockholders with regular and growing dividends over the long term as earnings and cash flow grow.

14. Earnings Per Share

The following table sets forth the computation of basic and diluted earnings per share:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
(in millions, except share and per share amounts)				
Numerator:				
Net income attributable to common shareholders	\$ 174	\$ 162	\$ 421	\$ 339
Denominator:				
Weighted-average common shares outstanding for basic earnings per share	165,596,174	165,748,107	165,470,767	166,331,583
Weighted-average effect of dilutive securities:				
Employee equity awards ⁽¹⁾	1,445,245	1,651,497	1,564,016	1,812,437
Weighted-average common shares outstanding for diluted earnings per share	167,041,419	167,399,604	167,034,783	168,144,020
Basic and diluted earnings per share:				
Basic earnings per share	\$ 1.05	\$ 0.98	\$ 2.54	\$ 2.04
Diluted earnings per share	\$ 1.04	\$ 0.97	\$ 2.52	\$ 2.02

⁽¹⁾ PSUs, which are considered contingently issuable, are included in the computation of dilutive earnings per share on a weighted average basis when management determines that the applicable performance criteria would have been met if the performance period ended as of the date of the relevant computation.

Securities that were not included in the computation of diluted earnings per share because their effect was antidilutive were immaterial for the three and six months ended June 30, 2019 and 2018.

15. Fair Value of Financial Instruments

The following tables present our financial assets and financial liabilities that are measured at fair value on a recurring basis as of June 30, 2019 and December 31, 2018.

	June 30, 2019			
	Total	Level 1	Level 2	Level 3
(in millions)				
Assets at Fair Value				
Financial investments, at fair value	\$ 259	\$ 164	\$ 95	\$ —
Default fund and margin deposit investments	1,496	234	1,262	—
Total assets at fair value	\$ 1,755	\$ 398	\$ 1,357	\$ —

	December 31, 2018			
	Total	Level 1	Level 2	Level 3
(in millions)				
Assets at Fair Value				
Financial investments, at fair value	\$ 268	\$ 133	\$ 135	\$ —
Default fund and margin deposit investments	1,649	327	1,322	—
Total assets at fair value	\$ 1,917	\$ 460	\$ 1,457	\$ —
Liabilities at Fair Value				
Other financial instruments	\$ 112	\$ —	\$ 112	\$ —
Total liabilities at fair value	\$ 112	\$ —	\$ 112	\$ —

As of June 30, 2019 and December 31, 2018, Level 1 financial investments, at fair value were primarily comprised of trading securities, mainly highly rated European government debt securities. As of June 30, 2019 and December 31, 2018, Level 2 financial investments, at fair value were primarily comprised of trading securities, mainly time deposits and European mortgage bonds. Of the Level 1 and Level 2 financial investments, at fair value, \$180 million as of June 30, 2019 and \$166 million as of December 31, 2018 are assets primarily utilized to meet regulatory capital requirements, mainly for our clearing operations at Nasdaq Clearing.

Our Level 1 default fund and margin deposit investments were primarily comprised of highly rated European and U.S.

government debt securities. Level 2 default fund and margin deposit investments were primarily comprised of central bank certificates and reverse repurchase agreements, as of June 30, 2019 and December 31, 2018.

Our Level 2 other financial instruments at December 31, 2018 include a liability associated with Nasdaq Clearing's requirement to fulfill the settlement of certain contracts of a defaulted member. The fair value of this guarantee was \$112 million as of December 31, 2018 and is included in other current liabilities in the Condensed Consolidated Balance Sheets. Collateral of \$112 million as of December 31, 2018 was recorded in other current assets which offsets this liability. See Note 16, "Clearing Operations," for further discussion of default fund contributions and margin deposits.

Financial Instruments Not Measured at Fair Value on a Recurring Basis

Some of our financial instruments are not measured at fair value on a recurring basis but are recorded at amounts that approximate fair value due to their liquid or short-term nature. Such financial assets and financial liabilities include: cash and cash equivalents, restricted cash, receivables, net, certain other current assets, accounts payable and accrued expenses, Section 31 fees payable to SEC, accrued personnel costs, commercial paper and certain other current liabilities.

Our investment in OCC is accounted for under the equity method of accounting. We have elected the measurement alternative for the majority of our equity securities, which primarily represent various strategic investments made through our corporate venture program. See "Equity Method Investments," and "Equity Securities," of Note 8, "Investments," for further discussion.

We also consider our debt obligations to be financial instruments. The fair value of our debt obligations, utilizing discounted cash flow analyses for our floating rate debt and prevailing market rates for our fixed rate debt, was \$3.7 billion as of June 30, 2019 and \$3.9 billion as of December 31, 2018. The discounted cash flow analyses are based on borrowing rates currently available to us for debt with similar terms and maturities. The fair value of our commercial paper approximates the carrying value since the rates of interest on this short-term debt approximate market rates as of June 30, 2019. Our commercial paper and our fixed rate and floating rate debt are categorized as Level 2 in the fair value hierarchy.

For further discussion of our debt obligations, see Note 10, "Debt Obligations."

Non-Financial Assets Measured at Fair Value on a Non-Recurring Basis

Our non-financial assets, which include goodwill, intangible assets, and other long-lived assets, are not required to be carried at fair value on a recurring basis. Fair value measures of non-financial assets are primarily used in the impairment analysis of these assets. Any resulting asset impairment would require that the non-financial asset be recorded at its fair value. Nasdaq uses Level 3 inputs to measure the fair value of the above assets

on a non-recurring basis. As of June 30, 2019 and December 31, 2018, there were no non-financial assets measured at fair value on a non-recurring basis.

16. Clearing Operations

Nasdaq Clearing

Nasdaq Clearing is authorized and supervised under EMIR as a multi-asset clearinghouse by the SFSA. Such authorization is effective for all member states of the European Union and certain other non-member states that are part of the European Economic Area, including Norway. The clearinghouse acts as the CCP for exchange and OTC trades in equity derivatives, fixed income derivatives, resale and repurchase contracts, power derivatives, emission allowance derivatives, fuel oil derivatives, and seafood derivatives.

Through our clearing operations in the financial markets, which include the resale and repurchase market, the commodities markets, and the seafood market, Nasdaq Clearing is the legal counterparty for, and guarantees the fulfillment of, each contract cleared. These contracts are not used by Nasdaq Clearing for the purpose of trading on its own behalf. As the legal counterparty of each transaction, Nasdaq Clearing bears the counterparty risk between the purchaser and seller in the contract. In its guarantor role, Nasdaq Clearing has precisely equal and offsetting claims to and from clearing members on opposite sides of each contract, standing as the CCP on every contract cleared. In accordance with the rules and regulations of Nasdaq Clearing, default fund and margin collateral requirements are calculated for each clearing member's positions in accounts with the CCP. See "Default Fund Contributions and Margin Deposits" below for further discussion of Nasdaq Clearing's default fund and margin requirements.

Nasdaq Clearing maintains four member sponsored default funds: one related to financial markets, one related to commodities markets, one related to the seafood market, and a mutualized fund. Under this structure, Nasdaq Clearing and its clearing members must contribute to the total regulatory capital related to the clearing operations of Nasdaq Clearing. This structure applies an initial separation of default fund contributions for the financial, commodities and seafood markets in order to create a buffer for each market's counterparty risks. Simultaneously, a mutualized default fund provides capital efficiencies to Nasdaq Clearing's members with regard to total regulatory capital required. See "Default Fund Contributions" below for further discussion of Nasdaq Clearing's default fund. Power of assessment and a liability waterfall also have been implemented. See "Power of Assessment" and "Liability Waterfall" below for further discussion. These requirements align risk between Nasdaq Clearing and its clearing members.

Nasdaq Commodities Clearing Default

In September 2018, a member of the Nasdaq Clearing commodities market defaulted due to inability to post sufficient collateral to cover increased margin requirements for the positions of the relevant member, which had experienced losses

due to sharp adverse movements in the Nordic - German power market spread. Nasdaq Clearing followed default procedures and offset the future market risk on the defaulting member's positions. The default resulted in a loss of \$133 million. In accordance with the liability waterfall, the first \$8 million of the loss was allocated to Nasdaq Clearing's junior capital and the remainder was allocated on a pro-rata basis to the commodities clearing members' default funds. In September 2018, these funds were replenished.

In December 2018, we initiated a capital relief program. The capital relief program was a voluntary program open to each commodities default fund participant; each such participant who agreed to the capital relief program received a proportion of the funds made available under the capital relief program as reflected by their proportionate share of the aggregate of the clearing members' default fund replenishments. As of June 30, 2019, we have disbursed substantially all of the \$23 million offered through the program.

As a result of the default, a liability of \$112 million as of December 31, 2018 was recorded in other current liabilities. Collateral of \$112 million as of December 31, 2018 was recorded in other current assets in the Condensed Consolidated Balance Sheets in order to allow Nasdaq Clearing to fulfill the settlement of certain contracts of the defaulted member arising from the default management process. We had established mitigating positions. As of June 30, 2019, these contracts and mitigating positions have either expired or were sold to a third party together with associated collateral. The collateral and liability were previously included in default funds and margin deposits.

Default Fund Contributions and Margin Deposits

As of June 30, 2019, clearing member default fund contributions and margin deposits were as follows:

	June 30, 2019		
	Cash Contributions	Non-Cash Contributions	Total Contributions
	(in millions)		
Default fund contributions	\$ 438	\$ 123	\$ 561
Margin deposits	2,723	3,473	6,196
Total	\$ 3,161	\$ 3,596	\$ 6,757

In accordance with its investment policy, of the total cash contributions of \$3,161 million, Nasdaq Clearing has invested \$973 million in highly rated European and U.S. government debt securities or central bank certificates with maturity dates primarily 90 days or less and \$523 million in reverse repurchase agreements secured with highly rated government securities with maturity dates that range from 3 days to 18 days. The carrying value of these securities approximates their fair value due to the short-term nature of the instruments and reverse repurchase agreements. The remainder of this balance was held in cash in demand deposit accounts at central banks and large, highly rated financial institutions. Of the total default fund contributions of \$561 million, Nasdaq Clearing can utilize

\$473 million as capital resources in the event of a counterparty default. The remaining balance of \$88 million pertains to member posted surplus balances.

In the investment activity related to default fund and margin contributions, we are exposed to counterparty risk related to reverse repurchase agreement transactions, which reflect the risk that the counterparty might become insolvent and, thus, fail to meet its obligations to Nasdaq Clearing. We mitigate this risk by only engaging in transactions with high credit quality reverse repurchase agreement counterparties and by limiting the acceptable collateral under the reverse repurchase agreement to high quality issuers, primarily government securities and other securities explicitly guaranteed by a government. The value of the underlying security is monitored during the lifetime of the contract, and in the event the market value of the underlying security falls below the reverse repurchase amount, our clearinghouse may require additional collateral or a reset of the contract.

Default Fund Contributions

Required contributions to the default funds are proportional to the exposures of each clearing member. When a clearing member is active in more than one market, contributions must be made to all markets' default funds in which the member is active. Clearing members' eligible contributions may include cash and non-cash contributions. Cash contributions received are held in cash or invested by Nasdaq Clearing, in accordance with its investment policy, either in highly rated government debt securities, time deposits, central bank certificates or reverse repurchase agreements with highly rated government debt securities as collateral. Nasdaq Clearing maintains and manages all cash deposits related to margin collateral. All risks and rewards of collateral ownership, including interest, belong to Nasdaq Clearing. Clearing members' cash contributions are included in default funds and margin deposits in the Condensed Consolidated Balance Sheets as both a current asset and a current liability. Non-cash contributions include highly rated government debt securities that must meet specific criteria approved by Nasdaq Clearing. Non-cash contributions are pledged assets that are not recorded in the Consolidated Balance Sheets as Nasdaq Clearing does not take legal ownership of these assets and the risks and rewards remain with the clearing members. These balances may fluctuate over time due to changes in the amount of deposits required and whether members choose to provide cash or non-cash contributions. Assets pledged are held at a nominee account in Nasdaq Clearing's name for the benefit of the clearing members and are immediately accessible by Nasdaq Clearing in the event of a default. In addition to clearing members' required contributions to the liability waterfall, Nasdaq Clearing is also required to contribute capital to the liability waterfall and overall regulatory capital as specified under its clearinghouse rules. As of June 30, 2019, Nasdaq Clearing committed capital totaling \$152 million to the liability waterfall and overall regulatory capital, in the form of government debt securities, which are recorded as financial investments, at fair value in the Condensed Consolidated Balance Sheets. The combined regulatory capital of the clearing members and Nasdaq Clearing

is intended to secure the obligations of a clearing member exceeding such member's own margin and default fund deposits and may be used to cover losses sustained by a clearing member in the event of a default.

Margin Deposits

Nasdaq Clearing requires all clearing members to provide collateral, which may consist of cash and non-cash contributions, to guarantee performance on the clearing members' open positions, or initial margin. In addition, clearing members must also provide collateral to cover the daily margin call if needed. See "Default Fund Contributions" above for further discussion of cash and non-cash contributions.

Similar to default fund contributions, Nasdaq Clearing maintains and manages all cash deposits related to margin collateral. All risks and rewards of collateral ownership, including interest, belong to Nasdaq Clearing and are recorded in revenues. These cash deposits are recorded in default funds and margin deposits in the Condensed Consolidated Balance Sheets as both a current asset and a current liability. Pledged margin collateral is not recorded in our Condensed Consolidated Balance Sheets as all risks and rewards of collateral ownership, including interest, belong to the counterparty. Assets pledged are held at a nominee account in Nasdaq Clearing's name for the benefit of the clearing members and are immediately accessible by Nasdaq Clearing in the event of a default.

Nasdaq Clearing marks to market all outstanding contracts and requires payment from clearing members whose positions have lost value. The mark-to-market process helps identify any clearing members that may not be able to satisfy their financial obligations in a timely manner allowing Nasdaq Clearing the ability to mitigate the risk of a clearing member defaulting due to exceptionally large losses. In the event of a default, Nasdaq Clearing can access the defaulting member's margin and default fund deposits to cover the defaulting member's losses.

Regulatory Capital and Risk Management Calculations

Nasdaq Clearing manages risk through a comprehensive counterparty risk management framework, which is comprised of policies, procedures, standards and financial resources. The level of regulatory capital is determined in accordance with Nasdaq Clearing's regulatory capital policy, as approved by the SFSA. Regulatory capital calculations are continuously updated through a proprietary capital-at-risk calculation model that establishes the appropriate level of capital.

As mentioned above, Nasdaq Clearing is the legal counterparty for each contract cleared and thereby guarantees the fulfillment of each contract. Nasdaq Clearing accounts for this guarantee as a performance guarantee. We determine the fair value of the performance guarantee by considering daily settlement of contracts and other margining and default fund requirements, the risk management program, historical evidence of default payments, and the estimated probability of potential default payouts. The calculation is determined using proprietary risk management software that simulates gains and losses based on

historical market prices, extreme but plausible market scenarios, volatility and other factors present at that point in time for those particular unsettled contracts. Based on this analysis, excluding any liability related to the Nasdaq commodities clearing default (see discussion above), the estimated liability was nominal and no liability was recorded as of June 30, 2019.

Power of Assessment

To further strengthen the contingent financial resources of the clearinghouse, Nasdaq Clearing has power of assessment that provides the ability to collect additional funds from its clearing members to cover a defaulting member's remaining obligations up to the limits established under the terms of the clearinghouse rules. The power of assessment corresponds to 100.0% of the clearing member's aggregate contribution to the financial, commodities and seafood markets' default funds.

Liability Waterfall

The liability waterfall is the priority order in which the capital resources would be utilized in the event of a default where the defaulting clearing member's collateral would not be sufficient to cover the cost to settle its portfolio. If a default occurs and the defaulting clearing member's collateral, including cash deposits and pledged assets, is depleted, then capital is utilized in the following amount and order:

- junior capital contributed by Nasdaq Clearing, which totaled \$34 million as of June 30, 2019;
- a loss sharing pool related only to the financial market that is contributed to by clearing members and only applies if the defaulting member's portfolio includes interest rate swap products;
- specific market default fund where the loss occurred (i.e., the financial, commodities, or seafood market), which includes capital contributions of the clearing members on a pro-rata basis;
- senior capital contributed to each specific market by Nasdaq Clearing, calculated in accordance with clearinghouse rules, which totaled \$22 million as of June 30, 2019; and
- mutualized default fund, which includes capital contributions of the clearing members on a pro-rata basis.

If additional funds are needed after utilization of the liability waterfall, then Nasdaq Clearing will utilize its power of assessment and additional capital contributions will be required by non-defaulting members up to the limits established under the terms of the clearinghouse rules.

In addition to the capital held to withstand counterparty defaults described above, Nasdaq Clearing also has committed capital of \$96 million to ensure that it can handle an orderly wind-down of its operation, and that it is adequately protected against investment, operational, legal, and business risks.

Market Value of Derivative Contracts Outstanding

The following table includes the market value of derivative contracts outstanding prior to netting:

	June 30, 2019	
	(in millions)	
Commodity and seafood options, futures and forwards ⁽¹⁾⁽²⁾⁽³⁾	\$	411
Fixed-income options and futures ⁽¹⁾⁽²⁾		889
Stock options and futures ⁽¹⁾⁽²⁾		133
Index options and futures ⁽¹⁾⁽²⁾		84
Total	\$	1,517

(1) We determined the fair value of our option contracts using standard valuation models that were based on market-based observable inputs including implied volatility, interest rates and the spot price of the underlying instrument.

(2) We determined the fair value of our futures contracts based upon quoted market prices and average quoted market yields.

(3) We determined the fair value of our forward contracts using standard valuation models that were based on market-based observable inputs including LIBOR rates and the spot price of the underlying instrument.

Derivative Contracts Cleared

The following table includes the total number of derivative contracts cleared through Nasdaq Clearing for the six months ended June 30, 2019 and 2018:

	June 30, 2019	June 30, 2018
Commodity and seafood options, futures and forwards ⁽¹⁾⁽²⁾	267,006	1,162,716
Fixed-income options and futures	11,565,386	11,286,397
Stock options and futures	12,476,329	11,940,062
Index options and futures	23,877,389	24,641,397
Total	48,186,110	49,030,572

(1) The total volume in cleared power related to commodity contracts was 420 Terawatt hours (TWh) for the six months ended June 30, 2019 and 577 TWh for the six months ended June 30, 2018.

(2) In July 2018, the Nasdaq freight product offering was migrated to NFX, our U.S.-based futures exchange.

The outstanding contract value of resale and repurchase agreements was \$3.8 billion as of June 30, 2019 and \$3.4 billion as of June 30, 2018. The total number of contracts cleared was 3,787,315 for the six months ended June 30, 2019 and was 4,498,651 for the six months ended June 30, 2018.

17. Income Taxes

Income Tax Provision

The following table shows our income tax provision and effective tax rate:

	Three Months Ended June 30,		Percentage Change
	2019	2018	
	(in millions)		
Income tax provision	\$ 65	\$ 126	(48.4)%
Effective tax rate	27.2%	43.8%	
	Six Months Ended June 30,		Percentage Change
	2019	2018	
	(in millions)		
Income tax provision	\$ 131	\$ 188	(30.3)%
Effective tax rate	23.7%	35.7%	

The lower effective tax rate in the second quarter and first six months of 2019 is primarily due to the 2018 reversal of certain Swedish tax benefits recorded in prior periods. The lower effective tax rate in the first six months of 2019 was also impacted by a tax benefit from a dividends received deduction related to capital distributions from the OCC and the reversal of a previously accrued tax penalty in Finland.

The effective tax rate may vary from period to period depending on, among other factors, the geographic and business mix of earnings and losses. These same and other factors, including history of pre-tax earnings and losses, are taken into account in assessing the ability to realize deferred tax assets.

Tax Audits

Nasdaq and its eligible subsidiaries file a consolidated U.S. federal income tax return and applicable state and local income tax returns and non-U.S. income tax returns. Federal income tax returns for the years 2008 through 2016 are currently under examination by the Internal Revenue Service and we are subject to examination by the Internal Revenue Service for the year 2017. Several state tax returns are currently under examination by the respective tax authorities for the years 2007 through 2017. Non-U.S. tax returns are subject to examination by the respective tax authorities for the years 2009 through 2017. Although the results of such examinations may have an impact on our unrecognized tax benefits, we do not anticipate that such impact will be material to our consolidated financial position or results of operations. In addition, other than the Swedish tax matter described below, we do not expect to settle any material tax audits in the next twelve months.

The Swedish Tax Agency has disallowed certain interest expense deductions for the years 2013 - 2016. We appealed to the Lower Administrative Court for the years 2013 - 2015. In the first quarter of 2018, the Lower Administrative Court denied our appeal. We have appealed to the Administrative Court of Appeal. Through March 31, 2018, we had recorded tax benefits of \$56 million associated with this matter. We continue to pay all assessments from the Swedish Tax Agency while this matter is pending and have paid \$45 million through June 30, 2019.

In the second quarter of 2018, the Administrative Court of Appeal decided similar cases against other taxpayers. Although we continue to assert the validity of these interest expense deductions, the decisions of the court lead us to conclude that we can no longer assert that we are more than likely to be successful in our appeal. As such, in 2018, we recorded tax expense of \$41 million, or \$0.24 per diluted share, which is net of any related U.S. tax benefits and reflects the impact of foreign currency translation. We record quarterly net tax expense of \$1 million related to this matter.

We are subject to examination by federal, state and local, and foreign tax authorities. We regularly assess the likelihood of additional assessments by each jurisdiction and have established tax reserves that we believe are adequate in relation to the potential for additional assessments. We believe that the resolution of tax matters will not have a material effect on our financial condition but may be material to our operating results for a particular period and the effective tax rate for that period.

Tax Cuts and Jobs Act

On January 1, 2018, we adopted ASU 2018-02, "Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income (Topic 220)." As a result of the adoption of this standard, we recorded a reclassification of \$142 million for stranded tax effects related to the Tax Cuts and Jobs Act from accumulated other comprehensive loss to retained earnings within stockholders' equity in the Condensed Consolidated Balance Sheets as of June 30, 2018. Of the \$142 million of stranded tax effects, \$135 million relates to the effect on net foreign currency translation gains and losses and \$7 million relates to the effect on employee benefit plan adjustment gains and losses. These provisional amounts were finalized in the fourth quarter of 2018.

18. Commitments, Contingencies and Guarantees

Guarantees Issued and Credit Facilities Available

In addition to the default fund contributions and margin collateral pledged by clearing members discussed in Note 16, "Clearing Operations," we have obtained financial guarantees and credit facilities which are guaranteed by us through counter indemnities, to provide further liquidity related to our clearing businesses. Financial guarantees issued to us totaled \$11 million as of June 30, 2019 and \$12 million as of December 31, 2018. As discussed in "Other Credit Facilities," of Note 10, "Debt Obligations," clearing-related credit facilities, which are available in multiple currencies, totaled \$211 million as of June 30, 2019 and \$220 million as of December 31, 2018, in available liquidity, none of which was utilized.

Execution Access is an introducing broker which operates the trading platform for our Fixed Income business to trade in U.S. Treasury securities. Execution Access has a clearing arrangement with Industrial and Commercial Bank of China Financial Services LLC, or ICBC. As of June 30, 2019, we have contributed \$15 million of clearing deposits to ICBC in connection with this clearing arrangement. These deposits are recorded in other current assets in our Condensed Consolidated Balance Sheets. Some of the trading activity in Execution

Access is cleared by ICBC through the Fixed Income Clearing Corporation, with ICBC acting as agent. Execution Access assumes the counterparty risk of clients that do not clear through the Fixed Income Clearing Corporation. Counterparty risk of clients exists for Execution Access between the trade date and the settlement date of the individual transactions, which is at least one business day (or more, if specified by the U.S. Treasury issuance calendar). Counterparties that do not clear through the Fixed Income Clearing Corporation are subject to a credit due diligence process and may be required to post collateral, provide principal letters, or provide other forms of credit enhancement to Execution Access for the purpose of mitigating counterparty risk. Daily position trading limits are also enforced for such counterparties.

We believe that the potential for us to be required to make payments under these arrangements is mitigated through the pledged collateral and our risk management policies. Accordingly, no contingent liability is recorded in the Condensed Consolidated Balance Sheets for these arrangements. However, no guarantee can be provided that these arrangements will at all times be sufficient.

Other Guarantees

Through our clearing operations in the financial markets, Nasdaq Clearing is the legal counterparty for, and guarantees the performance of, its clearing members. See Note 16, "Clearing Operations," for further discussion of Nasdaq Clearing performance guarantees.

We have provided a guarantee related to lease obligations for The Nasdaq Entrepreneurial Center, Inc., which is a not-for-profit organization designed to convene, connect and engage aspiring and current entrepreneurs. This entity is not included in the condensed consolidated financial statements of Nasdaq.

We believe that the potential for us to be required to make payments under these arrangements is unlikely. Accordingly, no contingent liability is recorded in the Condensed Consolidated Balance Sheets for the above guarantees.

Non-Cash Contingent Consideration

As part of the purchase price consideration of a prior acquisition, we have agreed to future annual issuances of 992,247 shares of Nasdaq common stock which approximated certain tax benefits associated with the transaction. Such contingent future issuances of Nasdaq common stock will be paid ratably through 2027 if Nasdaq's total gross revenues equal or exceed \$25 million in each such year. The contingent future issuances of Nasdaq common stock are subject to anti-dilution protections and acceleration upon certain events.

Escrow Agreements

In connection with prior acquisitions, we entered into escrow agreements to secure the payment of post-closing adjustments and to ensure other closing conditions. As of June 30, 2019, these escrow agreements provide for future payment by us of up to an aggregate of \$12 million which is included in other current liabilities in the Condensed Consolidated Balance Sheets.

Routing Brokerage Activities

One of our broker-dealer subsidiaries, Nasdaq Execution Services, provides a guarantee to securities clearinghouses and exchanges under its standard membership agreements, which require members to guarantee the performance of other members. If a member becomes unable to satisfy its obligations to a clearinghouse or exchange, other members would be required to meet its shortfalls. To mitigate these performance risks, the exchanges and clearinghouses often require members to post collateral, as well as meet certain minimum financial standards. Nasdaq Execution Services' maximum potential liability under these arrangements cannot be quantified. However, we believe that the potential for Nasdaq Execution Services to be required to make payments under these arrangements is unlikely. Accordingly, no contingent liability is recorded in the Condensed Consolidated Balance Sheets for these arrangements.

Oslo Børs VPS

In February 2019, we, through our indirect wholly-owned subsidiary Nasdaq AB, made a public offer to acquire all of the issued shares of Oslo Børs VPS Holding ASA, or Oslo Børs VPS. In May 2019, another bidder secured the necessary commitments and approvals to acquire more than 50% of the Oslo Børs VPS shares, and as a result, we withdrew our offer.

Legal and Regulatory Matters

Litigation

As previously disclosed, we are named as one of many defendants in *City of Providence v. BATS Global Markets, Inc., et al.*, 14 Civ. 2811 (S.D.N.Y.), which was filed on April 18, 2014 in the United States District Court for the Southern District of New York. The district court appointed lead counsel, who filed an amended complaint on September 2, 2014. The amended complaint names as defendants seven national exchanges, as well as Barclays PLC, which operated a private alternative trading system. On behalf of a putative class of securities traders, the plaintiffs allege that the defendants engaged in a scheme to manipulate the markets through high-frequency trading; the amended complaint asserts claims against us under Section 10(b) of the Exchange Act and Rule 10b-5, as well as under Section 6(b) of the Exchange Act. The plaintiffs seek injunctive and monetary relief of an unspecified amount. We filed a motion to dismiss the amended complaint on November 3, 2014. In response, the plaintiffs filed a second amended complaint on November 24, 2014, which names the same defendants and alleges essentially the same violations. We then filed a motion to dismiss the second amended complaint on January 23, 2015. On August 26, 2015, the district court entered an order dismissing the second amended complaint in its entirety. The plaintiffs appealed the judgment of dismissal to the United States Court of Appeals for the Second Circuit (although opting not to appeal the dismissal with respect to Barclays PLC or the dismissal of claims under Section 6(b) of the Exchange Act). On December 19, 2017, the Second Circuit issued an opinion vacating the district court's judgment of dismissal and remanding to the district court for further

proceedings. On May 18, 2018, the exchanges filed a motion to dismiss the amended complaint, raising issues not addressed in the proceedings to date. On May 28, 2019, the district court denied the exchanges' renewed motion to dismiss. On June 17, 2019, the exchanges filed a motion to certify the district court's order for immediate review by the Second Circuit and on July 16, 2019, the district court denied the motion. Given the preliminary nature of the proceedings, we are unable to estimate what, if any, liability may result from this litigation. However, we believe that the claims are without merit and will continue to litigate vigorously.

Nasdaq Commodities Clearing Default

During September 2018, a clearing member of Nasdaq Clearing's commodities market was declared in default. We are responding to requests for information and are cooperating fully with the SFSa in the associated regulatory audits. While we are currently unable to predict the outcome of this matter, we do not believe it will have a material impact on our consolidated financial statements. See "Nasdaq Commodities Clearing Default," of Note 16, "Clearing Operations," for further information on this event.

SEC Decisions

In recent years, certain industry groups have challenged the level of fees that U.S. exchanges charge for market data and connectivity. We have defeated two challenges in federal appeals court pertaining to market data and an additional challenge at the administrative level within the SEC. However, in October 2018, the SEC reversed that administrative decision and found that Nasdaq had not met a burden of demonstrating that certain challenged fees were fair and reasonable; we estimate that this decision will reduce our revenues by approximately \$1 million. Nasdaq has appealed this decision to the U.S. Court of Appeals for the District of Columbia Circuit. In addition, the SEC remanded a series of additional challenges to market data and connectivity fees back to Nasdaq for further consideration. Nasdaq has also appealed this decision to the U.S. Court of Appeals for the District of Columbia Circuit. We are unable to predict the outcome or the timing of the ultimate resolution of these matters.

Other Matters

Except as disclosed above and in prior reports filed under the Exchange Act, we are not currently a party to any litigation or proceeding that we believe could have a material adverse effect on our business, consolidated financial condition, or operating results. However, from time to time, we have been threatened with, or named as a defendant in, lawsuits or involved in regulatory proceedings.

In the normal course of business, Nasdaq discusses matters with its regulators raised during regulatory examinations or otherwise subject to their inquiries. Management believes that censures, fines, penalties or other sanctions that could result from any ongoing examinations or inquiries will not have a material impact on its consolidated financial position or results of operations. However, we are unable to predict the outcome or the timing of the ultimate resolution of these matters, or the

potential fines, penalties or injunctive or other equitable relief, if any, that may result from these matters.

Tax Audits

We are engaged in ongoing discussions and audits with taxing authorities on various tax matters, the resolutions of which are uncertain. Currently, there are matters that may lead to

assessments, some of which may not be resolved for several years. Based on currently available information, we believe we have adequately provided for any assessments that could result from those proceedings where it is more likely than not that we will be assessed. We review our positions on these matters as they progress. See "Tax Audits," of Note 17, "Income Taxes," for further discussion.

* * * * *

19. Business Segments

We manage, operate and provide our products and services in four business segments: Market Services, Corporate Services, Information Services and Market Technology. See Note 1, "Organization and Nature of Operations," for further discussion of our reportable segments.

Our management allocates resources, assesses performance and manages these businesses as four separate segments. We evaluate the performance of our segments based on several factors, of which the primary financial measure is operating income. Results of individual businesses are presented based on our management accounting practices and structure.

The following table presents certain information regarding our business segments for the three and six months ended June 30, 2019 and 2018:

	Market Services	Corporate Services	Information Services	Market Technology	Corporate Items	Consolidated
	(in millions)					
Three Months Ended June 30, 2019						
Total revenues	\$ 665	\$ 123	\$ 194	\$ 79	\$ —	\$ 1,061
Transaction-based expenses	(438)	—	—	—	—	(438)
Revenues less transaction-based expenses	227	123	194	79	—	623
Operating income (loss)	\$ 127	\$ 44	\$ 122	\$ 8	\$ (45)	\$ 256
Three Months Ended June 30, 2018						
Total revenues	\$ 649	\$ 120	\$ 175	\$ 66	\$ 17	\$ 1,027
Transaction-based expenses	(412)	—	—	—	—	(412)
Revenues less transaction-based expenses	237	120	175	66	17	615
Operating income (loss)	\$ 134	\$ 34	\$ 112	\$ 9	\$ (20)	\$ 269
Six Months Ended June 30, 2019						
Total revenues	\$ 1,304	\$ 243	\$ 387	\$ 156	\$ 10	\$ 2,100
Transaction-based expenses	(843)	—	—	—	—	(843)
Revenues less transaction-based expenses	461	243	387	156	10	1,257
Operating income (loss)	263	87	246	15	(80)	531
Six Months Ended June 30, 2018						
Total revenues	\$ 1,384	\$ 243	\$ 348	\$ 126	\$ 77	\$ 2,178
Transaction-based expenses	(897)	—	—	—	—	(897)
Revenues less transaction-based expenses	487	243	348	126	77	1,281
Operating income (loss)	281	76	225	11	(52)	541

Certain amounts are allocated to corporate items in our management reports as we believe they do not contribute to a meaningful evaluation of a particular segment's ongoing operating performance. These items, which are shown in the table below, include the following:

Amortization expense of acquired intangible assets: We amortize intangible assets acquired in connection with various acquisitions. Intangible asset amortization expense can vary from period to period due to episodic acquisitions completed, rather than from our ongoing business operations. As such, if intangible asset amortization is included in performance measures, it is more difficult to assess the day-to-day operating performance of the segments, and the relative operating performance of the segments between periods. Management does not consider intangible asset amortization expense for the purpose of evaluating the performance of our segments or their managers or when making decisions to allocate resources. Therefore, we believe performance measures

excluding intangible asset amortization expense provide management with a more useful representation of our segments' ongoing activity in each period.

Merger and strategic initiatives expense: We have pursued various strategic initiatives and completed acquisitions and divestitures in recent years which have resulted in expenses which would not have otherwise been incurred. These expenses generally include integration costs, as well as legal, due diligence and other third party transaction costs. The frequency and the amount of such expenses vary significantly based on the size, timing and complexity of the transaction. The credit balance in merger and strategic initiative expense in the second quarter of 2018 relates to the reclass of costs incurred during the first quarter of 2018 to sell the Public Relations Solutions and Digital Media Services businesses. Since these businesses were sold during the second quarter of 2018, these costs have been included as a deduction to the gain on the sale of these businesses.

2019 and 2018 Divestitures: We have included in corporate items the revenues and expenses of BWISE and the Public Relations Solutions and Digital Media Services businesses which were part of the Corporate Solutions business within our Corporate Services segment as BWISE was sold in March 2019 and the Public Relations Solutions and Digital Media Services businesses were sold in April 2018. See "2019 Divestiture," and "2018 Divestiture," of Note 5, "Acquisitions and Divestitures," for further discussion.

Other significant items: We have included certain other charges or gains in corporate items, to the extent we believe they should be excluded when evaluating the ongoing operating performance of each individual segment. For the three and six months ended June 30, 2019, other significant items primarily included loss on extinguishment of debt. For the three and six months ended June 30, 2018, other significant items included a sales and use tax charge which related to prior periods.

Accordingly, we do not allocate these costs for purposes of disclosing segment results because they do not contribute to a meaningful evaluation of a particular segment's ongoing operating performance.

A summary of our corporate items is as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
	(in millions)			
Revenues - divested businesses	\$ —	\$ 17	\$ 10	\$ 77
Expenses:				
Amortization expense of acquired intangible assets	26	28	51	56
Merger and strategic initiatives expense	5	(10)	14	—
Extinguishment of debt	11	—	11	—
Expenses - divested businesses	—	16	8	67
Other	3	3	6	6
Total expenses	45	37	90	129
Operating loss	\$ (45)	\$ (20)	\$ (80)	\$ (52)

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis of the financial condition and results of operations of Nasdaq should be read in conjunction with our condensed consolidated financial statements and related notes included in this Form 10-Q.

Overview

Nasdaq is a leading global provider of trading, clearing, exchange technology, listing, information and public company services. Through its diverse portfolio of solutions, Nasdaq enables customers to plan, optimize and execute their business vision with confidence, using proven technologies that provide transparency and insight for navigating today's global capital markets. As the creator of the world's first electronic stock market, its technology powers more than 100 marketplaces in 50 countries. Nasdaq is home to approximately 4,000 total listings with a market value of approximately \$14 trillion. We manage, operate and provide our products and services in four business segments: Market Services, Corporate Services, Information Services and Market Technology.

First Half and Second Quarter 2019 Recent Developments

Cash Dividends on Common Stock

- In April, the board of directors approved a regular quarterly cash dividend of \$0.47 per share on our outstanding common stock which reflects a 7.0% increase from our prior quarterly cash dividend of \$0.44.
- For the six months ended June 30, 2019, we returned \$150 million to shareholders through dividend payments.
- In July 2019, the board of directors approved a regular quarterly cash dividend of \$0.47 per share on our outstanding common stock.

Share Repurchase Program

- During the second quarter of 2019, we repurchased 538,449 common shares at a cost of \$50 million. As of June 30, 2019, the remaining amount authorized for share repurchases under our share repurchase program was \$282 million.

Debt Issuance and Repayments

- In April 2019, we issued the 2029 Notes and in May 2019, we primarily used the net proceeds from the 2029 Notes to repay in full and terminate our 2020 Notes.
- In June 2019, we used proceeds from issuances of commercial paper to repay in full and terminate our 2016 Credit Facility.

Corporate Highlights

- The Nasdaq Stock Market led U.S. exchanges for IPOs during the first half of 2019 with an 80% win rate. In the U.S. market, The Nasdaq Stock Market welcomed 140 new listings in the first half of 2019, including 97 IPOs. Nasdaq's Nordic and Baltic exchanges and Nasdaq First North added 28 new listings, including 18 IPOs.

- We continue to see strong client traction in our Market Technology segment. Market Technology annualized recurring revenue, or ARR, is a new metric that we introduced this quarter that is intended to increase the transparency of the company's SaaS and recurring revenues. ARR totaled \$247 million in the second quarter of 2019, an increase of 16% year over year. New order intake totaled \$46 million during the second quarter of 2019. We also continued strong growth in our surveillance business. See "Key Drivers," in this Item 2 for further discussion of ARR.
- Our index revenues set a new quarterly record, while ETP assets under management tracking Nasdaq indexes increased 9% year over year. Overall assets under management in ETPs benchmarked to Nasdaq's proprietary index families totaled \$203 billion as of June 30, 2019, which included \$88 billion, or 43%, tracking smart beta indexes.
- Our Market Services segment maintains strong competitive positioning and executed a new record closing cross related to the June Russell index rebalancing. In the second quarter of 2019, the combined U.S. equities matched market share executed on our exchanges totaled 20.1% (17.5% at The Nasdaq Stock Market, 1.8% at Nasdaq BX and 0.8% at Nasdaq PSX), while market share in the Nordic markets totaled 70.3%. In June 2019, Nasdaq's Closing Cross set a record for number of shares traded during the 2019 Russell U.S. indexes annual reconstitution, including 1.28 billion shares representing \$42.6 billion in value, all of which was executed in 1.14 seconds.

Nasdaq's Operating Results

Key Drivers

The following table includes key drivers for our Market Services, Corporate Services, Information Services and Market Technology segments. In evaluating the performance of our business, our senior management closely evaluates these key drivers.

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Market Services				
Equity Derivative Trading and Clearing				
<i>U.S. equity options</i>				
Total industry average daily volume (in millions)	17.3	17.0	17.3	18.2
Nasdaq PHLX matched market share	16.0%	15.6%	16.0%	15.8%
The Nasdaq Options Market matched market share	8.9%	9.2%	9.1%	9.6%
Nasdaq BX Options matched market share	0.2%	0.4%	0.3%	0.5%
Nasdaq ISE Options matched market share	9.3%	8.6%	8.9%	8.5%
Nasdaq GEMX Options matched market share	3.9%	4.5%	4.0%	4.6%
Nasdaq MRX Options matched market share	0.2%	0.1%	0.2%	0.1%
Total matched market share executed on Nasdaq's exchanges	38.5%	38.4%	38.5%	39.1%
<i>Nasdaq Nordic and Nasdaq Baltic options and futures</i>				
Total average daily volume of options and futures contracts ⁽¹⁾	384,692	365,204	368,561	359,846
Cash Equity Trading				
<i>Total U.S.-listed securities</i>				
Total industry average daily share volume (in billions)	6.93	6.86	7.22	7.23
Matched share volume (in billions)	87.7	83.8	178.3	172.4
The Nasdaq Stock Market matched market share	17.5%	15.2%	17.2%	15.1%
Nasdaq BX matched market share	1.8%	3.1%	2.0%	3.2%
Nasdaq PSX matched market share	0.8%	0.8%	0.7%	0.8%
Total matched market share executed on Nasdaq's exchanges	20.1%	19.1%	19.9%	19.1%
Market share reported to the FINRA/Nasdaq Trade Reporting Facility	29.9%	33.4%	29.8%	33.5%
Total market share ⁽²⁾	50.0%	52.5%	49.7%	52.6%
<i>Nasdaq Nordic and Nasdaq Baltic securities</i>				
Average daily number of equity trades executed on Nasdaq's exchanges	581,987	623,555	577,963	637,820
Total average daily value of shares traded (in billions)	\$ 4.6	\$ 5.8	\$ 4.8	\$ 5.9
Total market share executed on Nasdaq's exchanges	70.3%	66.9%	68.6%	68.2%
FICC				
<i>Fixed Income</i>				
U.S. fixed income volume (\$ billions traded)	\$ 2,921	\$ 4,134	\$ 5,636	\$ 9,290
Total average daily volume of Nasdaq Nordic and Nasdaq Baltic fixed income contracts	126,323	124,539	121,128	128,476
<i>Commodities</i>				
Power contracts cleared (TWh) ⁽³⁾	170	305	420	577
Corporate Services				
<i>Initial public offerings</i>				
The Nasdaq Stock Market	60	56	97	93
Exchanges that comprise Nasdaq Nordic and Nasdaq Baltic	14	22	18	35
<i>Total new listings</i>				
The Nasdaq Stock Market ⁽⁴⁾	81	89	140	151
Exchanges that comprise Nasdaq Nordic and Nasdaq Baltic ⁽⁵⁾	19	29	28	44
<i>Number of listed companies</i>				
The Nasdaq Stock Market ⁽⁶⁾	3,080	3,004	3,080	3,004
Exchanges that comprise Nasdaq Nordic and Nasdaq Baltic ⁽⁷⁾	1,029	1,008	1,029	1,008
Information Services				
Number of licensed ETPs	341	347	341	347
ETP assets under management tracking Nasdaq indexes (in billions)	\$ 203	\$ 187	\$ 203	\$ 187
Market Technology				
Order intake (in millions) ⁽⁸⁾	\$ 46	\$ 64	\$ 100	\$ 109
Annualized recurring revenue (in millions) ⁽⁹⁾	\$ 247	\$ 213	N/M	N/M

- (1) Includes Finnish option contracts traded on Eurex.
- (2) Includes transactions executed on The Nasdaq Stock Market's, Nasdaq BX's and Nasdaq PSX's systems plus trades reported through the FINRA/Nasdaq Trade Reporting Facility.
- (3) Transactions executed on Nasdaq Commodities or OTC and reported for clearing to Nasdaq Commodities measured by Terawatt hours (TWh).
- (4) New listings include IPOs, including those completed on a best efforts basis, issuers that switched from other listing venues, closed-end funds and separately listed ETPs.
- (5) New listings include IPOs and represent companies listed on the Nasdaq Nordic and Nasdaq Baltic exchanges and companies on the alternative markets of Nasdaq First North.
- (6) Number of total listings on The Nasdaq Stock Market at period end, including 374 ETPs as of June 30, 2019 and 380 as of June 30, 2018.
- (7) Represents companies listed on the Nasdaq Nordic and Nasdaq Baltic exchanges and companies on the alternative markets of Nasdaq First North at period end.
- (8) Total contract value of orders signed during the period.
- (9) Annualized Recurring Revenue, or ARR, for a given period is the annualized revenue of Market Technology support and SaaS subscription contracts. ARR is currently one of our key performance metrics to assess the health and trajectory of our business. ARR does not have any standardized definition and is therefore unlikely to be comparable to similarly titled measures presented by other companies. ARR should be viewed independently of revenue and deferred revenue and is not intended to be combined with or to replace either of those items. ARR is not a forecast and the active contracts during the reporting period used in calculating ARR may or may not be extended or renewed by our customers.

N/M - Not meaningful.

* * * * *

Financial Summary

The following table summarizes our financial performance for the three and six months ended June 30, 2019 as compared to the same periods in 2018. The comparability of our results of operations between reported periods is impacted by our acquisition of Cinnober in January 2019, the divestiture of the BWISE enterprise governance, risk and compliance software platform in March 2019, the divestiture of the Public Relations Solutions and Digital Media Services businesses in April 2018, and an increase in net income from unconsolidated investees. See Note 5, "Acquisitions and Divestitures," and "Equity Method Investments," of Note 8, "Investments," to the condensed consolidated financial statements for further discussion of these transactions. For a detailed discussion of our results of operations, see "Segment Operating Results" below.

	Three Months Ended June 30,		Percentage Change	Six Months Ended June 30,		Percentage Change
	2019	2018		2019	2018	
	(in millions, except per share amounts)			(in millions, except per share amounts)		
Revenues less transaction-based expenses	\$ 623	\$ 615	1.3 %	\$ 1,257	\$ 1,281	(1.9)%
Operating expenses	367	346	6.1 %	726	740	(1.9)%
Operating income	256	269	(4.8)%	531	541	(1.8)%
Interest expense	(31)	(37)	(16.2)%	(68)	(75)	(9.3)%
Net gain on divestiture of businesses	—	41	(100.0)%	27	41	(34.1)%
Net income from unconsolidated investees	10	5	100.0 %	55	7	685.7 %
Income before income taxes	239	288	(17.0)%	552	527	4.7 %
Income tax provision	65	126	(48.4)%	131	188	(30.3)%
Net income attributable to Nasdaq	\$ 174	\$ 162	7.4 %	\$ 421	\$ 339	24.2 %
Diluted earnings per share	\$ 1.04	\$ 0.97	7.2 %	\$ 2.52	\$ 2.02	24.8 %
Cash dividends declared per common share	\$ 0.47	\$ —	N/M	\$ 0.91	\$ 0.82	11.0 %

N/M - Not meaningful.

In countries with currencies other than the U.S. dollar, revenues and expenses are translated using monthly average exchange rates. Impacts on our revenues less transaction-based expenses and operating income associated with fluctuations in foreign currency are discussed in more detail under "Item 3. Quantitative and Qualitative Disclosures about Market Risk."

Segment Operating Results

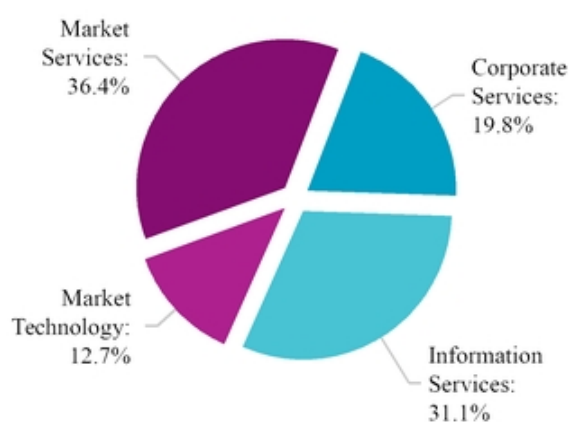
The following table shows our revenues by segment, transaction-based expenses for our Market Services segment and total revenues less transaction-based expenses:

	Three Months Ended June 30,			Six Months Ended June 30,		
	2019	2018	Percentage Change	2019	2018	Percentage Change
	(in millions)			(in millions)		
Market Services	\$ 665	\$ 649	2.5 %	\$ 1,304	\$ 1,384	(5.8)%
Transaction-based expenses	(438)	(412)	6.3 %	(843)	(897)	(6.0)%
Market Services revenues less transaction-based expenses	227	237	(4.2)%	461	487	(5.3)%
Corporate Services	123	120	2.5 %	243	243	— %
Information Services	194	175	10.9 %	387	348	11.2 %
Market Technology	79	66	19.7 %	156	126	23.8 %
Other revenues ⁽¹⁾	—	17	(100.0)%	10	77	(87.0)%
Total revenues less transaction-based expenses	\$ 623	\$ 615	1.3 %	\$ 1,257	\$ 1,281	(1.9)%

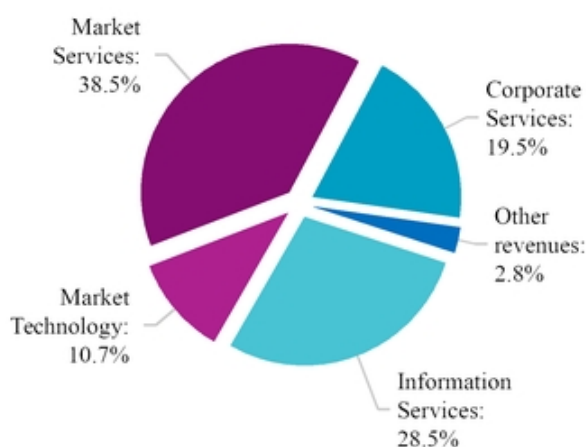
⁽¹⁾ Includes the revenues from the BWISE enterprise governance, risk and compliance software platform which was sold in March 2019 and the Public Relations Solutions and Digital Media Services businesses which were sold in April 2018. Prior to the sale dates, these revenues were included in our Corporate Solutions business within our Corporate Services segment. See “2019 Divestiture,” and “2018 Divestiture,” of Note 5, “Acquisitions and Divestitures,” to the condensed consolidated financial statements for further discussion.

The following charts show our Market Services, Corporate Services, Information Services and Market Technology segments as a percentage of our total revenues less transaction-based expenses of \$623 million for the three months ended June 30, 2019, \$615 million for the three months ended June 30, 2018, \$1,257 million for the six months ended June 30, 2019, and \$1,281 million for the six months ended June 30, 2018:

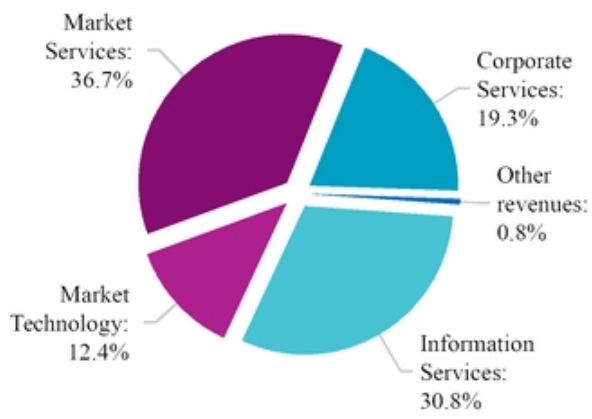
Percentage of Revenues Less Transaction-based Expenses by Segment for the Three Month Ended June 30, 2019



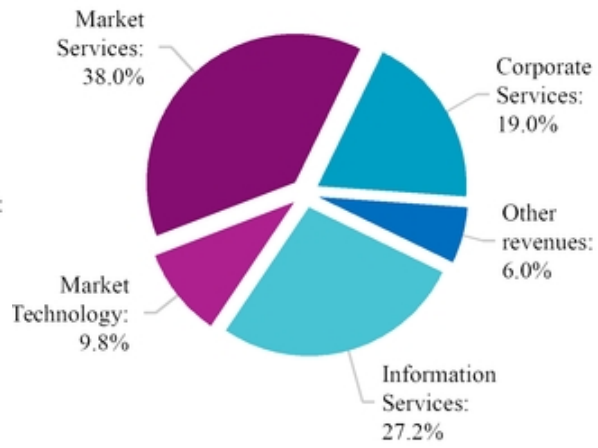
Percentage of Revenues Less Transaction-based Expenses by Segment for the Three Months Ended June 30, 2018



Percentage of Revenues Less Transaction-based Expenses by Segment for the Six Months Ended June 30, 2019



Percentage of Revenues Less Transaction-based Expenses by Segment for the Six Months Ended June 30, 2018



MARKET SERVICES

The following table shows total revenues, transaction-based expenses, and total revenues less transaction-based expenses from our Market Services segment:

	Three Months Ended June 30,			Six Months Ended June 30,		
	2019	2018	Percentage Change	2019	2018	Percentage Change
	(in millions)			(in millions)		
Market Services Revenues:						
Equity Derivative Trading and Clearing Revenues ⁽¹⁾	\$ 203	\$ 201	1.0 %	\$ 396	\$ 431	(8.1)%
Transaction-based expenses:						
Transaction rebates	(119)	(119)	— %	(231)	(256)	(9.8)%
Brokerage, clearance and exchange fees ⁽¹⁾	(12)	(10)	20.0 %	(21)	(26)	(19.2)%
Equity derivative trading and clearing revenues less transaction-based expenses	72	72	— %	144	149	(3.4)%
Cash Equity Trading Revenues ⁽²⁾	372	351	6.0 %	724	755	(4.1)%
Transaction-based expenses:						
Transaction rebates	(211)	(187)	12.8 %	(429)	(396)	8.3 %
Brokerage, clearance and exchange fees ⁽²⁾	(95)	(93)	2.2 %	(160)	(213)	(24.9)%
Cash equity trading revenues less transaction-based expenses	66	71	(7.0)%	135	146	(7.5)%
FICC Revenues	17	24	(29.2)%	38	50	(24.0)%
Transaction-based expenses:						
Transaction rebates	(1)	(2)	(50.0)%	(1)	(5)	(80.0)%
Brokerage, clearance and exchange fees	—	(1)	(100.0)%	(1)	(1)	— %
FICC revenues less transaction-based expenses	16	21	(23.8)%	36	44	(18.2)%
Trade Management Services Revenues	73	73	— %	146	148	(1.4)%
Total Market Services revenues less transaction-based expenses	\$ 227	\$ 237	(4.2)%	\$ 461	\$ 487	(5.3)%

⁽¹⁾ Includes Section 31 fees of \$11 million in the second quarter of 2019, \$19 million in the first six months of 2019, \$9 million in the second quarter of 2018 and \$23 million in the first six months of 2018. Section 31 fees are recorded as equity derivative trading and clearing revenues with a corresponding amount recorded in transaction-based expenses.

⁽²⁾ Includes Section 31 fees of \$90 million in the second quarter of 2019, \$152 million in the first six months of 2019, \$89 million in the second quarter of 2018 and \$204 million in the first six months of 2018. Section 31 fees are recorded as cash equity trading revenues with a corresponding amount recorded in transaction-based expenses.

Equity Derivative Trading and Clearing Revenues

Equity derivative trading and clearing revenues increased slightly in the second quarter of 2019 and decreased in the first six months of 2019 compared with the same periods in 2018 and equity derivative trading and clearing revenues less transaction-based expenses were flat in the second quarter of 2019 and decreased in the first six months of 2019 compared with the same periods in 2018. The increase in equity derivative trading and clearing revenues in the second quarter was primarily due to higher U.S. industry trading volumes and higher Section 31 pass-through fee revenue, partially offset by a lower gross capture rate. The decrease in equity derivative trading and clearing revenues in the first six months of 2019 was primarily due to lower U.S. industry trading volumes, a decrease in our overall U.S. matched market share executed on

Nasdaq's exchanges and lower Section 31 pass-through fee revenue. The decrease in equity derivative trading and clearing revenues less transaction-based expenses in the first six months of 2019 was primarily due to lower U.S. industry trading volumes, partially offset by a higher U.S. net capture rate.

Section 31 fees are recorded as equity derivative trading and clearing revenues with a corresponding amount recorded as transaction-based expenses. In the U.S., we are assessed these fees from the SEC and pass them through to our customers in the form of incremental fees. Pass-through fees can increase or decrease due to rate changes by the SEC, our percentage of the overall industry volumes processed on our systems, and differences in actual dollar value of shares traded. Since the amount recorded in revenues is equal to the amount recorded as transaction-based expenses, there is no impact on our revenues less transaction-based expenses. Section 31 fees

increased in the second quarter of 2019 compared with the same period in 2018 primarily due to higher average SEC fee rates. Section 31 fees decreased in the first six months of 2019 compared with the same period in 2018 primarily due to lower average SEC fee rates.

Transaction rebates, in which we credit a portion of the per share execution charge to the market participant, were flat in the second quarter of 2019 compared with the same period in 2018 as higher U.S. industry trading volumes were offset by a decrease in the U.S. rebate capture rate. Transaction rebates decreased in the first six months of 2019 compared with the same period in 2018 primarily due to lower U.S. industry trading volumes, a decrease in the U.S. rebate capture rate and a decrease in our overall U.S. matched market share executed on Nasdaq's exchanges.

Brokerage, clearance and exchange fees increased in the second quarter and decreased in the first six months of 2019 compared with the same periods in 2018 primarily due to Section 31 pass-through fees, as discussed above.

Cash Equity Trading Revenues

Cash equity trading revenues increased in the second quarter of 2019 and decreased in the first six months of 2019 compared with the same periods in 2018 and cash equity trading revenues less transaction-based expenses decreased in second quarter and first six months of 2019 compared with the same periods in 2018. The increase in cash equity trading revenues in the second quarter of 2019 was primarily due to higher overall U.S. matched market share executed on Nasdaq's exchanges and a higher U.S. gross capture rate, partially offset by an unfavorable impact from foreign exchange related to Nasdaq's Nordic exchanges. The decrease in the first six months of 2019 was primarily due to lower Section 31 pass-through fee revenue due to lower dollar value traded on Nasdaq's exchanges and lower average SEC fee rates, and an unfavorable impact from foreign exchange, partially offset by higher overall U.S. matched market share executed on Nasdaq's exchanges and a higher U.S. gross capture rate.

The decrease in cash equity trading revenues less transaction-based expenses in the second quarter and first six months of 2019 primarily reflects a lower U.S. net capture rate compared to a particularly strong 2018 period, partially offset by higher overall U.S. matched market share executed on Nasdaq's exchanges. In addition, in Europe, lower industry trading volumes and an unfavorable impact from changes in foreign exchange rates were partially offset by a higher European net capture rate.

Similar to equity derivative trading and clearing, in the U.S. we record Section 31 fees as cash equity trading revenues with a

corresponding amount recorded as transaction-based expenses. We assessed these fees from the SEC and pass them through to our customers in the form of incremental fees. Since the amount recorded as revenues is equal to the amount recorded as transaction-based expenses, there is no impact on our revenues less transaction-based expenses. Section 31 fees increased slightly in the second quarter and decreased in the first six months of 2019 compared with the same periods in 2018. The increase in the second quarter of 2019 was primarily due to higher average SEC fee rates, partially offset by lower dollar value traded on Nasdaq's exchanges. The decrease in the first six months of 2019 was due to lower average SEC fee rates and lower dollar value traded on Nasdaq's exchanges.

Transaction rebates increased in the second quarter and first six months of 2019 compared with the same periods in 2018. For The Nasdaq Stock Market, Nasdaq PSX and Nasdaq Canada, we credit a portion of the per share execution charge to the market participant that provides the liquidity, and for Nasdaq BX, we credit a portion of the per share execution charge to the market participant that takes the liquidity. The increase in the second quarter and first six months of 2019 was primarily due to a higher U.S. capture rate and an increase in our overall U.S. matched market share executed on Nasdaq's exchanges.

Brokerage, clearance and exchange fees increased in the second quarter of 2019 and decreased in the first six months of 2019 compared with the same periods in 2018 primarily due to Section 31 pass-through fees, as discussed above.

FICC Revenues

FICC revenues and FICC revenues less transaction-based expenses decreased in the second quarter and first six months of 2019 compared with the same periods in 2018 primarily the result of a decline in revenues related to U.S. fixed income products due to lower market share and a decline in revenues in European commodities products due to lower volume. The decrease in FICC revenues and FICC revenues less transaction-based expenses in the first six months also included an unfavorable impact from foreign exchange of \$2 million. The decrease in FICC revenues less transaction-based expenses in the first six months of 2019 was partially offset by higher net revenues at NFX due to pricing changes.

Trade Management Services Revenues

Trade management services revenues were flat in the second quarter of 2019 and decreased in the first six months of 2019 compared with the same periods in 2018. The decrease was primarily due to an unfavorable impact from foreign exchange of \$2 million.

CORPORATE SERVICES

The following table shows revenues from our Corporate Services segment:

	Three Months Ended June 30,			Six Months Ended June 30,		
	2019	2018	Percentage Change	2019	2018	Percentage Change
	(in millions)			(in millions)		
Corporate Services:						
Listing Services	\$ 74	\$ 72	2.8%	\$ 145	\$ 144	0.7%
Corporate Solutions	\$ 49	\$ 48	2.1%	\$ 98	\$ 99	(1.0)%
Total Corporate Services	\$ 123	\$ 120	2.5%	\$ 243	\$ 243	—%

Listing Services Revenues

Listing services revenues increased slightly in both the second quarter and first six months of 2019 compared with the same periods in 2018 primarily due to higher listings revenues due to an increase in the number of listed companies, partially offset by the run-off of fees earned from U.S. listing of additional shares and an unfavorable impact from foreign exchange of \$2 million in the second quarter of 2019 and \$3 million in the first six months of 2019.

Corporate Solutions Revenues

Corporate solutions revenues increased slightly in the second quarter of 2019 compared with the same period in 2018 primarily due to an increase in governance solutions (formerly board & leadership) revenues. Corporate solutions revenues decreased slightly in the first six months of 2019 compared with the same period in 2018 due to an unfavorable impact from foreign exchange of \$1 million.

* * * * *

INFORMATION SERVICES

The following table shows revenues from our Information Services segment:

	Three Months Ended June 30,			Six Months Ended June 30,		
	2019	2018	Percentage Change	2019	2018	Percentage Change
	(in millions)			(in millions)		
Information Services:						
Market Data	\$ 100	\$ 98	2.0%	\$ 200	\$ 197	1.5%
Index	55	50	10.0%	109	100	9.0%
Investment Data & Analytics	39	27	44.4%	78	51	52.9%
Total Information Services	\$ 194	\$ 175	10.9%	\$ 387	\$ 348	11.2%

Market Data Revenues

Market data revenues increased in the second quarter and first six months of 2019 compared with the same periods in 2018. The increase in the second quarter was primarily due to an increase in U.S. tape plan revenues reflecting equity market share gains and their impact on our share of industry consolidated tape plan revenues. The increase in the first six months of 2019 was primarily due to under-reported data usage and new proprietary data sales, partially offset by an unfavorable impact from foreign exchange of \$3 million.

Index Revenues

Index revenues increased in the second quarter and first six months of 2019 compared with the same periods in 2018

primarily due to higher licensing revenues from futures trading linked to the Nasdaq 100 Index and higher average assets under management in ETPs linked to Nasdaq indexes.

Investment Data & Analytics Revenues

Investment data & analytics revenues increased in the second quarter and first six months of 2019 compared with the same periods in 2018 primarily due to an increase in eVestment revenues resulting from an \$11 million purchase price adjustment on deferred revenue included in the first quarter of 2018 and \$7 million in the second quarter of 2018 and organic growth.

MARKET TECHNOLOGY

The following table shows revenues from our Market Technology segment:

	Three Months Ended June 30,			Six Months Ended June 30,		
	2019	2018	Percentage Change	2019	2018	Percentage Change
	(in millions)			(in millions)		
Market Technology	\$ 79	\$ 66	19.7%	\$ 156	\$ 126	23.8%

Market Technology Revenues

Market technology revenues increased in the second quarter and first six months of 2019 compared with the same periods in 2018 primarily due to the inclusion of revenues associated with the acquisition of Cinnober, an increase in the size and number of software delivery projects, and an increase in SaaS surveillance revenues. The increase in the second quarter was offset by an unfavorable impact from foreign exchange of \$3 million and the increase in the first six months was offset by an unfavorable impact from foreign exchange of \$5 million.

OTHER REVENUES

Other revenues for the first six months of 2019 include the revenues from the BWISE enterprise governance, risk and compliance software platform, which was sold in March 2019. Other revenues for the second quarter and first six months of 2018 also include the revenues from the Public Relations Solutions and Digital Media Services businesses which were sold in April 2018. Prior to the sale dates, these revenues were included in our Corporate Solutions business. See "2019 Divestiture," and "2018 Divestiture," of Note 5, "Acquisitions and Divestitures," to the condensed consolidated financial statements for further discussion of these divestitures.

Expenses

Operating Expenses

The following table shows our operating expenses:

	Three Months Ended June 30,			Six Months Ended June 30,		
	2019	2018	Percentage Change	2019	2018	Percentage Change
	(in millions)			(in millions)		
Compensation and benefits	\$ 169	\$ 173	(2.3)%	\$ 344	\$ 370	(7.0)%
Professional and contract services	30	34	(11.8)%	68	71	(4.2)%
Computer operations and data communications	33	30	10.0 %	65	62	4.8 %
Occupancy	24	23	4.3 %	48	49	(2.0)%
General, administrative and other	40	25	60.0 %	56	47	19.1 %
Marketing and advertising	10	10	— %	20	19	5.3 %
Depreciation and amortization	48	53	(9.4)%	96	106	(9.4)%
Regulatory	8	8	— %	15	16	(6.3)%
Merger and strategic initiatives	5	(10)	(150.0)%	14	—	N/M
Total operating expenses	\$ 367	\$ 346	6.1 %	\$ 726	\$ 740	(1.9)%

N/M - Not meaningful.

The decrease in compensation and benefits expense in the second quarter and first six months of 2019 was primarily due to lower compensation costs resulting from the sale of the BWISE enterprise governance, risk and compliance software platform and lower performance incentives, partially offset by higher compensation costs resulting from the acquisitions of Cinnober and Quandl. The decrease in the second quarter also included a favorable impact from foreign exchange of \$4 million and the decrease in the first six months included a favorable impact from foreign exchange of \$11 million.

Headcount increased to 4,296 employees as of June 30, 2019 from 4,069 as of June 30, 2018 primarily due to our 2019 and 2018 acquisitions, partially offset by the sale of the BWISE enterprise governance, risk and compliance software platform.

Professional and contract services expense decreased in the second quarter and first six months of 2019 primarily due to the sale of the BWISE enterprise governance, risk and compliance software platform, partially offset by certain litigation and consulting costs. The decrease in the first six

months also included a favorable impact from foreign exchange of \$2 million.

Computer operations and data communications expense increased in the second quarter and first six months of 2019 primarily due to higher market data feed costs and additional costs associated with our 2019 and 2018 acquisitions, partially offset by lower costs resulting from the sale of the B Wise enterprise governance, risk and compliance software platform.

Occupancy expense increased slightly in the second quarter and decreased slightly for the first six months of 2019. In both periods, higher costs associated with additional facility and rent costs resulting from expansion of our new world headquarters and our 2019 and 2018 acquisitions were partially offset from lower costs due to the sale of the B Wise enterprise governance, risk and compliance software platform. Also impacting the first six months of 2019 was a favorable impact from foreign exchange of \$2 million.

The increase in general, administrative and other expense in the second quarter and first six months of 2019 was primarily due to a pre-tax charge of \$11 million in the second quarter of 2019 which primarily included a make-whole redemption price premium paid on the early extinguishment of our 2020 Notes. The increase in the first six months also included a favorable impact from foreign exchange of \$2 million.

Marketing and advertising expense was flat in the second quarter of 2019 and increased slightly in the first six months of 2019 primarily due to an increase in advertising spend.

Depreciation and amortization expense decreased in the second quarter and first six months of 2019 primarily due to a decrease in amortization expense recorded on intangible assets which became fully amortized and the cessation of depreciation expense on the B Wise assets that were reclassified to assets held for sale as of December 31, 2018, partially offset by additional amortization expense associated with acquired intangible assets. The decrease in the first six months also included a favorable impact from foreign exchange of \$2 million.

Merger and strategic initiatives expense increased in the second quarter and first six months of 2019 compared with the same periods in 2018. We have pursued various strategic initiatives and completed acquisitions and divestitures in recent years which have resulted in expenses which would not have otherwise been incurred. These expenses generally include integration costs, as well as legal, due diligence and other third party transaction costs and will vary based on the size and frequency of the activities described above. The credit balance in merger and strategic initiative expense in the second quarter of 2018 relates to the reclass of costs incurred during the first quarter of 2018 to sell the Public Relations Solutions and Digital Media Services businesses. Since these businesses were sold during the second quarter of 2018, these costs have been included as a deduction to the gain on the sale of these businesses.

* * * * *

Non-operating Income and Expenses

The following table shows our non-operating income and expenses:

	Three Months Ended June 30,			Six Months Ended June 30,		
	2019	2018	Percentage Change	2019	2018	Percentage Change
	(in millions)			(in millions)		
Interest income	\$ 3	\$ 2	50.0 %	\$ 6	\$ 5	20.0 %
Interest expense	(31)	(37)	(16.2)%	(68)	(75)	(9.3)%
Net interest expense	(28)	(35)	(20.0)%	(62)	(70)	(11.4)%
Net gain on divestiture of businesses	—	41	(100.0)%	27	41	(34.1)%
Other investment income	1	8	(87.5)%	1	8	(87.5)%
Net income from unconsolidated investees	10	5	100.0 %	55	7	685.7 %
Total non-operating income (expenses)	\$ (17)	\$ 19	(189.5)%	\$ 21	\$ (14)	(250.0)%

Interest Income

Interest income increased slightly in the second quarter and first six months of 2019 compared with the same periods in 2018 primarily due to an increase in prevailing market rates.

Interest Expense

Interest expense decreased in both the second quarter and first six months of 2019 compared with the same periods in 2018 primarily due to lower outstanding debt obligations and the refinancing of the 2020 Notes with the 2029 Notes at a lower interest rate. See Note 10, "Debt Obligations," to the condensed consolidated financial statements for further discussion of our debt obligations.

The following table shows our interest expense:

	Three Months Ended June 30,			Six Months Ended June 30,		
	2019	2018	Percentage Change	2019	2018	Percentage Change
	(in millions)			(in millions)		
Interest expense on debt	\$ 29	\$ 35	(17.1)%	\$ 64	\$ 70	(8.6)%
Accretion of debt issuance costs and debt discount	1	2	(50.0)%	3	4	(25.0)%
Other bank and investment-related fees	1	—	N/M	1	1	— %
Interest expense	<u>\$ 31</u>	<u>\$ 37</u>	(16.2)%	<u>\$ 68</u>	<u>\$ 75</u>	(9.3)%

N/M - Not meaningful.

Net Gain on Divestiture of Businesses

The net gain on divestiture of businesses for the second quarter and first six months of 2018 relates to the sale of the Public Relations Solutions and Digital Media Services businesses. We recorded a pre-tax gain of \$41 million, net of disposal costs (\$19 million after tax). See “2018 Divestiture,” of Note 5, “Acquisitions and Divestitures,” to the condensed consolidated financial statements for further discussion.

The net gain on divestiture of businesses for the first six months of 2019 relates to the sale of the B Wise enterprise governance, risk and compliance software platform. We recognized a pre-tax gain on the sale of \$27 million, net of disposal costs (\$20 million after tax). See “2019 Divestiture,” of Note 5, “Acquisitions and Divestitures,” to the condensed consolidated financial statements for further discussion.

* * * * *

Other Investment Income

Other investment income in the second quarter and first six months of 2018 primarily related to dividend income received on an equity security.

Net Income from Unconsolidated Investees

Net income from unconsolidated investees increased in the second quarter and first six months of 2019 compared with the same periods in 2018 primarily due to income recognized from our equity method investment in OCC. See “Equity Method Investments,” of Note 8, “Investments,” to the condensed consolidated financial statements for further discussion.

Tax Matters

The following table shows our income tax provision and effective tax rate:

	Three Months Ended June 30,		Percentage Change
	2019	2018	
	(\$ in millions)		
Income tax provision	\$ 65	\$ 126	(48.4)%
Effective tax rate	27.2%	43.8%	
	Six Months Ended June 30,		Percentage Change
	2019	2018	
	(in millions)		
Income tax provision	\$ 131	\$ 188	(30.3)%
Effective tax rate	23.7%	35.7%	

The lower effective tax rate in the second quarter and first six months of 2019 was primarily due to the 2018 reversal of certain Swedish tax benefits recorded in prior periods. The lower

effective tax rate in the first six months of 2019 was also impacted by a tax benefit from a dividends received deduction related to capital distributions from the OCC and the reversal of a previously accrued tax penalty in Finland. For further discussion of our tax matters, see Note 17, “Income Taxes,” to the condensed consolidated financial statements.

Non-GAAP Financial Measures

In addition to disclosing results determined in accordance with U.S. GAAP, we also have provided non-GAAP net income attributable to Nasdaq and non-GAAP diluted earnings per share. Management uses this non-GAAP information internally, along with U.S. GAAP information, in evaluating our performance and in making financial and operational decisions. We believe our presentation of these measures provides investors with greater transparency and supplemental data relating to our financial condition and results of operations. In addition, we believe the presentation of these measures is useful to investors for period-to-period comparisons of our ongoing operating performance.

These measures are not in accordance with, or an alternative to, U.S. GAAP, and may be different from non-GAAP measures used by other companies. In addition, other companies, including companies in our industry, may calculate such measures differently, which reduces their usefulness as comparative measures. Investors should not rely on any single financial measure when evaluating our business. This non-GAAP information should be considered as supplemental in nature and is not meant as a substitute for our operating results in accordance with U.S. GAAP. We recommend investors review the U.S. GAAP financial measures included in this Quarterly Report on Form 10-Q, including our condensed consolidated financial statements and the notes thereto. When v

iewed in conjunction with our U.S. GAAP results and the accompanying reconciliation, we believe these non-GAAP measures provide greater transparency and a more complete understanding of factors affecting our business than U.S. GAAP measures alone.

We understand that analysts and investors regularly rely on non-GAAP financial measures, such as non-GAAP net income attributable to Nasdaq and non-GAAP diluted earnings per share, to assess operating performance. We use non-GAAP net income attributable to Nasdaq and non-GAAP diluted earnings per share because they highlight trends more clearly in our business that may not otherwise be apparent when relying solely on U.S. GAAP financial measures, since these measures eliminate from our results specific financial items that have less bearing on our ongoing operating performance. Non-GAAP net income attributable to Nasdaq for the periods presented below is calculated by adjusting for the following items:

Amortization expense of acquired intangible assets: We amortize intangible assets acquired in connection with various acquisitions. Intangible asset amortization expense can vary from period to period due to episodic acquisitions completed, rather than from our ongoing business operations. As such, if intangible asset amortization is included in performance measures, it is more difficult to assess the day-to-day operating performance of the businesses, the relative operating performance of the businesses between periods, and the earnings power of Nasdaq. Performance measures excluding intangible asset amortization therefore provide investors with a more useful representation of our businesses' ongoing activity in each period.

Merger and strategic initiatives expense: We have pursued various strategic initiatives and completed acquisitions and divestitures in recent years which have resulted in expenses which would not have otherwise been incurred. These expenses generally include integration costs, as well as legal, due diligence and other third party transaction costs. The frequency and the amount of such expenses vary significantly based on the size, timing and complexity of the transaction. Accordingly, we exclude these costs for purposes of calculating non-GAAP measures which provide a more meaningful analysis of Nasdaq's ongoing operating performance or comparisons in Nasdaq's performance between periods. The credit balance in merger and strategic initiative expense in the second quarter of 2018 relates to the reclass of costs incurred during the first quarter of 2018 to sell the Public Relations Solutions and Digital Media Services businesses. Since these businesses were sold during the second quarter of 2018, these costs have been included as a deduction to the gain on the sale of these businesses.

Net Income from Unconsolidated Investee: See "OCC Capital Plan," of Note 8, "Investments," for further discussion. Our income on this investment will vary significantly compared to prior years due to the disapproval of the OCC's capital plan.

Accordingly, we will exclude this income from current and prior periods for purposes of calculating non-GAAP measures which provide a more meaningful analysis of Nasdaq's ongoing operating performance or comparisons in Nasdaq's performance between periods.

Other significant items: We have excluded certain other charges or gains, including certain tax items, that are the result of other non-comparable events to measure operating performance. We believe the exclusion of such amounts allows management and investors to better understand the ongoing financial results of Nasdaq.

For the second quarter and first six months of 2019, other significant items primarily included a loss on extinguishment of debt of \$11 million which is recorded in general, administrative and other expense in our Condensed Consolidated Statements of Income. The first six months of 2019 also included a net gain on divestiture of businesses which represents our pre-tax net gain of \$27 million on the sale of BWISE.

For the second quarter and first six months of 2018, other significant items primarily included a net gain on divestiture of businesses which represents our pre-tax net gain of \$41 million on the sale of the Public Relations Solutions and Digital Media Services businesses.

Significant tax items: For the second quarter and first six months of 2019 and 2018, the non-GAAP adjustment to the income tax provision included the tax impact of each non-GAAP adjustment and for the first six months of 2019, a tax benefit of \$10 million related to capital distributions from the OCC and a reversal of a previously accrued tax penalty in Finland. See "OCC Capital Plan," of Note 8, "Investments," for further discussion of our OCC investment. Additional adjustments included the following items:

- For the first six months of 2019 and 2018, excess tax benefits related to employee share-based compensation reflect the recognition of the income tax effects of share-based awards when awards vest or are settled. This item is subject to volatility and will vary based on the timing of the vesting of employee share-based compensation arrangements and fluctuation in our stock price.
- For the second quarter and first six months of 2018, we recorded a reversal of certain Swedish tax benefits. See Note 17, "Income Taxes," to the condensed consolidated financial statements for further discussion.
- For the first six months of 2018, the impact of enacted U.S. tax legislation is related to the Tax Cuts and Jobs Act which was enacted on December 22, 2017. We recorded an increase to tax expense of \$5 million, which reflected the reduced federal tax benefit associated with state unrecognized tax benefits.

The following table represents reconciliations between U.S. GAAP net income attributable to Nasdaq and diluted earnings per share and non-GAAP net income attributable to Nasdaq and diluted earnings per share:

(in millions, except share and per share amounts)	Three Months Ended June 30, 2019		Three Months Ended June 30, 2018	
	Net Income	Diluted Earnings Per Share	Net Income	Diluted Earnings Per Share
U.S. GAAP net income attributable to Nasdaq and diluted earnings per share	\$ 174	\$ 1.04	\$ 162	\$ 0.97
Non-GAAP adjustments:				
Amortization expense of acquired intangible assets	26	0.16	28	0.17
Merger and strategic initiatives expense	5	0.03	(10)	(0.06)
Net income from unconsolidated investee	(9)	(0.05)	(4)	(0.02)
Extinguishment of debt	11	0.06	—	—
Net gain on divestiture of businesses	—	—	(41)	(0.24)
Other	3	0.02	3	0.02
Total non-GAAP adjustments	36	0.22	(24)	(0.13)
Adjustment to the income tax provision to reflect non-GAAP adjustments and other tax items	(7)	(0.04)	15	0.08
Reversal of certain Swedish tax benefits	—	—	41	0.24
Total non-GAAP tax adjustments	(7)	(0.04)	56	0.32
Total non-GAAP adjustments, net of tax	29	0.18	32	0.19
Non-GAAP net income attributable to Nasdaq and diluted earnings per share	\$ 203	\$ 1.22	\$ 194	\$ 1.16
Weighted-average common shares outstanding for diluted earnings per share		167,041,419		167,399,604

(in millions, except share and per share amounts)	Six Months Ended June 30, 2019		Six Months Ended June 30, 2018	
	Net Income	Diluted Earnings Per Share	Net Income	Diluted Earnings Per Share
U.S. GAAP net income attributable to Nasdaq and diluted earnings per share	\$ 421	\$ 2.52	\$ 339	\$ 2.02
Non-GAAP adjustments:				
Amortization expense of acquired intangible assets	51	0.31	56	0.34
Merger and strategic initiatives	14	0.08	—	—
Net income from unconsolidated investee	(54)	(0.32)	(6)	(0.04)
Extinguishment of debt	11	0.06	—	—
Net gain on divestiture of businesses	(27)	(0.16)	(41)	(0.24)
Other	6	0.04	5	0.03
Total non-GAAP adjustments	1	0.01	14	0.09
Adjustment to the income tax provision to reflect non-GAAP adjustments and other tax items	(11)	(0.07)	7	0.04
Excess tax benefits related to employee share-based compensation	(4)	(0.02)	(5)	(0.03)
Reversal of certain Swedish tax benefits	—	—	41	0.24
Impact of newly enacted U.S. tax legislation	—	—	5	0.03
Total non-GAAP tax adjustments	(15)	(0.09)	48	0.28
Total non-GAAP adjustments, net of tax	(14)	(0.08)	62	0.37
Non-GAAP net income attributable to Nasdaq and diluted earnings per share	\$ 407	\$ 2.44	\$ 401	\$ 2.39
Weighted-average common shares outstanding for diluted earnings per share		167,034,783		168,144,020

Liquidity and Capital Resources

Historically, we have funded our operating activities and met our commitments through cash generated by operations, augmented by the periodic issuance of our common stock and debt. Currently, our cost and availability of funding remain healthy.

In March 2019, we used net proceeds from the sale of commercial paper and cash on hand to redeem all of our 2019 Notes. In April 2019, we issued the 2029 Notes and in May 2019, we primarily used the net proceeds from the 2029 Notes to repay in full and terminate our 2020 Notes. In addition, in June 2019, we used proceeds from issuances of commercial paper to repay in full and terminate our 2016 Credit Facility. See “1.75% Senior Unsecured Notes Due 2029,” “Early Extinguishment of 5.55% Senior Unsecured Notes Due 2020,” and “Early Extinguishment of 2016 Credit Facility,” of Note 10, “Debt Obligations,” to the condensed consolidated financial statements for further discussion of the 2029 Notes and the early extinguishment of both the 2020 Notes and 2016 Credit Facility.

We have the 2017 Credit Facility and a commercial paper program which enable us to borrow efficiently at reasonable short-term interest rates and is supported by our 2017 Credit Facility. See “Commercial Paper Program,” and “2017 Credit Facility,” of Note 10, “Debt Obligations,” to the condensed consolidated financial statements for further discussion.

As of June 30, 2019, no amounts were outstanding on the 2017 Credit Facility. The \$3 million balance represents unamortized debt issuance costs. Of the \$1 billion that is available for borrowing, \$469 million provides liquidity support for the commercial paper program and for a letter of credit. As such, as of June 30, 2019, the total remaining amount available under the 2017 Credit Facility was \$531 million.

As part of the purchase price consideration of a prior acquisition, Nasdaq has contingent future obligations to issue 992,247 shares of Nasdaq common stock. See “Non-Cash Contingent Consideration,” of Note 18, “Commitments, Contingencies and Guarantees,” to the condensed consolidated financial statements for further discussion.

In the near term, we expect that our operations and the availability under our revolving credit commitment and commercial paper program will provide sufficient cash to fund our operating expenses, capital expenditures, debt repayments, any share repurchases, and any dividends.

The value of various assets and liabilities, including cash and cash equivalents, receivables, accounts payable and accrued expenses, the current portion of long-term debt and commercial paper can fluctuate from month to month. Working capital (calculated as current assets less current liabilities) was \$(168) million as of June 30, 2019, compared with \$(200) million as of December 31, 2018, an increase of \$32 million. Current asset balance changes decreased working capital by \$2,007 million, with decreases in default funds and margin deposits, other current assets, cash and cash equivalents, restricted cash and financial investments, at fair value, partially offset by an increase in receivables, net. Current liability balance changes

increased working capital by \$2,039 million, due to decreases in default funds and margin deposits, short-term debt, other current liabilities, accrued personnel costs, and accounts payable and accrued expenses, partially offset by increases in deferred revenue and Section 31 fees payable to the SEC.

Principal factors that could affect the availability of our internally-generated funds include:

- deterioration of our revenues in any of our business segments;
- changes in regulatory and working capital requirements; and
- an increase in our expenses.

Principal factors that could affect our ability to obtain cash from external sources include:

- operating covenants contained in our credit facilities that limit our total borrowing capacity;
- increases in interest rates under our credit facilities;
- credit rating downgrades, which could limit our access to additional debt;
- a decrease in the market price of our common stock; and
- volatility or disruption in the public debt and equity markets.

The following sections discuss the effects of changes in our financial assets, debt obligations, regulatory capital requirements, and cash flows on our liquidity and capital resources.

Financial Assets

The following table summarizes our financial assets:

	June 30, 2019	December 31, 2018
	(in millions)	
Cash and cash equivalents	\$ 333	\$ 545
Restricted cash	30	41
Financial investments, at fair value	259	268
Total financial assets	<u>\$ 622</u>	<u>\$ 854</u>

Cash and Cash Equivalents and Restricted Cash

Cash and cash equivalents includes all non-restricted cash in banks and highly liquid investments with original maturities of 90 days or less at the time of purchase. The balance retained in cash and cash equivalents is a function of anticipated or possible short-term cash needs, prevailing interest rates, our investment policy, and alternative investment choices. As of June 30, 2019, our cash and cash equivalents of \$333 million were primarily invested in bank deposits, money market funds and commercial paper. In the long-term, we may use both internally generated funds and external sources to satisfy our debt obligations and other long-term liabilities. Cash and cash equivalents as of June 30, 2019 decreased \$212 million from December 31, 2018, primarily due to:

- repayments of debt obligations;

- cash paid for an acquisition, net of cash and cash equivalents acquired;
- cash dividends paid on our common stock; and
- purchases of property and equipment, partially offset by;
- proceeds from issuances of long-term debt, net of issuance costs;
- net cash provided by operating activities;
- proceeds from commercial paper, net; and
- proceeds from the divestiture of a business.

See “Cash Flow Analysis” below for further discussion.

Restricted cash is restricted from withdrawal due to contractual or regulatory requirements or is not available for general use. Restricted cash was \$30 million as of June 30, 2019 and \$41 million as of December 31, 2018, a decrease of \$11 million. The decrease primarily relates to a decrease in customer funds held in connection with privately negotiated securities transactions. Restricted cash is classified as restricted cash in the Condensed Consolidated Balance Sheets.

Repatriation of Cash

Our cash and cash equivalents held outside of the U.S. in various foreign subsidiaries totaled \$138 million as of June 30, 2019 and \$367 million as of December 31, 2018. The remaining balance held in the U.S. totaled \$195 million as of June 30, 2019 and \$178 million as of December 31, 2018.

Unremitted earnings of subsidiaries outside of the U.S. are used to finance our international operations and are considered to be indefinitely reinvested.

* * * * *

Debt Obligations

The following table summarizes our debt obligations by contractual maturity:

	Maturity Date	June 30, 2019	December 31, 2018
(in millions)			
Short-term debt:			
Commercial paper	Weighted-average maturity of 29 days	\$ 467	\$ 275
Senior unsecured floating rate notes	Repaid March 2019	—	500
	Repaid May 2019	—	599
5.55% senior unsecured notes ⁽¹⁾		—	599
\$400 million senior unsecured term loan facility	Repaid June 2019	—	100
Total short-term debt		467	1,474
Long-term debt:			
3.875% senior unsecured notes	June 2021	680	686
\$1 billion senior unsecured revolving credit facility	April 2022	(3)	(4)
1.75% senior unsecured notes	May 2023	677	682
4.25% senior unsecured notes	June 2024	497	497
3.85% senior unsecured notes	June 2026	497	496
1.75% senior unsecured notes	March 2029	674	—
Total long-term debt		3,022	2,357
Total debt obligations		\$ 3,489	\$ 3,831

Share Repurchase Program

See “Share Repurchase Program,” of Note 13, “Nasdaq Stockholders’ Equity,” to the condensed consolidated financial statements for further discussion of our share repurchase program.

Cash Dividends on Common Stock

The following table shows quarterly cash dividends paid per common share on our outstanding common stock:

	2019	2018
First quarter	\$ 0.44	\$ 0.82
Second quarter	0.47	—
Total	\$ 0.91	\$ 0.82

See “Cash Dividends on Common Stock,” of Note 13, “Nasdaq Stockholders’ Equity,” to the condensed consolidated financial statements for further discussion of the dividends.

Financial Investments, at Fair Value

Our financial investments, at fair value totaled \$259 million as of June 30, 2019 and \$268 million as of December 31, 2018 and are primarily comprised of trading securities, mainly highly rated European government debt securities. Of these securities, \$180 million as of June 30, 2019 and \$166 million as of December 31, 2018 are assets primarily utilized to meet regulatory capital requirements, mainly for our clearing operations at Nasdaq Clearing. See Note 8, “Investments,” to the condensed consolidated financial statements for further discussion of our trading securities.

⁽¹⁾ Balance was reclassified to short-term debt as of March 31, 2019.

In addition to the \$1 billion senior unsecured revolving credit facility, we also have other credit facilities primarily related to our Nasdaq Clearing operations in order to provide further liquidity. Other credit facilities, which are available in multiple currencies, totaled \$211 million as of June 30, 2019 and \$220 million as of December 31, 2018, in available liquidity, none of which was utilized.

As of June 30, 2019, we were in compliance with the covenants of all of our debt obligations.

See Note 10, "Debt Obligations," to the condensed consolidated financial statements for further discussion of our debt obligations.

* * * * *

Regulatory Capital Requirements

Clearing Operations Regulatory Capital Requirements

We are required to maintain minimum levels of regulatory capital for the clearing operations of Nasdaq Clearing. The level of regulatory capital required to be maintained is dependent upon many factors, including market conditions and creditworthiness of the counterparty. As of June 30, 2019, our required regulatory capital of \$152 million is comprised of highly rated European government debt securities that are included in financial investments, at fair value in the Condensed Consolidated Balance Sheets.

Broker-Dealer Net Capital Requirements

Our broker-dealer subsidiaries, Nasdaq Execution Services, Execution Access, NPM Securities, SMTX, and Nasdaq Capital Markets Advisory, are subject to regulatory requirements intended to ensure their general financial soundness and liquidity. These requirements obligate these subsidiaries to comply with minimum net capital requirements. As of June 30, 2019, the combined required minimum net capital totaled \$1 million and the combined excess capital totaled \$47 million.

The required minimum net capital is included in restricted cash in the Condensed Consolidated Balance Sheets.

Nordic and Baltic Exchange Regulatory Capital Requirements

The entities that operate trading venues in the Nordic and Baltic countries are each subject to local regulations and are required to maintain regulatory capital intended to ensure their general financial soundness and liquidity. As of June 30, 2019, our required regulatory capital of \$33 million is primarily invested in European mortgage bonds that are included in financial investments, at fair value and restricted cash in the Condensed Consolidated Balance Sheets.

Other Capital Requirements

We operate several other businesses which are subject to local regulation and are required to maintain certain levels of regulatory capital. As of June 30, 2019, other required regulatory capital was \$16 million and was primarily included in restricted cash and financial investments, at fair value in the Condensed Consolidated Balance Sheets.

* * * * *

Cash Flow Analysis

The following table summarizes the changes in cash flows:

	<u>Six Months Ended June 30,</u>		<u>Percentage Change</u>
	<u>2019</u>	<u>2018</u>	
Net cash provided by (used in):	(in millions)		
Operating activities	\$ 523	\$ 654	(20.0)%
Investing activities	(163)	151	(207.9)%
Financing activities	(573)	(835)	(31.4)%
Effect of exchange rate changes on cash and cash equivalents and restricted cash	(10)	(13)	(23.1)%
Net decrease in cash and cash equivalents and restricted cash	(223)	(43)	418.6 %
Cash and cash equivalents and restricted cash at beginning of period	586	399	46.9 %
Cash and cash equivalents and restricted cash at end of period	<u>\$ 363</u>	<u>\$ 356</u>	2.0 %

Net Cash Provided by Operating Activities

Net cash provided by operating activities primarily consists of net income adjusted for certain non-cash items, including depreciation and amortization and the effects of changes in working capital.

Net cash provided by operating activities decreased \$131 million for the six months ended June 30, 2019 compared with

the same period in 2018. The decrease was primarily driven by higher tax payments in 2019 compared with 2018 tax payments which included the utilization of 2017 overpayments, lower performance incentive payments made in the first six months of 2019 compared to the same period in 2018 primarily due to prior year performance, and a decline in cash flows related to the sale of the B Wise enterprise governance, risk and compliance software platform in March 2019 and the sale of

the Public Relations Solutions and Digital Media Services businesses in April 2018.

Net Cash Used in Investing Activities

Net cash used in investing activities for the six months ended June 30, 2019 primarily relates to \$193 million of cash used for the acquisition of Cinnober, \$63 million of purchases of property and equipment, partially offset by receipt of cash of \$108 million related to the sale of the B Wise enterprise governance, risk and compliance software platform.

Net cash provided by investing activities for the six months ended June 30, 2018 primarily relates to \$294 million of cash received from the sale of the Public Relations Solutions and Digital Media Services businesses, partially offset by \$92 million of net purchases of securities, and \$45 million of purchases of property and equipment.

Net Cash Used in Financing Activities

Net cash used in financing activities for the six months ended June 30, 2019 primarily relates to \$1,215 million in repayments of debt obligations, \$150 million of dividend payments to our shareholders, \$50 million in repurchases of common stock, and \$30 million in cash payments related to employee tax withholding in connection with restricted stock and PSU vestings and stock options exercises, partially offset by \$680 million from proceeds related to long-term debt issuances and \$192 million in net borrowings of commercial paper.

Net cash used in financing activities for the six months ended June 30, 2018 primarily relates to \$340 million in repurchases of common stock, \$212 million of net repayments of commercial paper, \$135 million of dividend payments to our shareholders, \$115 million of repayments of debt obligations, and \$43 million in cash payments related to employee tax withholding in connection with restricted stock and PSU vestings and stock options exercises.

See Note 5, “Acquisitions and Divestitures,” to the condensed consolidated financial statements for further discussion of our divestitures and acquisitions.

See Note 10, “Debt Obligations,” to the condensed consolidated financial statements for further discussion of our debt obligations.

See “Share Repurchase Program,” and “Cash Dividends on Common Stock,” of Note 13, “Nasdaq Stockholders’ Equity,” to the condensed consolidated financial statements for further discussion of our share repurchase program and cash dividends paid on our common stock.

Contractual Obligations and Contingent Commitments

In the first six months of 2019, there were no significant changes to our contractual obligations and commercial commitments from those disclosed in “Part II. Item 7. “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in our Form 10-K, other than the changes related to our adoption of the new lease accounting standard, ASU 2016-02. See Note 3, “Significant Accounting Policies Update,” for further discussion.

Off-Balance Sheet Arrangements

For discussion of off-balance sheet arrangements see:

- Note 16, “Clearing Operations,” to the condensed consolidated financial statements for further discussion of our non-cash default fund contributions and margin deposits received for clearing operations; and
- Note 18, “Commitments, Contingencies and Guarantees,” to the condensed consolidated financial statements for further discussion of:
 - Guarantees issued and credit facilities available;
 - Other guarantees;
 - Non-cash contingent consideration;
 - Escrow agreements;
 - Routing brokerage activities;
 - Legal and regulatory matters; and
 - Tax audits.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

As a result of our operating, investing and financing activities, we are exposed to market risks such as interest rate risk and foreign currency exchange rate risk. We are also exposed to credit risk as a result of our normal business activities.

We have implemented policies and procedures to measure, manage, monitor and report risk exposures, which are reviewed regularly by management and the board of directors. We identify risk exposures and monitor and manage such risks on a daily basis.

We perform sensitivity analyses to determine the effects of market risk exposures. We may use derivative instruments solely to hedge financial risks related to our financial positions or risks that are incurred during the normal course of business. We do not use derivative instruments for speculative purposes.

Interest Rate Risk

We are subject to the risk of fluctuating interest rates in the normal course of business. Our exposure to market risk for changes in interest rates relates primarily to our financial investments and debt obligations which are discussed below.

Financial Investments

As of June 30, 2019, our investment portfolio was primarily comprised of trading securities, mainly highly rated European government debt securities, which pay a fixed rate of interest. These securities are subject to interest rate risk and the fair value of these securities will decrease if market interest rates increase. If market interest rates were to increase immediately and uniformly by 100 basis points from levels as of June 30, 2019, the fair value of this portfolio would have declined by \$4 million.

Debt Obligations

As of June 30, 2019, substantially all of our debt obligations are fixed-rate obligations. While changes in interest rates will have no impact on the interest we pay on fixed-rate obligations, we are exposed to changes in interest rates as a result of the amounts outstanding from the sale of commercial paper under our commercial paper program, which have variable interest

rates. As of June 30, 2019, we had principal amounts outstanding of \$468 million of commercial paper. A hypothetical 100 basis points increase in interest rates on our outstanding commercial paper would increase annual interest expense by approximately \$5 million based on borrowings as of June 30, 2019.

* * * * *

Foreign Currency Exchange Rate Risk

As a leading global exchange group, we are subject to foreign currency exchange rate risk. Our primary transactional exposure to foreign currency denominated revenues less transaction-based expenses and operating income for the three and six months ended June 30, 2019 is presented in the following table:

	Euro	Swedish Krona	Other Foreign Currencies	U.S. Dollar	Total
(in millions, except currency rate)					
Three Months Ended June 30, 2019					
Average foreign currency rate to the U.S. dollar	1.1237	0.1059	#	N/A	N/A
Percentage of revenues less transaction-based expenses	7.2%	8.2 %	4.9 %	79.7%	100.0%
Percentage of operating income	12.5%	(1.4)%	(4.3)%	93.2%	100.0%
Impact of a 10% adverse currency fluctuation on revenues less transaction-based expenses	\$ (5)	\$ (5)	\$ (3)	\$ —	\$ (13)
Impact of a 10% adverse currency fluctuation on operating income	\$ (3)	\$ (1)	\$ (1)	\$ —	\$ (5)
	Euro	Swedish Krona	Other Foreign Currencies	U.S. Dollar	Total
(in millions, except currency rate)					
Six Months Ended June 30, 2019					
Average foreign currency rate to the U.S. dollar	1.1297	0.1074	#	N/A	N/A
Percentage of revenues less transaction-based expenses	7.7%	8.2 %	4.9 %	79.2%	100.0%
Percentage of operating income	12.8%	(1.4)%	(5.7)%	94.3%	100.0%
Impact of a 10% adverse currency fluctuation on revenues less transaction-based expenses	\$ (10)	\$ (10)	\$ (6)	\$ —	\$ (26)
Impact of a 10% adverse currency fluctuation on operating income	\$ (7)	\$ (1)	\$ (3)	\$ —	\$ (11)

Represents multiple foreign currency rates.

N/A Not applicable.

Our investments in foreign subsidiaries are exposed to volatility in currency exchange rates through translation of the foreign subsidiaries' net assets or equity to U.S. dollars. Substantially all of our foreign subsidiaries operate in functional currencies other than the U.S. dollar. The financial statements of these subsidiaries are translated into U.S. dollars for consolidated reporting using a current rate of exchange, with net gains or losses recorded in accumulated other comprehensive loss within stockholders' equity in the Condensed Consolidated Balance Sheets.

Our primary exposure to net assets in foreign currencies as of June 30, 2019 is presented in the following table:

	Impact of a 10% Adverse Currency Fluctuation	
	Net Assets	(in millions)
Swedish Krona ⁽¹⁾	\$ 3,249	\$ (325)
Norwegian Krone	173	(17)
Canadian Dollar	126	(13)
British Pound	217	(22)
Euro	39	(4)
Australian Dollar	107	(11)

⁽¹⁾ Includes goodwill of \$2,430 million and intangible assets, net of \$614 million.

Credit Risk

Credit risk is the potential loss due to the default or deterioration in credit quality of customers or counterparties. We are exposed to credit risk from third parties, including customers, counterparties and clearing agents. These parties may default on their obligations to us due to bankruptcy, lack of liquidity, operational failure or other reasons. We limit our exposure to credit risk by evaluating the counterparties with which we make investments and execute agreements. For our investment portfolio, our objective is to invest in securities to preserve principal while maximizing yields, without significantly increasing risk. Credit risk associated with investments is minimized substantially by ensuring that these financial assets are placed with governments which have investment grade ratings, well-capitalized financial institutions and other creditworthy counterparties.

Our subsidiary, Nasdaq Execution Services, may be exposed to credit risk, due to the default of trading counterparties, in connection with the routing services it provides for our trading customers. System trades in cash equities routed to other market centers for members of our cash equity exchanges are routed by Nasdaq Execution Services for clearing to the NSCC. In this function, Nasdaq Execution Services is to be neutral by the end of the trading day, but may be exposed to intraday risk if a trade extends beyond the trading day and into the next day, thereby leaving Nasdaq Execution Services susceptible to counterparty risk in the period between accepting the trade and routing it to the clearinghouse. In this interim period, Nasdaq Execution Services is not novating like a clearing broker but instead is subject to the short-term risk of counterparty failure before the clearinghouse enters the transaction. Once the clearinghouse officially accepts the trade for novation, Nasdaq Execution Services is legally removed from trade execution risk. However, Nasdaq has membership obligations to NSCC independent of Nasdaq Execution Services' arrangements.

Pursuant to the rules of the NSCC and Nasdaq Execution Services' clearing agreement, Nasdaq Execution Services is liable for any losses incurred due to a counterparty or a clearing agent's failure to satisfy its contractual obligations, either by making payment or delivering securities. Adverse movements

in the prices of securities that are subject to these transactions can increase our credit risk. However, we believe that the risk of material loss is limited, as Nasdaq Execution Services' customers are not permitted to trade on margin and NSCC rules limit counterparty risk on self-cleared transactions by establishing credit limits and capital deposit requirements for all brokers that clear with NSCC. Historically, Nasdaq Execution Services has never incurred a liability due to a customer's failure to satisfy its contractual obligations as counterparty to a system trade. Credit difficulties or insolvency, or the perceived possibility of credit difficulties or insolvency, of one or more larger or visible market participants could also result in market-wide credit difficulties or other market disruptions.

Execution Access is an introducing broker which operates the trading platform for our Fixed Income business to trade in U.S. Treasury securities. Execution Access has a clearing arrangement with Industrial and Commercial Bank of China Financial Services LLC, or ICBC. As of June 30, 2019, we have contributed \$15 million of clearing deposits to ICBC in connection with this clearing arrangement. These deposits are recorded in other current assets in our Consolidated Balance Sheets. Some of the trading activity in Execution Access is cleared by ICBC through the Fixed Income Clearing Corporation, with ICBC acting as agent. Execution Access assumes the counterparty risk of clients that do not clear through the Fixed Income Clearing Corporation. Counterparty risk of clients exists for Execution Access between the trade date and settlement date of the individual transactions, which is at least one business day (or more, if specified by the U.S. Treasury issuance calendar). Counterparties that do not clear through the Fixed Income Clearing Corporation are subject to a credit due diligence process and may be required to post collateral, provide principal letters, or provide other forms of credit enhancement to Execution Access for the purpose of mitigating counterparty risk. Daily position trading limits are also enforced for such counterparties.

We have credit risk related to transaction and subscription-based revenues that are billed to customers on a monthly or quarterly basis, in arrears. Our potential exposure to credit losses on these transactions is represented by the receivable balances in our Condensed Consolidated Balance Sheets. We review and evaluate changes in the status of our counterparties' creditworthiness. Credit losses such as those described above could adversely affect our consolidated financial position and results of operations.

We also are exposed to credit risk through our clearing operations with Nasdaq Clearing. See Note 16, "Clearing Operations," to the condensed consolidated financial statements for further discussion. Our clearinghouse holds material amounts of clearing member cash deposits which are held or invested primarily to provide security of capital while minimizing credit, market and liquidity risks. While we seek to achieve a reasonable rate of return, we are primarily concerned with preservation of capital and managing the risks associated with these deposits. As the clearinghouse may pass on interest revenues (minus costs) to the members, this could

include negative or reduced yield due to market conditions. The following is a summary of the risks associated with these deposits and how these risks are mitigated.

- **Credit Risk.** When the clearinghouse has the ability to hold cash collateral at a central bank, the clearinghouse utilizes its access to the central bank system to minimize credit risk exposures. When funds are not held at a central bank, we seek to substantially mitigate credit risk by ensuring that investments are primarily placed in highly rated government and supranational debt instruments.
- **Liquidity Risk.** Liquidity risk is the risk a clearinghouse may not be able to meet its payment obligations in the right currency, in the right place and the right time. To mitigate this risk, the clearinghouse monitors liquidity requirements closely and maintains funds and assets in a manner which minimizes the risk of loss or delay in the access by the clearinghouse to such funds and assets. For example, holding funds with a central bank where possible or investing in highly liquid government or supranational debt instruments serves to reduce liquidity risks.

- **Interest Rate Risk.** Interest rate risk is the risk that interest rates rise causing the value of purchased securities to decline. If we were required to sell securities prior to maturity, and interest rates had risen, the sale of the securities might be made at a loss relative to the latest market price. Our clearinghouse seeks to manage this risk by making short term investments of members' cash deposits. In addition, the clearinghouse investment guidelines allow for direct purchases or repurchase agreements of high quality sovereign debt (for example, European government and U.S. Treasury securities), central bank certificates and supranational debt instruments with short dated maturities.
- **Security Issuer Risk.** Security issuer risk is the risk that an issuer of a security defaults on its payment when the security matures. This risk is mitigated by limiting allowable investments and collateral under reverse repurchase agreements to high quality sovereign, government agency or supranational debt instruments.

* * * * *

Item 4. Controls and Procedures

(a) **Disclosure controls and procedures.** Nasdaq's management, with the participation of Nasdaq's President and Chief Executive Officer, and Executive Vice President, Accounting and Corporate Strategy and Chief Financial Officer, has evaluated the effectiveness of Nasdaq's disclosure controls and procedures (as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Exchange Act) as of the end of the period covered by this report. Based upon that evaluation, Nasdaq's President and Chief Executive Officer and Executive Vice President, Accounting and Corporate Strategy and Chief Financial Officer, have concluded that, as of the end of such period, Nasdaq's disclosure controls and procedures are effective.

(b) **Internal control over financial reporting.** As of April 1, 2019, we implemented a new enterprise resource planning, or ERP, system, by transitioning certain of our operations, including the general ledger, to the new ERP system. We have modified our existing controls infrastructure, as well as added other processes and internal controls, to adapt to our new ERP system and to take advantage of the increased functionality of the new system. There are no other changes in Nasdaq's internal control over financial reporting (as defined in Rule 13a-15(f) and Rule 15d-15(f) under the Exchange Act) that occurred during the quarter ended June 30, 2019 that have materially affected, or are reasonably likely to materially affect, Nasdaq's internal control over financial reporting.

PART II - OTHER INFORMATION

Item 1. Legal Proceedings

See "Legal and Regulatory Matters - Litigation," of Note 18, "Commitments, Contingencies and Guarantees," to the condensed consolidated financial statements, which is incorporated herein by reference.

Item 1A. Risk Factors

In addition to the other information set forth in this Quarterly Report on Form 10-Q, you should carefully consider the factors discussed under "Risk Factors" in our Form 10-K. These risks could materially and adversely affect our business, financial condition and results of operations. The risks and uncertainties in our Form 10-K and Form 10-Q are not the only ones facing us. Additional risks and uncertainties not presently known to us or that we currently believe to be immaterial may also adversely affect our business.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

Issuer Purchases of Equity Securities

Share Repurchase Program

See "Share Repurchase Program," of Note 13, "Nasdaq Stockholders' Equity," to the condensed consolidated financial statements for further discussion of our share repurchase program.

Employee Transactions

During the fiscal quarter ended June 30, 2019, we purchased shares from employees in connection with the settlement of employee tax withholding obligations arising from the vesting of restricted stock and PSUs. The table below represents repurchases made by or on behalf of us or any “affiliated purchaser” of our common stock during the fiscal quarter ended June 30, 2019:

Period	(a) Total Number of Shares Purchased	(b) Average Price Paid Per Share	(c) Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	(d) Maximum Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs (in millions)
April 2019				
Share repurchase program	—	\$ —	—	\$ 332
Employee transactions	7,242	\$ 89.20	N/A	N/A
May 2019				
Share repurchase program	179,970	\$ 90.50	179,970	\$ 316
Employee transactions	633	\$ 90.36	N/A	N/A
June 2019				
Share repurchase program	358,479	\$ 94.02	358,479	\$ 282
Employee transactions	—	\$ —	N/A	N/A
Total Quarter Ended June 30, 2019				
Share repurchase program	538,449	\$ 92.84	538,449	\$ 282
Employee transactions	7,875	\$ 89.30	N/A	N/A

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

Item 6. Exhibits

4.1	Sixth Supplemental Indenture, dated April 1, 2019, among Nasdaq, Inc., Wells Fargo Bank, National Association, as Trustee, and HSBC Bank USA, National Association, as paying agent and as registrar and transfer agent (incorporated by reference to Exhibit 4.2 to the Form 8-A filed on April 1, 2019).
10.1	Amended and Restated Board Compensation Policy, effective on April 23, 2019.*
10.2	Form of Nasdaq Restricted Stock Unit Award Certificate (employees).*
10.3	Form of Nasdaq Restricted Stock Unit Award Certificate (directors).*
10.4	Form of Nasdaq One-Year Performance Share Unit Agreement.*
10.5	Form of Nasdaq Three-Year Performance Share Unit Agreement.*
10.6	Employment Offer Letter, dated as of April 30, 2019, between Nasdaq, Inc. and Lauren B. Dillard.*
31.1	Certification of President and Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (“Sarbanes-Oxley”).
31.2	Certification of Executive Vice President, Accounting and Corporate Strategy and Chief Financial Officer pursuant to Section 302 of Sarbanes-Oxley.
32.1	Certifications Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of Sarbanes-Oxley.
101	The following materials from the Nasdaq, Inc. Quarterly Report on Form 10-Q for the quarter ended June 30, 2019, formatted in iXBRL (Inline eXtensible Business Reporting Language): (i) Condensed Consolidated Balance Sheets as of June 30, 2019 and December 31, 2018; (ii) Condensed Consolidated Statements of Income for the three and six months ended June 30, 2019 and 2018; (iii) Condensed Consolidated Statements of Comprehensive Income for the three and six months ended June 30, 2019 and 2018; (iv) Condensed Consolidated Statements of Changes in Stockholders' Equity for the three and six months ended June 30, 2019 and 2018; (v) Condensed Consolidated Statements of Cash Flows for the six months ended June 30, 2019 and 2018; and (vi) notes to condensed consolidated financial statements.
104	Cover Page Interactive Data File, formatted in iXBRL and contained in Exhibit 101.

* Management contract or compensatory plan or arrangement.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Nasdaq, Inc.
(Registrant)

Date: August 5, 2019

By:

/s/ Adena T. Friedman

Name:

Adena T. Friedman

Title:

President and Chief Executive Officer

Date: August 5, 2019

By:

/s/ Michael Ptasznik

Name:

Michael Ptasznik

Title:

**Executive Vice President, Accounting and Corporate Strategy
and Chief Financial Officer**

Nasdaq, Inc. Board Compensation Policy

Amended and Restated on April 23, 2019 / Chief Financial Officer / Version 2.1

Purpose & Statement Of Policy

Annual Non-Employee Director (“Director”) compensation consists of the following elements, each of which is discussed further below: (i) annual retainer, (ii) annual equity award, (iii) annual committee chair fees and (v) annual committee member fees.

Director compensation will be based on a compensation year in connection with the annual meeting of stockholders (the “Annual Meeting”). This enables Directors to receive equity immediately following election and appointment to the Board at the Annual Meeting.

Applicability & Scope

This Policy is applicable to all non-employee Directors of Nasdaq, Inc.

Annual Retainer

- Annual Director Retainer compensation is equal to a total value of \$75,000 for each Director, other than the Chairman of the Board.
- The Lead Independent Director, if any, will receive the Annual Director Retainer plus an additional Lead Independent Director Retainer of \$75,000.
- The Chairman of the Board will receive Annual Board Chairman Retainer compensation equal to a total value of \$240,000.
- Annual Retainer compensation will be delivered in the form of equity; however, Directors may annually elect to receive the entire Retainer compensation in cash or equity. Each Director will have the opportunity to make this election during the thirty (30) day period preceding the Annual Meeting. If the Director declines to make an election, the entire Annual Retainer will be paid in equity.
- Equity will be issued as Restricted Stock Units to each eligible director automatically on the date of the Annual Meeting immediately following the Director’s election and appointment by the Board. The equity portion selected will be paid in accordance with the “Policies and Procedures Relating to Equity Grants” below.

QUESTIONS?

Please contact the [Stock Plan Administrator](#) if at any time you have questions about the equity element of the policy. Please contact the [Office of the Corporate Secretary](#) with questions about the cash element of the policy.

- If cash is selected, the cash portion will be paid semi-annually in arrears, in equal installments, no later than the fifteenth day of the third month following the end of the semi-annual period; provided, however, that a Director will have a right to receive a cash payment for any given period only if that person serves as a Director during all or a portion of that period, with the cash payment for the period being prorated in the case of a person who serves as a Director during only a portion of a period (other than on account of death or disability).
- A Director appointed after the annual shareholders meeting will be eligible to receive a prorated share of the Annual Retainer compensation. Such a Director may elect to receive the entire prorated share of the Annual Retainer compensation in cash or equity. Equity will be paid retroactively on the date of the next Annual Meeting. Any cash portion will be paid semi-annually in arrears.

Annual Equity Award

- All Directors, including the Chairman and Lead Independent Director, will receive an additional annual equity award in the form of Restricted Stock Units, in the amount of \$230,000 per annum.
- The annual equity award will be granted to each Director automatically on the date of the Annual Meeting immediately following the Director's election and appointment to the Board.
- The annual equity award will be paid in accordance with the "Policies and Procedures Relating to Equity Grants" below.

Annual Committee Chair Fees

- The Chairperson of each of the Audit and Management Compensation Committees will receive an Annual Chair Fee of \$30,000.
- The Chairperson of the Finance and Nominating & Governance Committees will receive an Annual Chair Fee of \$20,000.
- The Annual Chair fees will be paid in equity; however, each Chairperson may elect to receive the entire Annual Chair fees in cash. The Annual Chair fees will be issued as Restricted Stock Units to each eligible director automatically on the date of the Annual Meeting immediately following the Director's election and appointment by the Board. Fees paid in equity will be paid in accordance with the "Policies and Procedures Relating to Equity Grants" below.

- If cash is selected, the cash portion will be paid semi-annually in arrears, in equal installments, no later than the fifteenth day of the third month following the end of the semi-annual period; provided, however, that a Director will have a right to receive a cash payment for any given period only if that person serves as a Director during all or a portion of that period, with the cash payment for the period being prorated in the case of a person who serves as a Director during only a portion of a period (other than on account of death or disability).

Annual Committee Member Fees

- Each Non-Chair Member of the Audit and Management Compensation Committees will receive an annual membership fee of \$10,000.
- Each Non-Chair Member of the Finance and Nominating & Governance Committees will receive an annual membership fee of \$5,000.
- The Annual Committee Member fees will be paid in equity; however, each Non-Chair Member may elect to receive the entire Annual Committee Member fees in cash. The Annual Committee Member fees will be issued as Restricted Stock Units to each eligible director automatically on the date of the Annual Meeting immediately following the Director's election and appointment by the Board. Fees paid in equity will be paid in accordance with the "Policies and Procedures Relating to Equity Grants" below.
- If cash is selected, the cash portion will be paid semi-annually in arrears, in equal installments, no later than the fifteenth day of the third month following the end of the semi-annual period; provided, however, that a Director will have a right to receive a cash payment for any given period only if that person serves as a Director during all or a portion of that period, with the cash payment for the period being prorated in the case of a person who serves as a Director during only a portion of a period (other than on account of death or disability).

Policies And Procedures Relating To Equity Grants

General

- All Director equity will be granted under the Equity Plan.
- Calculation of the number of shares of equity to be awarded to Directors will be valued at 100% of face value and based on the closing price of Nasdaq's common stock on the date of the grant. Equity

awards are non-transferable and must be issued to the Director.

- Any grants of equity under this policy shall be exempt pursuant to Rule 16b-3 under the Securities Exchange Act of 1934, as amended.

Vesting

- Equity awards will vest 100% one (1) year from the date of the grant. Equity awards will also vest upon the scheduled expiration of a Director's term, if such term is not renewed.
- Upon a Director's resignation (other than for death or disability) prior to the end of the Director's term, equity awards will be forfeited.
- Upon termination of a Director for "Misconduct," all equity awards will be forfeited without further consideration to the Director.
- Upon termination of a Director on account of his death or disability, equity awards will vest.
- Shortly after vesting, vested shares will appear in the Director's account at E*Trade. To view this information, a Director may log directly onto his or her online E*Trade account at https://us.etrade.com/e/t/user/login_sp. Additionally, a Director may contact E*Trade's Executive Services Team at 1.866.987.2339 or via email at executiveservices@etrade.com

Equity Agreements, Share Restrictions & Voting Rights

- Equity awards will be evidenced by an Equity Award Agreement to be entered into with each Director.
- Once vested, shares will be freely tradeable. Nasdaq does not have a repurchase right or obligation.
- Trading in Nasdaq shares, however, is subject to the Director and Executive Officers Trading Policy and to any contractual restrictions on transfer, such as lock-up agreements, that may be applicable.

Reporting and Disclosure

- SEC Form 4s (Change in Beneficial Ownership) must be filed by each Director with the SEC within 2 business days of equity grants. The Director may request Nasdaq's assistance with the preparation and filing of Form 4s and other Section 16 reports by providing a completed Power of Attorney and CIK/CCC Code, if the Director has a CIK/CCC Code currently assigned.
- Equity will be reflected as stock owned by Directors, if required, in the Beneficial Ownership Table of

the Nasdaq Proxy and will be disclosed under the general Director Compensation section of the Proxy.

Stock Ownership Guidelines For Directors

- Stock ownership guidelines for Directors of Nasdaq are as follows.

Value of Shares Owned	
Chairman of the Board	6x Annual Board Chairman Equity Grant
All Other Directors	2x Annual Director Equity Grant

- New Directors are expected to meet the applicable level of ownership within four years of their election to the Board of Directors.
- The value of shares owned will be calculated based upon Nasdaq's average closing common stock price for a 90 day period prior to the date on which the Director is expected to meet the applicable level of stock ownership.
- Shares that count toward meeting the stock ownership guidelines include:
 - Shares owned outright (e.g., shares obtained upon option exercise, shares purchased in the open market, etc.)
 - Shared ownership (e.g., shares owned or held in trust by immediate family)
 - Vested and unvested restricted shares
- Shares that do not count toward meeting the stock ownership guidelines:
 - Vested stock options
 - Unvested stock options
- Once an applicable guideline threshold has been attained, the Director is expected to continuously retain sufficient share ownership to meet the guideline for as long as the Director is subject to the Stock Ownership Guidelines.
- There may be instances where an exception to the guidelines is necessary or appropriate, including in cases where the satisfaction of the guidelines would place a severe hardship on the Director. In such cases, the Chairman of the Board will make a final determination as to whether an exception to the Stock Ownership Guidelines, in whole or in part, will be granted.

NASDAQ, INC.
RESTRICTED STOCK UNIT AWARD CERTIFICATE

Award Date: [DATE]	Number of Restricted Stock Units: [NUMBER]	Final Vesting Date: ____ (See below)
--------------------	---	--------------------------------------

THIS CERTIFIES THAT Nasdaq, Inc. (the “Company”) has on the Award Date specified above granted to

[NAME]

(the “Participant”) an award (the “Award”) to receive the number of Restricted Stock Units (the “RSUs”) indicated in the box above labeled “Number of Restricted Stock Units,” each RSU representing the right to receive one share of the Company’s common stock, \$.01 per value per share (the “Share”), subject to certain restrictions and on the terms and conditions contained in this award certificate (“Award Certificate”) and the Nasdaq, Inc. Equity Incentive Plan (as amended and restated April 24, 2018) (the “Plan”). Capitalized terms not otherwise defined have the meanings set forth in the Plan. A copy of the Plan is available from Human Resources, and is also available on the Company’s website.

* * *

1. Rights of the Participant with Respect to the Restricted Stock Units.

(a) Prior to vesting of the RSUs pursuant to Section 2, (i) the Participant shall not be treated as a shareholder as to Shares issuable to the Participant with respect to such RSUs, and shall only have a contractual right to receive such Shares following such vesting, unsecured by any assets of the Company or its Subsidiaries; (ii) the Participant shall not be permitted to vote the RSUs or the Shares issuable with respect to such RSUs; and (iii) the Participant’s right to receive such Shares following vesting of the RSUs shall be subject to the adjustment provisions set forth in Section 13 of the Plan. The RSUs shall be subject to all of the restrictions hereinafter set forth.

(b) At the sole discretion of the Committee, the Participant shall be permitted to receive cash payments equal to the dividends and distributions paid on Shares (other than dividends or distributions of securities of the Company which may be issued with respect to Shares by virtue of any stock split, combination, stock dividend or recapitalization) to the same extent as if each RSU was a Share, and those Shares were not subject to the restrictions imposed by this Award Certificate and the Plan; provided, however, that no dividends or distributions shall be payable to or for the benefit of the Participant with respect to record dates for such dividends or distributions occurring on or after the date, if any, on which the Participant has forfeited the RSUs.

2. Vesting.

(a) Except as otherwise provided under this Award Certificate, the RSUs shall vest in accordance with the following vesting schedule: [VESTING SCHEDULE WITH FINAL VESTING DATE]; provided, in each case, that the Participant remains in continuous employment with the Company or any of its Subsidiaries until such date(s).

(b) If, prior to the Final Vesting Date of the RSUs under paragraph (a) above the Participant has a Separation from Service (as defined in the Plan) with the Company or any of its Subsidiaries for any reason (voluntary or involuntary), then such non-vested RSUs shall be immediately and irrevocably forfeited, except as otherwise provided in Section 8(e)(ii) of the Plan (Separation from Service by reason of death or Retirement) or Section 12 of the Plan (Separation from Service following a Change in Control). Notwithstanding anything to the contrary in the Plan or this Award Certificate, and for purposes of clarity, any Separation from Service shall be effective as of the date the Participant's active employment ends and shall not be extended by any statutory or common law notice period.

(c) If, prior to the vesting of the RSUs under paragraph (a) above the Participant is determined by the insurance carrier under the Company's then-current long-term disability plan to be entitled to receive benefits under such plan, and, by reason of such Disability, is deemed to have a Separation from Service (within the meaning of the Plan), then an amount of unvested RSUs shall vest as described in Section 8(e)(iii) of the Plan.

3. Issuance of Shares. Following the applicable vesting date with respect to the RSUs, and subject to the terms and conditions of the Plan, the Company will issue Shares with respect to such vested RSUs net of any Shares withheld by the Company to satisfy the payment of taxes as described in Section 6 of this Award Certificate. Such issuance shall take place as soon as practicable following the applicable vesting date (but in no event later than 60 days following the applicable vesting date described in Section 2(a), (b) or (c) above). The Shares issued in respect of the RSUs shall be subject to such stop transfer orders and other restrictions as the Committee may determine is required by the rules, regulations, and other requirements of the Securities and Exchange Commission, The Nasdaq Stock Market, any applicable federal, state or local laws and the Company's Certificate of Incorporation and By-Laws, and the Committee may cause a legend or legends to be put on such Shares to make appropriate reference to such restrictions. The Company may make delivery of Shares in settlement of RSUs by either (A) delivering certificates representing such Shares to the Participant, registered in the name of the Participant, or (B) by depositing such Shares into a stock brokerage account maintained for the Participant. The Company will not deliver any fractional shares of Common Stock but will instead round down to the next full number the amount of shares of Common Stock to be delivered.

4. No Right to Continued Employment. Neither the Plan nor this Award Certificate shall confer on the Participant any right to be retained, in any position, as an employee, consultant or director of the Company, and nothing in this Award Certificate or the Plan shall be construed to limit the discretion of the Company (or subsidiary that employs the Participant) to terminate the Participant's employment at any time, with or without cause.

5. Transferability.

(a) The RSUs are not transferable and may not be sold, assigned, transferred, disposed of, pledged or otherwise encumbered by the Participant, other than by will or the laws of descent and distribution. Upon such transfer (by will or the laws of descent and distribution), such transferee in interest shall take the rights granted herein subject to all the terms and conditions hereof.

(b) Subject to Section 5(a) hereof, in order to comply with any applicable securities laws, the Shares issued to the Participant with respect to vested RSUs may only be sold by the Participant following registration of such Shares under the U.S. Securities Act of 1933, as amended, or pursuant to an exemption therefrom.

(c) Following settlement and issuance of Shares, in the event the Company permits Participant to arrange for sale of Shares through a broker or another designated agent of the Company, Participant acknowledges and agrees that the Company may block any such sale and/or cancel any order to sell placed by the Participant, in each case if the Participant is not then permitted under the Company's insider trading policy to engage in transactions with respect to securities of the Company. If the Committee determines that the ability of the Participant to sell or transfer Shares is restricted, then the Company may notify the Participant in accordance with Section 14 of this Award Certificate. The Participant may only sell such Shares in compliance with such notification from the Company.

6. Withholding.

(a) In order to comply with all applicable federal, state and local tax laws or regulations, the Company may take such actions as it deems appropriate to ensure that all applicable federal, state and local income, payroll or other taxes are withheld or collected from the Participant.

(b) In accordance with the terms of the Plan, and such rules as may be adopted by the Committee under the Plan, the Participant may elect to satisfy the Participant's federal, state and local tax withholding obligations arising from the receipt of, the vesting of or the lapse of restrictions relating to, or the settlement of, the RSUs, by (i) delivering cash, check or money order payable to the Company, (ii) delivering to the Company other Shares, (iii) having the Company withhold a portion of the Shares otherwise to be delivered having a Fair Market Value sufficient to satisfy the statutory withholding required with respect thereto to the extent permitted by the Company; or (iv) having the Company (or the Subsidiary that employs the Participant) withhold any amounts necessary to pay the statutory withholding required from the Participant's salary or other amounts payable to the Participant. The Company will not deliver any fractional shares of Common Stock but will instead round down to the next full number the amount of shares of Common Stock to be delivered. The Participant's election must be made on or before the date that any such withholding obligation with respect to the RSUs arises. If the Participant fails to timely make such an election, the Company shall have the right to withhold a portion of the Shares otherwise to be delivered having a Fair Market Value equal to the statutory amount of withholding with respect to applicable taxes, as determined by the Company in its sole

discretion. The net settlement of the shares underlying the vested RSUs and the delivery of Shares previously owned are hereby specifically authorized alternatives for the satisfaction of the foregoing withholding obligation. To the extent necessary to meet any obligation to withhold Federal Insurance Contributions Act taxes before delivery of the Shares, the Company is authorized to deduct those taxes from other current wages or other compensation.

7. Governing Law. This Award Certificate shall be governed by and construed in accordance with the laws of the State of Delaware, without regard to the conflicts of law provisions thereof.

8. Amendments. The Company, acting by means of the Committee, has the right, as set forth in the Plan, to amend, alter, suspend, discontinue or cancel this Award, prospectively or retroactively; provided however, that no such amendment, alteration, suspension, discontinuance or cancellation of the RSUs will adversely affect the Participant's material rights under this Award Certificate without the Participant's consent. The Company has the authority to amend this Award Certificate, consistent with the foregoing, without the Participant's written agreement, except as set forth in this Section 8.

In the event that the Company is reorganized or liquidated, or if all or substantially all of its assets are sold, or if the Company is merged or consolidated with another corporation or entity (or in the event the Company consummates a written agreement to accomplish any of the foregoing), the Committee may, in its sole discretion and upon at least 10 days advance notice to the Participant, cancel any outstanding RSUs and cause the Participant to be paid (in cash or in stock, or any combination thereof) the value of such RSUs based upon the price per Share received or to be received in the transaction.

9. Administration. This Award Certificate shall at all times be subject to the terms and conditions of the Plan. The Committee shall have sole and complete discretion with respect to all matters reserved to it by the Plan and decisions of the Committee with respect thereto and this Award Certificate shall be final and binding upon the Participant and the Company. The Committee has the authority and discretion to determine any questions which arise in connection with the award of the RSUs hereunder.

10. Compliance with Code Section 409A for U.S. Taxpayers.

(a) Distributions of Shares in settlement of RSUs as described herein which represent a "deferral of compensation" within the meaning of Code section 409A shall conform to the applicable requirements of Code section 409A, including, without limitation, the requirement that a distribution to a Participant who is a "specified employee" within the meaning of Code section 409A(a)(2)(B)(i) which is made on account of the specified employee's Separation from Service shall not be made before the date which is six (6) months after the date of Separation from Service. However, distributions as aforesaid shall not be deemed to be a "deferral of compensation" subject to Code section 409A to the extent provided in the exception in Treasury Regulation Section 1.409A-1(b)(4) for short-term deferrals.

(b) It is the intention of the Company and Participant that this Award Certificate not result in an unfavorable tax consequences to Participant under Code Section 409A. Accordingly, as permitted by the Plan, the Company may at any time (without the consent of the Participant) modify or amend the Plan or this Award Certificate to the extent necessary to ensure that the Award is not “deferred compensation” subject to Code Section 409A (or, alternatively, to conform to the requirements of Code Section 409A). Any such amendments shall be made in a manner that preserves to the maximum extent possible the intended benefits to Participant. This paragraph does not create an obligation on the part of Company to modify this Award Certificate and does not guarantee that the amounts or benefits owed under this Award Certificate will not be subject to interest and penalties under Code Section 409A. For purposes of applying the provisions of Code Section 409A, to the extent applicable, each group of Restricted Stock Units that would vest in accordance with Section 2(a) shall be treated as a separate payment.

(c) While the Company intends that this Award Certificate and the RSUs granted hereunder comply with or be exempt from the requirements of Code Section 409A and any related regulations or other guidance promulgated thereunder, neither the Company or the Committee nor any of their respective affiliates shall be liable to any person for the tax consequences of any failure to comply with the requirements of Code Section 409A or any other tax consequences relating to this Award.

11. Imposition of Other Requirements. The Company reserves the right to impose other requirements on the Participant’s participation in the Plan, on the RSUs and on any Shares acquired under the Plan, to the extent the Company determines it is necessary or advisable in order to comply with local law or facilitate the administration of the Plan, and to require the Participant, as a condition of receipt of Shares underlying an RSU, to sign any additional Award Certificates or undertakings that may be necessary to accomplish the foregoing.

12. Nature of Grant. In accepting the Award, the Participant acknowledges, understands and agrees that:

- (i) the Plan is established voluntarily by the Company, it is discretionary in nature, and may be modified, amended, suspended or terminated by the Company at any time, to the extent permitted by the Plan;
- (ii) all decisions with respect to future Awards or other grants, if any, will be at the sole discretion of the Company;
- (iii) the grant of the RSUs and the Participant’s participation in the Plan shall not create a right to employment or be interpreted as forming an employment or service contract with the Company, the Participant's employer or any Subsidiary, and shall not interfere with the ability of the Company, the Participant's employer or any Subsidiary, as applicable, to terminate the Participant’s employment or service relationship (if any);
- (iv) the Participant is voluntarily participating in the Plan;
- (v) the RSUs and any Shares issued under the Plan and the income and value of the same are not intended to replace any pension rights or compensation;

(vi) the future value of the Shares underlying the RSUs is unknown and indeterminable;

(vii) unless otherwise agreed with the Company, the Award and the Shares subject to the Award, and the income and value of same, are not granted as consideration for, or in connection with, the service Participant may provide as a director of a Subsidiary of the Company; and

(viii) no claim or entitlement to compensation or damages shall arise from forfeiture of the RSUs resulting from Separation from Service (for any reason whatsoever, whether or not later found to be invalid or in breach of employment laws in the jurisdiction where the Participant is employed or the terms of the Participant's employment agreement, if any), and in consideration of the grant of the RSUs to which the Participant is otherwise not entitled, the Participant irrevocably agrees never to institute any claim against the Company, any of its Subsidiaries or the Participant's employer, waives his ability, if any, to bring any such claim, and releases the Company, its Subsidiaries and the Participant's employer from any such claim; if, notwithstanding the foregoing, any such claim is allowed by a court of competent jurisdiction, then, by participating in the Plan, the Participant shall be deemed irrevocably to have agreed not to pursue such claim and agrees to execute any and all documents necessary to request dismissal or withdrawal of such claim.

13. Consent to Collection, Processing and Transfer of Personal Data. Pursuant to applicable personal data protection laws, the Company hereby notifies the Participant of the following in relation to the Participant's personal data and the collection, processing and transfer of such data in relation to the Company's grant of this Award and the Participant's participation in the Plan. The collection, processing and transfer of the Participant's personal data are necessary for the Company's administration of the Plan and the Participant's participation in the Plan. The Participant's denial and/or objection to the collection, processing and transfer of personal data may affect the Participant's participation in the Plan. As such, the Participant voluntarily explicitly and unambiguously acknowledges and consents (where required under applicable law) to the collection, use, processing and transfer of personal data as described in this Award Certificate and any other Award grant materials by and among, as applicable, the Company, its Subsidiaries and/or the Participant's employer for the purpose of implementing, administering and managing the Participant's participation in the Plan.

The Company and the Subsidiaries, including the Participants employer hold certain personal information about the Participant, including, but not limited to his or her name, home address, email address and telephone number, date of birth, social security number, passport number or other employee identification number, salary, nationality, job title, any Shares or directorships held in the Company, details of all Awards or any other entitlement to Shares awarded, canceled, purchased, vested, unvested or outstanding in Participant's favor, for the exclusive purpose of managing and administering the Plan ("Data").

The Company and its Subsidiaries, including the Participant's employer, will transfer Data amongst themselves as necessary for the purpose of implementation, administration and management of the Participant's participation in the Plan, and the Company and its Subsidiaries,

including the Participant's employer, may each further transfer Data to a designated Plan broker, administrative agent or such other stock plan service provider as may be selected by the Company presently or in the future (a "Plan Service Provider"), which may be assisting the Company in the implementation, administration and management of the Plan. These recipients may be located throughout the world. The Participant understands that if he or she resides outside the United States, the Participant may request a list with the names and addresses of any potential recipients of the Data by contacting the Participant's local human resources representative. The Participant hereby authorizes (where required under applicable law) the Company, any Plan Service Provider and any other possible recipients which may assist the Company (presently or in the future) to receive, possess, use, retain and transfer the Data, in electronic or other form, for the sole purpose of implementing, administering and managing the Participant's participation in the Plan. Furthermore, the Participant acknowledges and understands that the transfer of the Data to the Company or its Subsidiaries, including the Participant's employer, to any Plan Service Provider, or to any third parties is necessary for the Participant's participation in the Plan. The Participant understands that Data will be held only as long as is necessary to implement, administer and manage the Participant's participation in the Plan. If the Participant does not consent, or if the Participant later seeks to revoke his or her consent, the Participant's employment status or service and career with the Company and its Subsidiaries will not be affected. The only consequence of refusing or withdrawing the Participant's consent is that the Company may not be able to grant the Participant RSUs or other awards or administer or maintain such awards. Therefore, the Participant acknowledges that withdrawal of consent may affect the Participant's ability to vest in or realize benefits from the RSUs, and the Participant's ability to participate in the Plan, in which case neither the Company nor any of its Subsidiaries, including the Participant's employer, will have any liability or obligation to the Participant related to this Award. For more information on the consequences of refusal to consent or withdrawal of consent, the Participant understands that he or she may contact his or her local human resources representative.

Finally, upon request of the Company or the Participant's employer, the Participant agrees to provide an executed data privacy consent form (or any other agreements or consents that may be required by the Company and/or the Participant's employer) that the Company and/or the Participant's employer may deem necessary to obtain from the Participant for the purpose of administering the Participant's participation in the Plan in compliance with the data privacy laws in the Participant's country, either now or in the future. The Participant understands and agrees that the Participant will not be able to participate in the Plan if the Participant fails to provide any such consent or agreement requested by the Company and/or the Participant's employer.

14. Notices. Any notice, request, instruction or other document given under this Award Certificate shall be in writing and may be delivered by such method as may be permitted by the Company, and shall be addressed and delivered, in the case of the Company, to the Secretary of the Company at the principal office of the Company and, in the case of the Participant, to the Participant's address as shown in the records of the Company or to such other address as may be designated in writing (or by such other method approved by the Company) by either party.

15. Severability. The invalidity or unenforceability of any provision of this Award Certificate shall not affect the validity or enforceability of any other provision of this Award Certificate, and each other provision of the Award Certificate shall be severable and enforceable to the extent permitted by law.

16. Award Subject to Plan; Amendments to Award. This Award is subject to the Plan as approved by the shareholders of the Company. The terms and provisions of the Plan as it may be amended from time to time are hereby incorporated herein by reference. In the event of a conflict between any term or provision contained in this Award Certificate and a term or provision of the Plan, the applicable terms and provisions of this Award Certificate will govern and prevail.

17. Discretionary Nature of Plan; No Vested Rights. The Plan is discretionary in nature and limited in duration, and may be amended, cancelled, or terminated by the Company, in its sole discretion, at any time. The grant of the Award represented by this Award Certificate is exceptional, voluntary and occasional and does not create any contractual or other right to receive an award or benefit in lieu of an award in the future, even if awards have been granted repeatedly in the past. Future Awards, if any, will be at the sole discretion of the Company, including, but not limited to, the form and timing of an Award, the number of Shares subject to the Award, and the vesting provisions. Any amendment, modification or termination of the Plan shall not constitute a change or impairment of the terms and conditions of the Participant's employment with the Company.

18. No Advice Regarding Grant. The Company is not providing any tax, legal or financial advice, nor is the Company making any recommendations regarding the Participant's participation in the Plan, or his acquisition or sale of the underlying Shares. The Participant acknowledges that he should consult with his own personal tax, legal and financial advisors regarding his participation in the Plan before taking any action related to the Plan.

19. Entire Agreement. This Award Certificate represents the entire understanding and agreement between the parties with respect to the subject matter of this Award Certificate and supersedes and replaces all previous agreements, arrangements, understandings, rights, obligations and liabilities between the parties in respect of such matters.

20. Execution of Agreement. By electronically or otherwise accepting this Award Certificate, the Participant acknowledges his or her understanding and acceptance of the terms and conditions of the Award. The Company has no obligation to issue the Participant Shares under this Award Certificate if the Participant does not accept the Award. Further, any acceptance of Shares issued pursuant to this Award Certificate shall constitute the Participant's acceptance of the Award and the Participant's agreement with all terms and conditions of the Award, as set forth in the Plan and this Award Certificate

NASDAQ, INC.

By:

Title:

NASDAQ, INC.
RESTRICTED STOCK UNIT AWARD CERTIFICATE

Award Date: [DATE]	Number of Restricted Stock Units: [NUMBER]
--------------------	--

THIS CERTIFIES THAT Nasdaq, Inc. (the “Company”) has on the Award Date specified above granted to

[NAME OF DIRECTOR]

(the “Director”) an award (the “Award”) to receive the number of Restricted Stock Units (the “RSUs” or “Restricted Stock Units”) indicated in the box above labeled “Number of Restricted Stock Units,” each RSU representing the right to receive one share (“Share”) of the Company’s common stock, \$.01 per value per share (the “Common Stock”), subject to certain restrictions and on the terms and conditions contained in this award certificate (the “Award Certificate”) and the Nasdaq, Inc. Equity Incentive Plan (as amended and restated April 24, 2018) (the “Plan”). Capitalized terms not otherwise defined have the meanings set forth in the Plan. A copy of the Plan is available from Human Resources, and is also available on the Company’s website.

* * *

1. Rights of the Director with Respect to the Restricted Stock Units.

(a) Prior to vesting of the Restricted Stock Units pursuant to Section 2, (i) the Director shall not be treated as a shareholder as to Shares issuable to the Director with respect to such Restricted Stock Units, and shall only have a contractual right to receive such Shares following such vesting, unsecured by any assets of the Company or its Subsidiaries; (ii) the Director shall not be permitted to vote the Restricted Stock Units or the Shares issuable with respect to such Restricted Stock Units; and (iii) the Director’s right to receive such Shares following vesting of the Restricted Stock Units shall be subject to the adjustment provisions set forth in Section 13 of the Plan. The Restricted Stock Units shall be subject to all of the restrictions hereinafter set forth.

(b) At the sole discretion of the Committee, the Director shall be permitted to receive cash payments equal to the dividends and distributions paid on Shares (other than dividends or distributions of securities of the Company which may be issued with respect to Shares by virtue of any stock split, combination, stock dividend or recapitalization) to the same extent as if each Restricted Stock Unit was a Share, and those Shares were not subject to the restrictions imposed by this Award Certificate and the Plan; provided, however, that no dividends or distributions shall be payable to or for the benefit of the Director with respect to record dates for such dividends or distributions occurring on or after the date, if any, on which the Director has forfeited the Restricted Stock Units.

2. Vesting.

(a) Except as otherwise provided under this Award Certificate, and contingent upon the Director's continued service, the Restricted Stock Units shall vest in accordance with the following vesting schedule: 100% of the Restricted Stock Units shall vest on the first anniversary of the Award Date (specified above) (the "Final Vesting Date").

3. Termination of Service.

(a) If the Company terminates the Director's service on the Board on account of "Misconduct" (as such term is defined below), all Restricted Stock Units which have not as of the date of such termination become vested shall be deemed canceled and forfeited on the effective date of such termination without further consideration to the Director.

(b) If the Director's service on the Board terminates by reason of death or "Disability" (as such term is defined below), all Restricted Stock Units shall become vested on the date of such termination.

(c) If the Director's service on the Board terminates by reason of the expiration of his "Term" (as such term is defined below) prior to the date his Restricted Stock Units would otherwise vest pursuant to Section 2 hereof, all Restricted Stock Units shall become vested Restricted Stock Units.

(d) If the Director's service on the Board terminates for any reason other than those set forth in Sections (a) through (c) of this Section 3, all Restricted Stock Units which have not as of the date of such termination become vested shall be deemed canceled and forfeited on the effective date of such termination without further consideration to the Director.

(e) For purposes of this Award Certificate the terms "Misconduct," "Disability," and "Term" shall have meanings set forth in this Section 3(e):

- (i) "Misconduct" means the Director's conviction of, or pleading *nolo contendere* to a felony or to any crime, whether a felony or misdemeanor, involving the purchase or sale of any security, mail or wire fraud, theft or embezzlement of Company property or a material breach of the Director's fiduciary duty to the Company or its shareholders.
- (ii) "Disability" means the Director's physical or mental incapacity for a period of 45 consecutive working days or 60 days in a six (6) month period which makes the Director unable to perform his duties to the Company. Any question as to the existence of the Disability of the Director shall be determined by a qualified physician selected by the Company.
- (iii) "Term" shall mean each term of service on the Board commencing on the Director's election or most recent re-election to the Board and ending on the first anniversary thereafter unless the Director was elected for a longer

or shorter period, in which event the longer or shorter period shall be the Term; provided, however, that the Term shall be deemed to include any automatic renewal thereof.

4. Issuance of Shares. Following the applicable vesting date with respect to the Restricted Stock Units, and subject to the terms and conditions of the Plan, the Company will issue Shares with respect to such vested Restricted Stock Units, net of any Shares withheld by the Company to satisfy the payment of taxes as described in Section 7 herein. Such issuance shall take place as soon as practicable following the applicable vesting date (but in no event later than 60 days following the applicable vesting date described in Section 2 above). The Shares issued in respect of the Restricted Stock Units shall be subject to such stop transfer orders and other restrictions as the Committee may determine is required by the rules, regulations, and other requirements of the Securities and Exchange Commission, The Nasdaq Stock Market, any applicable federal, state or local laws and the Company's Certificate of Incorporation and By-Laws, and the Committee may cause a legend or legends to be put on such Shares to make appropriate reference to such restrictions. The Company may make delivery of Shares in settlement of Restricted Stock Units by either (A) delivering certificates representing such Shares to the Director, registered in the name of the Director, or (B) by depositing such Shares into a stock brokerage account maintained for the Director. The Company will not deliver any fractional shares of Common Stock but will instead round down to the next full number the amount of shares of Common Stock to be delivered.

Notwithstanding anything in this Section 4 to the contrary, the Company may, in its sole discretion, settle the restricted stock units in the form of a cash payment to the extent settlement in Shares is prohibited under local law, or would require the Director, the Company and/or a Subsidiary to obtain the approval of any governmental and/or regulatory body in the Director's country of residence (and country of employment, if different). Alternatively, the Company may, in its sole discretion, settle the restricted stock units in the form of Shares but require the Director to immediately sell such Shares (in which case, the Award Certificate shall give the Company the authority to issue sales instructions on behalf of the Director).

5. No Right to Continued Service. Neither the Plan nor this Award Certificate shall confer on the Director any right to be retained, in any position, as an employee, consultant or director of the Company.

6. Transferability.

(a) At any time prior to becoming vested, the Restricted Stock Units are not transferable and may not be sold, assigned, transferred, disposed of, pledged or otherwise encumbered by the Director, other than by will or the laws of descent and distribution. Upon such transfer (by will or the laws of descent and distribution), such transferee in interest shall take the rights granted herein subject to all the terms and conditions hereof.

(b) Subject to Section 6(a) hereof, in order to comply with any applicable securities laws, the Shares issued to the Director with respect to vested Restricted Stock Units may only be

sold by the Director following registration of such Shares under the U.S. Securities Act of 1933, as amended, or pursuant to an exemption therefrom.

(c) Following settlement and issuance of Shares, in the event the Company permits the Director to arrange for sale of Shares through a broker or another designated agent of the Company, Director acknowledges and agrees that the Company may block any such sale and/or cancel any order to sell placed by the Director, in each case if the Director is not then permitted under the Company's insider trading policy to engage in transactions with respect to securities of the Company. If the Committee determines that the ability of the Director to sell or transfer Shares is restricted, then the Company may notify the Director in accordance with Section 13 of this Award Certificate. The Director may only sell such Shares in compliance with such notification from the Company.

7. Withholding.

(a) In order to comply with all applicable federal, state and local tax laws or regulations, the Company may take such actions as it deems appropriate to ensure that all applicable federal, state and local income or other taxes are withheld or collected from the Director.

(b) In accordance with the terms of the Plan, and such rules as may be adopted by the Committee under the Plan, the Director may elect to satisfy the Director's federal, state and local tax withholding obligations arising from the receipt of, the vesting of or the lapse of restrictions relating to, the Restricted Stock Units, by (i) delivering cash, check or money order payable to the Company, (ii) delivering to the Company other Shares, (iii) having the Company withhold a portion of the Shares otherwise to be delivered having a Fair Market Value sufficient to satisfy the statutory withholding required with respect thereto to the extent permitted by the Company; or (iv) having the Company withhold any amounts necessary to pay the statutory withholding required from the Director's salary or other amounts payable to the Director. The Company will not deliver any fractional shares of Common Stock but will instead round down to the next full number the amount of shares of Common Stock to be delivered. The Director's election must be made on or before the date that any such withholding obligation with respect to the RSUs arises. If the Director fails to timely make such an election, the Company shall have the right to withhold a portion of the Shares otherwise to be delivered having a Fair Market Value equal to the statutory amount of withholding with respect to applicable taxes, as determined by the Company in its sole discretion. The net settlement of the shares underlying the vested RSUs and the delivery of Shares previously owned are hereby specifically authorized alternatives for the satisfaction of the foregoing withholding obligation. To the extent necessary to meet any obligation to withhold Federal Insurance Contributions Act taxes before delivery of the Shares, the Company is authorized to deduct those taxes from other compensation.

8. Governing Law. This Award Certificate shall be governed by and construed in accordance with the laws of the State of Delaware, without regard to the conflicts of law provisions thereof.

9. Amendments. The Company, acting by means of the Committee, has the right, as set forth in the Plan, to amend, alter, suspend, discontinue or cancel this Award, prospectively or retroactively; provided however, that no such amendment, alteration, suspension, discontinuance or cancelation of the RSUs will adversely affect the Director's material rights under this Award Certificate without the Director's consent. The Company has the authority to amend this Award Certificate, consistent with the foregoing, without the Director's written agreement, except as set forth in this Section 9.

In the event that the Company is reorganized or liquidated, or if all or substantially all of its assets are sold, or if the Company is merged or consolidated with another corporation or entity (or in the event the Company consummates a written agreement to accomplish any of the foregoing), the Committee may, in its sole discretion and upon at least 10 days advance notice to the Director, cancel any outstanding RSUs and cause the Director to be paid (in cash or in stock, or any combination thereof) the value of such RSUs based upon the price per share of Common Stock received or to be received in the transaction.

10. Administration. This Award Certificate shall at all times be subject to the terms and conditions of the Plan. Capitalized terms not defined in this Award Certificate shall have the meanings set forth in the Plan. The Committee shall have sole and complete discretion with respect to all matters reserved to it by the Plan and decisions of the Committee with respect thereto and this Award Certificate shall be final and binding upon the Director and the Company. The Committee has the authority and discretion to determine any questions which arise in connection with the award of the Restricted Stock Units hereunder.

11. Compliance with Code Section 409A for U.S. Taxpayers.

(a) Distributions of Shares in settlement of Restricted Stock Units as described herein which represent a "deferral of compensation" within the meaning of Code Section 409A shall conform to the applicable requirements of Code Section 409A. However, distributions as aforesaid shall not be deemed to be a "deferral of compensation" subject to Code section 409A to the extent provided in the exception in Treasury Regulation Section 1.409A-1(b)(4) for short-term deferrals.

(b) It is the intention of the Company and Director that this Award Certificate not result in an unfavorable tax consequence to the Director under Code Section 409A. Accordingly, as permitted by the Plan, the Company may at any time (without the consent of the Director) modify or amend the Plan or this Award Certificate to the extent necessary to ensure that the Award is not "deferred compensation" subject to Code Section 409A (or, alternatively, to conform to the requirements of Code Section 409A). Any such amendments shall be made in a manner that preserves to the maximum extent possible the intended benefits to Director. This paragraph does not create an obligation on the part of Company to modify this Award Certificate and does not guarantee that the amounts or benefits owed under this Award Certificate will not be subject to interest and penalties under Code Section 409A. For purposes of applying the provisions of Code Section 409A, to the extent applicable, each group of Restricted Stock Units that would vest in accordance with Section 2 shall be treated as a separate payment.

(c) While the Company intends that this Award Certificate and the RSUs granted hereunder comply with or be exempt from the requirements of Code Section 409A and any related regulations or other guidance promulgated thereunder, neither the Company or the Committee nor any of their respective affiliates shall be liable to any person for the tax consequences of any failure to comply with the requirements of Code Section 409A or any other tax consequences relating to this Award.

12. Imposition of Other Requirements. The Company reserves the right to impose other requirements on the Director's participation in the Plan, on the Restricted Stock Units and on any Shares acquired under the Plan, to the extent the Company determines it is necessary or advisable in order to comply with local law or facilitate the administration of the Plan, and to require the Director, as a condition of receipt of Shares underlying a Restricted Stock Unit, to sign any additional Award Certificates or undertakings that may be necessary to accomplish the foregoing.

13. Notices. Any notice, request, instruction or other document given under this Award Certificate shall be in writing and may be delivered by such method as may be permitted by the Company, and shall be addressed and delivered, in the case of the Company, to the Secretary of the Company at the principal office of the Company and, in the case of the Director, to the Director's address as shown in the records of the Company or to such other address as may be designated in writing (or by such other method approved by the Company) by either party.

14. Severability. The invalidity or unenforceability of any provision of this Award Certificate shall not affect the validity or enforceability of any other provision of this Award Certificate, and each other provision of the Award Certificate shall be severable and enforceable to the extent permitted by law.

15. Award Subject to Plan; Amendments to Award. This Award is subject to the Plan as approved by the shareholders of the Company. The terms and provisions of the Plan as it may be amended from time to time are hereby incorporated herein by reference. In the event of a conflict between any term or provision contained in this Award Certificate and a term or provision of the Plan, the applicable terms and provisions of this Award Certificate will govern and prevail.

16. Discretionary Nature of Plan; No Vested Rights. The Plan is discretionary in nature and limited in duration, and may be amended, cancelled, or terminated by the Company, in its sole discretion, at any time. The grant of the Award represented by this Award Certificate is exceptional, voluntary and occasional and does not create any contractual or other right to receive an award or benefit in lieu of an award in the future, even if awards have been granted repeatedly in the past. Future Awards, if any, will be at the sole discretion of the Company, including, but not limited to, the form and timing of an Award, the number of Shares subject to the Award, and the vesting provisions. Any amendment, modification or termination of the Plan shall not constitute a change or impairment of the terms and conditions of the Director's service with the Company.

17. **Electronic Delivery.** The Company may, in its sole discretion, decide to deliver any documents related to the RSU or future Awards granted under the Plan by electronic means or request the Director's consent to participate in the Plan by electronic means. By accepting this Award, the Director hereby consents and agrees to receive such documents by electronic delivery and agrees to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

18. **English Language.** The Director acknowledges and agrees that it is the Director's express intent that the Plan, this Award Certificate, any addendum and all other documents, notices and legal proceedings entered into, given or instituted pursuant to the Award, be drawn up in English. Unless specifically indicated, if the Director has received the Plan, this Award Certificate, any addendum or any other documents related to the Award translated into a language other than English, and if the meaning of the translated version is different than the English version, the English version shall control.

19. **Nature of Grant.** In accepting the Award, the Director acknowledges, understands and agrees that:

- (i) the Plan is established voluntarily by the Company, it is discretionary in nature, and may be modified, amended, suspended or terminated by the Company at any time, to the extent permitted by the Plan;
- (ii) all decisions with respect to future Awards or other grants, if any, will be at the sole discretion of the Company;
- (iii) the Director is voluntarily participating in the Plan;
- (iv) the future value of the Shares underlying the RSUs is unknown and indeterminable; and
- (v) the Director acknowledges and agrees that neither the Company nor any Subsidiary shall be liable for any foreign exchange rate fluctuation between the Director's local currency and the United States Dollar that may affect the value of the RSUs or of any amounts due to the Director pursuant to the vesting and settlement of the RSU or the subsequent sale of any Shares issued upon settlement.

20. **Consent to Collection, Processing and Transfer of Personal Data.** Pursuant to applicable personal data protection laws, the Company hereby notifies the Director of the following in relation to the Director's personal data and the collection, processing and transfer of such data in relation to the Company's grant of this Award and the Director's participation in the Plan. The collection, processing and transfer of the Director's personal data are necessary for the Company's administration of the Plan and the Director's participation in the Plan. The Director's denial and/or objection to the collection, processing and transfer of personal data may affect the Director's participation in the Plan. As such, the Director voluntarily explicitly and unambiguously acknowledges and consents (where required under applicable law) to the collection, use, processing and transfer of personal data as described in this Award Certificate and any other Award grant materials by and among, as applicable, the Company and its

Subsidiaries for the purpose of implementing, administering and managing the Director's participation in the Plan.

The Company holds certain personal information about the Director, including name, home address, email address and telephone number, date of birth, social security number, passport number or other employee identification number, salary, nationality, job title, any Shares or directorships held in the Company, details of all Awards or any other entitlement to Shares awarded, canceled, purchased, vested, unvested or outstanding in Director's favor, for the purpose of managing and administering the Plan ("Data"). The Data may be provided by the Director or collected, where lawful, from third parties, and the Company will process the Data for the exclusive purpose of implementing, administering and managing the Director's participation in the Plan. The Data processing will take place through electronic and non-electronic means according to logics and procedures strictly correlated to the purposes for which Data are collected and with confidentiality and security provisions as set forth by applicable laws and regulations in the Director's country of residence. Data processing operations will be performed minimizing the use of personal and identification data when such operations are unnecessary for the processing purposes sought. Data will be accessible within the Company's organization only by those persons requiring access for purposes of the implementation, administration and operation of the Plan and for the Director's participation in the Plan.

The Company may further transfer Data to any third parties assisting the Company in the implementation, administration and management of the Plan. These recipients may be located in the European Economic Area, or elsewhere throughout the world, such as the United States. The Director hereby authorizes (where required under applicable law) them to receive, possess, use, retain and transfer the Data, in electronic or other form, for purposes of implementing, administering and managing the Director's participation in the Plan, including any requisite transfer of such Data as may be required for the administration of the Plan and/or the subsequent holding of Shares on the Director's behalf to a broker or other third party with whom the Director may elect to deposit any Shares acquired pursuant to the Plan.

The Director may, at any time, exercise his or her rights provided under applicable personal data protection laws, which may include the right to (a) obtain confirmation as to the existence of the Data, (b) verify the content, origin and accuracy of the Data, (c) request the integration, update, amendment, deletion, or blockage (for breach of applicable laws) of the Data, and (d) to oppose, for legal reasons, the collection, processing or transfer of the Data which is not necessary or required for the implementation, administration and/or operation of the Plan and the Director's participation in the Plan. The Director may seek to exercise these rights by contacting the Office of the Corporate Secretary.

Finally, upon request of the Company, the Director agrees to provide an executed data privacy consent form (or any other agreements or consents that may be required by the Company) that the Company may deem necessary to obtain from the Director for the purpose of administering the Director's participation in the Plan in compliance with the data privacy laws in the Director's country, either now or in the future. The Director understands and agrees that the Director will not be able to participate in the Plan if the Director fails to provide any such consent or agreement requested by the Company.

21. Private Placement. The grant of the RSUs is not intended to be a public offering of securities in the Director's country of residence (and country of employment, if different). The Company has not submitted any registration statement, prospectus or other filings with the local securities authorities (unless otherwise required under local law), and the grant of the RSUs is not subject to the supervision of the local securities authorities.

22. Addendum to Award Certificate. Notwithstanding any provisions of this Award Certificate to the contrary, the Award shall be subject to any special terms and conditions for the Director's country of residence (and country where services are primarily performed, if different), as are set forth in the applicable addendum (the "Addendum") as attached to the Award Certificate. Further, if the Director transfers residence to another country reflected in an Addendum to the Award Certificate, the special terms and conditions for such country will apply to the Director to the extent the Company determines, in its sole discretion, that the application of such terms is necessary or advisable in order to comply with local laws, rules, and regulations, or to facilitate operation and administration of the Plan. Any applicable Addendum shall constitute part of this Award Certificate.

23. No Advice Regarding Grant. The Company is not providing any tax, legal or financial advice, nor is the Company making any recommendations regarding the Director's participation in the Plan, or his acquisition or sale of the underlying Shares. The Director acknowledges that he should consult with his own personal tax, legal and financial advisors regarding his participation in the Plan before taking any action related to the Plan.

24. Entire Agreement. This Award Certificate represents the entire understanding and agreement between the parties with respect to the subject matter of this Award Certificate and supersedes and replaces all previous agreements, arrangements, understandings, rights, obligations and liabilities between the parties in respect of such matters.

25. Insider Trading / Market Abuse Laws. The Director acknowledges that, depending on the Director's or the Director's broker's country of residence or where the Shares are listed, the Director may be subject to insider trading and/or market abuse laws, which may affect the Director's ability to accept, acquire, sell or otherwise dispose of Shares, rights to shares (e.g., RSUs) or rights linked to the value of shares (e.g., phantom awards, futures) during such times as the Director is considered to have "inside information" (regarding the Company as defined by the laws or regulations in the Director's country). Local insider trading laws and regulations may prohibit the cancellation or amendment or amendment of orders the Director placed before the Director possessed inside information. Furthermore, the Director could be prohibited from (i) disclosing the inside information to any third party (other than on a "need to know") and (ii) "tipping" third parties or causing them otherwise to buy or sell securities. The Director should keep in mind third parties includes fellow directors and employees of the Company. Any restrictions under these laws and regulations are separate from and in addition to any restrictions that that may be imposed under any applicable Company's insider trading policy. The Director acknowledges that it is his or her responsibility to be informed of and compliant with any such laws and such Company's policies, and is hereby advised to speak to his or her personal legal advisor on this matter.

26. Waiver. The Director acknowledges that a waiver by the Company of a breach of any provision of this Award Certificate shall not operate or be construed as a waiver of any other provision of this Award Certificate, or of a prior or subsequent breach by the Director or any other Director.

NASDAQ, INC.

By:
Title:

ADDENDUM

Terms and Conditions

This Addendum includes additional terms and conditions that govern the award of Restricted Stock Units granted to the Director under the Nasdaq, Inc. Equity Incentive Plan (the “Plan”) if the Director is resident and/or primarily performs services in one of the countries listed below. If the Director transfers residency and/or employment to another country reflected below following the Award Date, the additional terms and conditions for such country will apply to the Director’s RSUs to the extent the Company determines, in its sole discretion, that the application of such terms and conditions is necessary or advisable in order to comply with local laws, rules, and regulations or to facilitate the operation and administration of the RSUs and the Plan (or the Company may establish alternative terms and conditions as may be necessary or advisable to accommodate the Director’s transfer). Certain capitalized terms used but not defined in this Addendum have the meanings set forth in the Plan and/or the Restricted Stock Unit Award Certificate (the “Award Certificate”).

Notifications

This Addendum also includes information regarding exchange controls and certain other issues of which the Director should be aware with respect to participation in the Plan. The information is based on the securities, exchange control and other laws in effect in the respective countries as of April 2019. Such laws are often complex and change frequently. As a result, the Company strongly recommends that the Director not rely on the information in this Addendum as the only source of information relating to the consequences of participation in the Plan because the information may be out of date at the time that the RSUs vest or the Director sells Shares acquired under the Plan.

In addition, the information contained herein is general in nature and may not apply to the Director’s particular situation and the Company is not in a position to assure the Director of any particular result. Accordingly, the Director is advised to seek appropriate professional advice as to how the relevant laws in the Director’s country may apply to his or her situation.

SWEDEN

There are no country-specific provisions.

UNITED ARAB EMIRATES

Notifications

1. This Award Certificate and the Plan are intended for distribution only to directors, employees or former employees of the Company and its Subsidiaries or affiliates for the purposes of implementing an equity compensation plan. The Emirates Securities and Commodities Authority has no responsibility for reviewing or verifying any documents in connection with this Award

Certificate and the Plan. Neither the Ministry of Economy nor the Dubai Department of Economic Development have approved this Award Certificate and/or the Plan nor taken steps to verify the information set out in it, and have no responsibility for it. The securities to which this Award Certificate and the Plan relate may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the securities offered should conduct their own due diligence on the securities. If the Director does not understand the contents of this document he is advised to consult an authorized financial adviser.

NASDAQ, INC.
PERFORMANCE SHARE UNIT AGREEMENT

This PERFORMANCE SHARE UNIT AGREEMENT (this “Agreement”) between Nasdaq, Inc., a Delaware corporation (the “Company”), and **NAME** (the “Grantee”) memorializes the grant by the Management Compensation Committee of the Board of Directors of the Company (the “Committee”) on **DATE** (the “Grant Date”) of an award (the “Award”) of performance share units (the “PSUs”) to the Grantee on the terms and conditions set out below.

RECITALS:

The Company has adopted the Nasdaq, Inc. Equity Incentive Plan (as amended and restated April 24, 2018) (the “Plan”), which Plan is incorporated herein by reference and made a part of this Agreement. Capitalized terms not otherwise defined herein shall have the meaning ascribed to them in the Plan. The Plan in relevant part provides for the issuance of stock-based awards that are subject to the attainment of performance goals as established by the Committee.

The Committee has determined that it is in the best interests of the Company and its shareholders to grant the PSUs provided for herein to the Grantee pursuant to the Plan and under the terms set forth herein as an increased incentive for the Grantee to contribute to the Company’s future success and prosperity.

Capitalized terms not otherwise defined herein shall have the meaning ascribed to them in the Plan.

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth, the parties hereto agree as follows:

1. Grant of Performance-Based Award. The Company hereby grants to the Grantee **TARGET** PSUs, which PSUs shall entitle the Grantee to receive up to **MAX PAYOUT** Shares (or a lesser number of Shares, or no Shares whatsoever), subject to the terms and conditions set forth in this Agreement and the Plan. (A complete copy of the Plan, as in effect on the Grant Date, is available to the Grantee upon request.) Shares corresponding to the PSUs granted herein are in all events to be delivered to the Grantee only after the Grantee has become vested in the PSUs pursuant to Section 4 below.

2. Performance Period. For purposes of this Agreement, the term “Performance Period” shall be the period commencing on **January 1, 2019** and ending on **December 31, 2019**.

3. Performance Goal.

(a) Subject to the following sentence, the Performance Goal is set out in Appendix A hereto, which Appendix A is incorporated by reference herein and made a part hereof. Notwithstanding the foregoing, the provisions of Section 13 or any other provision of

this Agreement to the contrary, the Committee reserves the right to unilaterally change or otherwise modify the Performance Goal in any manner whatsoever (including substituting a new Performance Goal). If the Committee exercises such discretionary authority to any extent, the Committee shall provide the Grantee with a new Appendix A in substitution for the Appendix A attached hereto, and such new Appendix A and the Performance Goal set out therein (rather than the Appendix A attached hereto and the Performance Goal set out therein) shall in all events apply for all purposes of this Agreement.

(b) Depending upon the extent, if any, to which the Performance Goal has been achieved, and subject to compliance with the requirements of Section 4, each PSU shall entitle the Grantee to receive, at such time as is determined in accordance with the provisions of Section 5, between 0 and 1.5 Shares for each PSU. The Committee shall, as soon as practicable following the last day of the Performance Period, certify (i) the extent, if any, to which, in accordance with Appendix A, the Performance Goal has been achieved with respect to the Performance Period and (ii) the number of whole and/or partial Shares, if any, which, subject to compliance with the vesting requirements of Section 4, the Grantee shall be entitled to receive with respect to each PSU (with such number of whole and/or partial Shares being hereafter referred to as the “Share Delivery Factor”). Such certification shall be final, conclusive and binding on the Grantee, and on all other persons, to the maximum extent permitted by law.

4. Vesting.

(a) The PSUs are subject to forfeiture to the Company until they become non-forfeitable in accordance with this Section 4. Except as provided in the following sentence, (i) the risk of forfeiture will lapse on the first one-third of the PSUs, and such PSUs shall thereupon become vested, only if the Grantee remains employed by the Company (or a subsidiary) through and on **December 31, 2020**; (ii) the risk of forfeiture will lapse on the second one-third of the PSUs, and such PSUs shall thereupon become vested, only if the Grantee remains employed by the Company through and on **December 31, 2021**; and (iii) the risk of forfeiture will lapse on the remaining PSUs, and such PSUs shall thereupon become vested, only if the Grantee remains employed by the Company (or a subsidiary) through and on **December 31, 2022** (collectively with December 31, 2020 and December 31, 2021, each a “Vest Date”). Notwithstanding the foregoing, if the Grantee’s employment with the Company terminates by reason of death prior to **December 31, 2022**, the risk of forfeiture shall lapse on all PSUs, and all unvested PSUs shall thereupon become vested on the date of death (or, if later, on the date, following the end of the Performance Period on which the Committee determines whether, and to what extent the PSUs are earned in accordance with Section 3(b) of this Agreement).

(b) In the event that (i) the Company or a subsidiary terminates the Grantee’s employment with the Company or a subsidiary for any reason prior to a Vest Date or (ii) the Grantee terminates employment with the Company or a subsidiary for any reason (other than death) prior to such date, all unvested PSUs shall be cancelled and forfeited, effective as of the Grantee’s separation from service. Notwithstanding anything to the contrary in the Plan or this Agreement, and for purposes of clarity, any separation from service shall be effective as of

the date the Grantee's active employment ends and shall not be extended by any statutory or common law notice period.

5. Delivery of Shares. As soon as practicable following the applicable Vest Date, and compliance with all applicable tax withholding as described in Section 11 hereof, but in no event later than two and one-half months after the end of the calendar year in which the Vest Date occurs, the Company shall instruct the registrar for the Company to make an entry on its books and records evidencing that the Shares underlying such vested PSUs have been duly issued as of that date; provided, however, that the Grantee may, in the alternative, elect in writing prior thereto to receive a stock certificate representing the full number of Shares acquired, which certificate may bear a restrictive legend prohibiting the transfer of such Shares for such period as may be prescribed by the Company. The Company shall not be liable to the Grantee for damages relating to any delays in issuing the certificates. The underlying Shares may be registered in the name of the Grantee's legal representative or estate in the event of the death of the Grantee. In the event of the acceleration of the lapse of forfeiture restrictions upon the death of the Grantee as contemplated by Section 4(a) of this Agreement, this process shall occur as soon as possible following such vesting date, but in no event later than two and one-half months after the end of the calendar year in which such vesting date occurs. Notwithstanding anything in the Agreement, the Company may make delivery of Shares in settlement of PSUs by either (A) delivering certificates representing such Shares to the Grantee, registered in the name of the Grantee, or (B) by depositing such Shares into a stock brokerage account maintained for the Grantee.

6. Electronic Delivery/Acceptance. The Company may, in its sole discretion, decide to deliver any documents related to the PSUs or future Awards granted under the Plan by electronic means or request the Grantee's consent to participate in the Plan by electronic means. By accepting this Award, the Grantee hereby consents and agrees to receive such documents by electronic delivery and agrees to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

7. Transferability.

(a) Except as provided below, or except to the minimal extent required by law, the PSUs are nontransferable and may not be assigned, alienated, pledged, attached, sold or otherwise transferred or encumbered by the Grantee, except by will or the laws of descent and distribution, and upon any such transfer, by will or the laws of descent and distribution (or upon such transfer required by law), the transferee shall hold such PSUs subject to all the terms and conditions that were applicable to the Grantee immediately prior to such transfer. Notwithstanding the foregoing, the Grantee may transfer any vested PSUs to members of his immediate family (defined as his spouse, children or grandchildren) or to one or more trusts for the exclusive benefit of such immediate family members or partnerships in which such immediate family members are the only partners if the transfer is approved by the Committee and the Grantee does not receive any consideration for the transfer. Any such transferred portion of the PSUs shall continue to be subject to the same terms and conditions that were applicable to such portion of the PSUs immediately prior to transfer (except that such transferred PSUs shall

not be further transferable by the transferee). No transfer of a portion of the PSUs shall be effective to bind the Company unless the Company shall have been furnished with written notice thereof and a copy of such evidence as the Committee may deem necessary to establish the validity of the transfer and the acceptance by the transferee of the terms and conditions hereof.

(b) Upon any transfer by will or the laws of descent and distribution (or upon any such transfer required by law), such transferee shall take the PSUs and the Shares delivered in connection therewith (the “Transferee Shares”) subject to all the terms and conditions that were (or would have been) applicable to the PSUs and the Transferee Shares immediately prior to such transfer.

(c) Following settlement and issuance of Shares, in the event the Company permits the Grantee to arrange the sale of Shares through a broker or another designated agent of the Company, Grantee acknowledges and agrees that the Company may block any such sale and/or cancel any order to sell placed by the Grantee, in each case if the Grantee is not then permitted under the Company’s insider trading policy to engage in transactions with respect to securities of the Company. If the Committee determines that the ability of the Grantee to sell or transfer shares of Common Stock is restricted, then the Company may notify the Grantee in accordance with Section 18 of this Agreement. The Grantee may only sell such Shares in compliance with such notification from the Company.

8. Rights of Grantee. Prior to the delivery, if any, of Shares to the Grantee pursuant to the provisions of Section 5, the Grantee shall not have any rights of a shareholder of the Company, including, but not limited to, the right to receive dividend payments, on account of the PSUs.

9. Unfunded Nature of PSUs. The Company will not segregate any funds representing the potential liability arising under this Agreement. The Grantee’s rights in respect of this Agreement are those of an unsecured general creditor of the Company. The liability for any payment under this Agreement will be a liability of the Company and not a liability of any of its officers, directors or Affiliates.

10. Securities Laws. The Company may condition delivery of Shares for any vested PSUs upon the prior receipt from the Grantee of any undertakings which it may determine are required to assure that the Shares are being issued in compliance with federal and state securities laws.

11. Withholding. Regardless of any action the Company, any of its Subsidiaries and/or the Grantee’s employer takes with respect to any or all income tax, social insurance, payroll tax, payment on account or other tax-related items related to the Grantee’s participation in the Plan and legally applicable to the Grantee (“Tax-Related Items”), the Grantee acknowledges that the ultimate liability for all Tax-Related Items is and remains the Grantee’s responsibility and may exceed the amount actually withheld by the Company or any of its affiliates. The Grantee further acknowledges that the Company and/or its Subsidiaries (i) make no representations or undertakings regarding the treatment of any Tax-Related Items in connection with any aspect of the PSUs, including, but not limited to, the grant or vesting of the

PSUs, the delivery of Shares, the subsequent sale of Shares acquired pursuant to such delivery and the receipt of any dividends and/or dividend equivalents; and (ii) do not commit to and are under no obligation to structure the terms of any award to reduce or eliminate the Grantee's liability for Tax-Related Items or achieve any particular tax result. Further, if the Grantee becomes subject to tax in more than one jurisdiction between the Grant Date and the date of any relevant taxable event, the Grantee acknowledges that the Company and/or its Subsidiaries may be required to withhold or account for Tax-Related Items in more than one jurisdiction.

Prior to any relevant taxable or tax withholding event, as applicable, the Grantee will pay or make adequate arrangements satisfactory to the Company and/or its Subsidiaries to satisfy all Tax-Related Items. In this regard, the Grantee authorizes the Company and/or its Subsidiaries, or their respective agents, at their discretion, to satisfy the obligations with regard to all Tax-Related Items by one or a combination of the following:

- (a) withholding from the Grantee's wages or other cash compensation paid to the Grantee by the Company and/or its Subsidiaries; or
- (b) withholding from proceeds of the Shares acquired following settlement either through a voluntary sale or through a mandatory sale arranged by the Company (on the Grantee's behalf pursuant to this authorization); or
- (c) withholding in Shares to be delivered upon settlement.

To avoid negative accounting treatment, the Company and/or its Subsidiaries may withhold or account for Tax-Related Items by considering applicable statutory withholding amounts or other applicable withholding rates. If the obligation for Tax-Related Items is satisfied by withholding in Shares, for tax purposes, the Grantee is deemed to have been issued the full number of Shares attributable to the awarded PSUs, notwithstanding that a number of Shares are held back solely for the purpose of paying the Tax-Related Items due as a result of any aspect of the Grantee's participation in the Plan.

The Grantee shall pay to the Company and/or its Subsidiaries any amount of Tax-Related Items that the Company and/or its Subsidiaries may be required to withhold or account for as a result of the Grantee's participation in the Plan that are not satisfied by the means previously described. The Company may refuse to issue or deliver the Shares or the proceeds of the sale of Shares, if the Grantee fails to comply with the Grantee's obligations in connection with the Tax-Related Items.

By accepting this grant of PSUs, the Grantee expressly consents to the methods of withholding Tax-Related Items by the Company and/or its subsidiaries as set forth hereunder, including the withholding of Shares and the withholding from the Grantee's wages/salary or other amounts payable to the Grantee. All other Tax- Related Items related to the PSUs and any Shares delivered in satisfaction thereof are the Grantee's sole responsibility.

12. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Delaware, without giving effect to any principle of law that could result in the application of the law of any other jurisdiction.

13. Amendments. This Agreement may be amended or modified at any time by an instrument in writing signed by the parties hereto, except as otherwise provided in Section 3(a) or Sections 15 or 16 of this Agreement regarding permitted unilateral action by the Committee or in Section 13(a) of the Plan related to amendments or alterations that do not adversely affect the rights of the Grantee in this Award.

14. Administration. This Agreement shall at all times be subject to the terms and conditions of the Plan. The Committee shall have sole and complete discretion with respect to all matters reserved to it by the Plan and decisions of the Committee with respect thereto and this Agreement shall be final and binding upon the Grantee and the Company. In the event of any conflict between the terms and conditions of this Agreement and the Plan, the provisions of this Agreement shall control. The Committee has the authority and discretion to determine any questions which arise in connection with the award of the PSUs hereunder.

15. Compliance with Code Section 409A. It is the intention of the Company and the Grantee that this Agreement not result in an unfavorable tax consequences to Grantee under Code Section 409A. Accordingly, Grantee consents to any amendment of this Agreement as the Company may reasonably make in furtherance of such intention, and the Company shall promptly provide, or make available to, the Grantee a copy of such amendment. Any such amendments shall be made in a manner that preserves to the maximum extent possible the intended benefits to the Grantee. This paragraph does not create an obligation on the part of Company to modify this Agreement and does not guarantee that the amounts or benefits owed under the Agreement will not be subject to interest and penalties under Code Section 409A.

16. Imposition of Other Requirements. The Company reserves the right to impose other requirements on the Grantee's participation in the Plan, on the PSUs and on any Shares acquired under the Plan, to the extent the Company determines it is necessary or advisable in order to comply with local law or facilitate the administration of the Plan, and to require the Grantee to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing. The Grantee agrees, upon demand of the Company or the Committee, to do all acts and execute, deliver and perform all additional documents, instruments and agreements which may be reasonably required by the Company or the Committee, as the case may be, to implement the provisions and purposes of the Plan and this Agreement.

17. No Right to Continued Employment. Neither the Plan nor this this agreement shall confer on the Grantee any right to be retained, in any position, as an employee, consultant or director of the Company, and nothing in this Agreement or the Plan shall be construed to limit the discretion of the Company (or subsidiary that employees the Grantee) to terminate the Grantee's employment at any time, with or without cause.

18. Notices. Any notice, request, instruction or other document given under this Agreement shall be in writing and may be delivered by such method as may be permitted by the Company, and shall be addressed and delivered, in the case of the Company, to the Secretary of the Company at the principal office of the Company and, in the case of the Grantee, to the Grantee's address as shown in the records of the Company or to such other address as may be designated in writing (or by such other method approved by the Company) by either party.

19. Award Subject to Plan. This Award is subject to the Plan as approved by the shareholders of the Company. In the event of conflict between any term or provision contained herein and a term or provision of the Plan, the applicable terms and provisions of this Agreement will govern and prevail.

20. Severability. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement and each other provision of this Agreement shall be severable and enforceable to the extent permitted by law.

21. Discretionary Nature of Plan; No Vested Rights. The Plan is discretionary in nature and limited in duration, and may be amended, cancelled, or terminated by the Company, in its sole discretion, at any time. The grant of the Award represented by this Agreement is exceptional, voluntary and occasional and does not create any contractual or other right to receive an award or benefit in lieu of an award in the future, even if awards have been granted repeatedly in the past. Future Awards, if any, will be at the sole discretion of the Company, including, but not limited to, the form and timing of an Award, the number of Shares subject to the Award, and the vesting provisions. Any amendment, modification or termination of the Plan shall not constitute a change or impairment of the terms and conditions of the Grantee's employment with the Company.

22. Termination Indemnities. The Grantee's Award and the Shares subject to the Award, and the income and value of the same, are extraordinary items of compensation outside the scope of the Grantee's employment or services contract, if any. As such, the PSUs are not part of normal or expected compensation for purposes of calculating any severance, resignation, termination, redundancy, dismissal, end of service payments, bonuses, long-service awards, pension, or retirement benefits or welfare benefits or similar payments.

23. English Language. The Grantee acknowledges and agrees that it is the Grantee's express intent that the Plan, this Agreement, any addendum and all other documents, notices and legal proceedings entered into, given or instituted pursuant to the Award, be drawn up in English. Unless specifically indicated, if the Grantee has received the Plan, this Agreement, any addendum or any other documents related to the Award translated into a language other than English, and if the meaning of the translated version is different than the English version, the English version shall control.

1. Nature of Grant. In accepting the Award, the Grantee acknowledges, understands and agrees that:

(i) the Plan is established voluntarily by the Company, it is discretionary in nature, and may be modified, amended, suspended or terminated by the Company at any time, to the extent permitted by the Plan;

(ii) all decisions with respect to future Awards or other grants, if any, will be at the sole discretion of the Company;

(iii) the grant of the PSUs and the Grantee's participation in the Plan shall not create a right to employment or be interpreted as forming an employment or service contract with

the Company, the Grantee's employer or any Subsidiary, and shall not interfere with the ability of the Company, the Grantee's employer or any Subsidiary, as applicable, to terminate the Employment or service relationship (if any);

(iv) the Grantee is voluntarily participating in the Plan;

(v) the PSUs and any Shares issued under the Plan and the income and value of the same are not intended to replace any pension rights or compensation;

(vi) the future value of the Shares underlying the PSUs is unknown and indeterminable;

(vii) unless otherwise agreed with the Company, the Award and the Shares subject to the Award, and the income and value of same, are not granted as consideration for, or in connection with, the service the Grantee may provide as a director of a Subsidiary of the Company;

(viii) no claim or entitlement to compensation or damages shall arise from forfeiture of the PSUs resulting from Separation from Service (for any reason whatsoever, whether or not later found to be invalid or in breach of employment laws in the jurisdiction where the Grantee is employed or the terms of the Grantee's employment agreement, if any), and in consideration of the grant of the PSUs to which the Grantee is otherwise not entitled, the Grantee irrevocably agrees never to institute any claim against the Company, any of its Subsidiaries or the Grantee's employer, waives his ability, if any, to bring any such claim, and releases the Company, its Subsidiaries and the Grantee's employer from any such claim; if, notwithstanding the foregoing, any such claim is allowed by a court of competent jurisdiction, then, by participating in the Plan, the Grantee shall be deemed irrevocably to have agreed not to pursue such claim and agrees to execute any and all documents necessary to request dismissal or withdrawal of such claim; and

(ix) the Grantee acknowledges and agrees that neither the Company, the Grantee's employer nor any Subsidiary shall be liable for any foreign exchange rate fluctuation between the Grantee's local currency and the United States Dollar that may affect the value of the PSUs or of any amounts due to the Grantee pursuant to the vesting and settlement of the PSU or the subsequent sale of any Shares issued upon settlement.

25. Data Protection. Except if the Grantee resides in the European Union the European Economic Area, or other jurisdiction designated by the Company, in which case the Grantee is subject to the special terms and conditions set forth in the Addendum, the Grantee explicitly and unambiguously consents to the collection, use and transfer, in electronic or other form, of the Grantee's personal data as described in the Agreement and any other PSU grant materials by and among, as applicable, the Grantee, the Company, the Grantee's employer, and the Company's Subsidiaries for the exclusive purpose of implementing, administering and managing the Grantee's participation in the Plan.

The Company and its Subsidiaries, including the Grantee's employer hold certain personal information about the Grantee, including, but not limited to, his or her name, home address, email address and telephone number, date of birth, social security number, passport number or

other employee identification number, salary, nationality, job title, any Shares or directorships held in the Company, details of all Awards or any other entitlement to Shares awarded, canceled, purchased, vested, unvested or outstanding in Grantee's favor ("Data"), for the exclusive purpose of managing and administering the Plan.

The Company and its Subsidiaries, including the Grantee's employer, will transfer Data amongst themselves as necessary for the purpose of implementation, administration and management of the Grantee's participation in the Plan, and the Company and its Subsidiaries, including the Grantee's employer, may each further transfer Data to a designated Plan broker, administrative agent or such other stock plan service provider as may be selected by the Company presently or in the future (a "Plan Service Provider"), which may be assisting the Company in the implementation, administration and management of the Plan. These recipients may be located in the Grantee's country or elsewhere throughout the world, such as the United States and any recipient's country (e.g., the United States) may have different data privacy laws and protections than the Grantee's country. The Grantee understands that if he or she resides outside the United States, the Grantee may request a list with the names and addresses of any potential recipients of the Data by contacting the Grantee's local human resources representative. The Grantee hereby authorizes (where required under applicable law) the Company, any Plan Service Provider and any other possible recipients which may assist the Company (presently or in the future) to receive, possess, use, retain and transfer the Data, in electronic or other form, for the sole purpose of implementing, administering and managing the Grantee's participation in the Plan. Furthermore, the Grantee acknowledges and understands that the transfer of the Data to the Company or its Subsidiaries, including the Grantee's employer, to any Plan Service Provider, or to any third parties is necessary for the Grantee's participation in the Plan. The Grantee understands that Data will be held only as long as is necessary to implement, administer and manage the Grantee's participation in the Plan. The Grantee understands that if he or she resides outside the United States, the Grantee may, at any time, view the Data, request additional information about the storage and processing of the Data, require any necessary amendments to the Data or refuse or withdraw the consents herein by contacting the Grantee's local human resources representative in writing. The Grantee understands that he or she is providing the consents herein on a purely voluntary basis. If the Grantee does not consent, or if the Grantee later seeks to revoke his or her consent, the Grantee's employment status or service and career with the Company and its Subsidiaries will not be affected. The only consequence of refusing or withdrawing the Grantee's consent is that the Company may not be able to grant the Grantee PSUs or other awards or administer or maintain such awards. Therefore, the Grantee acknowledges that withdrawal of consent may affect the Grantee's ability to vest in or realize benefits from the PSUs, and the Grantee's ability to participate in the Plan, in which case neither the Company nor any of its Subsidiaries, including the Grantee's employer, will have any liability or obligation to the Grantee related to this Award. For more information on the consequences of refusal to consent or withdrawal of consent, the Grantee understands that he or she may contact his or her local human resources representative.

Finally, upon request of the Company or the Grantee's employer, the Grantee agrees to provide an executed data privacy consent form (or any other agreements or consents that may be required by the Company and/or the Grantee's employer) that the Company and/or the

Grantee's employer may deem necessary to obtain from the Grantee for the purpose of administering the Grantee's participation in the Plan in compliance with the data privacy laws in the Grantee's country, either now or in the future. The Grantee understands and agrees that the Grantee will not be able to participate in the Plan if the Grantee fails to provide any such consent or agreement requested by the Company and/or the Grantee's employer.

26. Private Placement. The grant of the PSU is not intended to be a public offering of securities in the Grantee's country of residence (and country of employment, if different). The Company has not submitted any registration statement, prospectus or other filings with the local securities authorities (unless otherwise required under local law), and the grant of PSUs is not subject to the supervision of the local securities authorities.

27. Addendum to Agreement. Notwithstanding any provisions of this Agreement to the contrary, the Award shall be subject to any special terms and conditions for the Grantee's country of residence (and country of employment, if different), as are set forth in the applicable addendum (the "Addendum") as attached to the Agreement. Further, if the Grantee transfers residence and/or employment to another country reflected in an Addendum to the Agreement, the special terms and conditions for such country will apply to the Grantee to the extent the Company determines, in its sole discretion, that the application of such terms is necessary or advisable in order to comply with local laws, rules and regulations, or to facilitate operation and administration of the Plan. Any applicable Addendum shall constitute part of this Agreement.

28. No Advice Regarding Grant. The Company is not providing any tax, legal or financial advice, nor is the Company making any recommendations regarding the Grantee's participation in the Plan, or his acquisition or sale of the underlying Shares. The Grantee acknowledges that he should consult with his own personal tax, legal and financial advisors regarding his participation in the Plan before taking any action related to the Plan.

29. Entire Agreement. This Agreement represents the entire understanding and agreement between the parties with respect to the subject matter of this Agreement and supersedes and replaces all previous agreements, arrangements, understandings, rights, obligations and liabilities between the parties in respect of such matters.

30. Execution. By electronically or otherwise accepting this Agreement, the Grantee acknowledges his or her understanding and acceptance of the terms and conditions of the Award. The Company has no obligation to issue the Grantee Shares under this Agreement if the Grantee does not accept the Award. Further, any acceptance of Shares issued pursuant to this Agreement shall constitute the Grantee's acceptance of the Award and the Grantee's agreement with all terms and conditions of the Award, as set forth in the Plan and this Agreement.

31. Insider Trading / Market Abuse Laws. The Grantee acknowledges that he or she may be subject to insider trading and/or market abuse laws in the Grantee's country and the United States, which may affect the Grantee's ability to acquire or sell Shares under the Plan during such times as the Grantee is considered to have "inside information" (as defined by the laws in the Grantee's country and the United States). The requirements of these laws may or may not be consistent with the terms of any applicable Company insider trading policy. The Grantee

acknowledges that it is his or her responsibility to be informed of and compliant with any such laws and such Company policies, and is hereby advised to speak to his or her personal legal advisor on this matter.

32. Waiver. The Grantee acknowledges that a waiver by the Company of a breach of any provision of this Agreement shall not operate or be construed as a waiver of any other provision of this Agreement, or of a prior or subsequent breach by the Grantee or any other Grantee.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the ___ day of _____, 2019. By execution of this Agreement the Grantee acknowledges receipt of a copy of the Plan, and agrees to the terms and conditions of the Plan and this Agreement.

NASDAQ, INC.

By:
Title:

[EMPLOYEE NAME]

Appendix A

Performance Goal for PSU Grant 2019 Performance Period

This Appendix A to the Agreement sets forth the performance goal (the “Performance Goal”) to be achieved and, depending upon the extent (if any) to which the Performance Goal is achieved, the number of whole and/or partial Shares, if any, which the Grantee shall have the right to receive with respect to each PSU. Capitalized terms not otherwise defined herein shall have the meaning ascribed to them in the Agreement and the Plan.

The sole Performance Goal shall be the Company’s 2019 Company Operating Income. “2019 Company Operating Income” means the operating income from continuing operations before income taxes for the Company’s 2019 fiscal year. To calculate 2019 Company Operating Income, the operating income from continuing operations before income taxes for the Company’s trading and non-trading businesses shall be calculated independently and then combined with weights of 42% and 58%, respectively. For both the trading and non-trading businesses, operating income from continuing operations before income taxes shall be calculated in accordance with generally accepted accounting principles in the United States, subject to adjustment to exclude from the calculation thereof non-recurring and extraordinary charges and expenses (collectively, the “Non-Recurring Expenses”). Notwithstanding the foregoing, 2019 Company Operating Income shall exclude the impact of research & development expenses, foreign exchange, intra-year acquisitions and other Non-Recurring Expenses.

The Committee will rely on the Company’s audited financial statements and related information for purposes of determining the amount, if any, of 2019 Company Operating Income.

Each PSU shall, subject to the vesting provisions set forth in the Agreement, entitle the Grantee to 0.5 Shares for the achievement of “floor” 2019 Company Operating Income, 1.0 Share for the achievement of "target" 2019 Company Operating Income, and 1.5 Shares for the achievement of "ceiling" 2019 Company Operating Income.

Levels of Achievement of the Performance Goal

Floor	Target	Ceiling
50%	100%	150%
\$1,212.2 million	\$1,282.2-1,314.9 million	\$1,345.2 million

For 2019 Company Operating Income below the “floor” dollar level, no Shares shall be deliverable to the Grantee. For 2019 Company Operating Income between (i) the “floor” dollar level and the “target” dollar level or (ii) between the “target” dollar level and the “ceiling” dollar level (as specified in the table above), the number of whole and/or partial Shares deliverable with respect to each Performance Share Unit will be adjusted proportionately based on the level of achievement.

All actions taken by the Committee pursuant to this Appendix A shall be final, conclusive and binding upon the Grantee, and all other persons, to the maximum extent permitted by law.

NASDAQ, INC.
THREE-YEAR PERFORMANCE SHARE UNIT AGREEMENT

This PERFORMANCE SHARE UNIT AGREEMENT (this “Agreement”) between Nasdaq, Inc., a Delaware corporation (the “Company”), and [EMPLOYEE NAME] (the “Grantee”) memorializes the grant by the Management Compensation Committee of the Board of Directors of the Company (the “Committee”) on [DATE] (the “Grant Date”) of performance share units (the “PSUs”) to the Grantee on the terms and conditions set out below.

RECITALS:

The Company has adopted the Nasdaq, Inc. Equity Incentive Plan (as amended and restated April 24, 2018) (the “Plan”), which Plan is incorporated herein by reference and made a part of this Agreement. Capitalized terms not otherwise defined herein shall have the meaning ascribed to them in the Plan. The Plan in relevant part provides for the issuance of stock-based awards that are subject to the attainment of performance goals as established by the Committee.

The Committee has determined that it is in the best interests of the Company and its shareholders to grant the PSUs provided for herein to the Grantee pursuant to the Plan and under the terms set forth herein as an increased incentive for the Grantee to contribute to the Company’s future success and prosperity.

Capitalized terms not otherwise defined herein shall have the meaning ascribed to them in the Plan.

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth, the parties hereto agree as follows:

1. Grant of Performance-Based Award. The Company hereby grants to the Grantee [TARGET NUMBER OF SHARES] PSUs, which PSUs shall entitle the Grantee to receive up to [200% OF TARGET NUMBER OF SHARES] Shares (or a lesser number of Shares, or no Shares whatsoever), subject to the terms and conditions set forth in this Agreement and the Plan. (A complete copy of the Plan, as in effect on the Grant Date, is available to the Grantee upon request.). Shares corresponding to the PSUs granted herein are in all events to be delivered to the Grantee only after the Grantee has become vested in the PSUs pursuant to Section 4, below.

2. Performance Period. For purposes of this Agreement, the term “Performance Period” shall be the period commencing on **January 1, 2019** and ending on **December 31, 2021**.

3. Performance Goal.

(a) Subject to the following sentence, the Performance Goal is set out in Appendix A hereto, which Appendix A is incorporated by reference herein and made a part

hereof. Notwithstanding the foregoing, the provisions of Section 13 or any other provision of this Agreement to the contrary, the Committee reserves the right to unilaterally change or otherwise modify the Performance Goal in any manner whatsoever (including substituting a new Performance Goal).e. If the Committee exercises such discretionary authority to any extent, the Committee shall provide the Grantee with a new Appendix A in substitution for the Appendix A attached hereto, and such new Appendix A and the Performance Goal set out therein (rather than the Appendix A attached hereto and the Performance Goal set out therein) shall in all events apply for all purposes of this Agreement.

(b) Depending upon the extent, if any, to which the Performance Goal has been achieved, and subject to compliance with the requirements of Section 4, each PSU shall entitle the Grantee to receive, at such time as is determined in accordance with the provisions of Section 5, between 0 and 2.0 Shares for each PSU. The Committee shall, as soon as practicable following the last day of the Performance Period, certify (i) the extent, if any, to which, in accordance with Appendix A, the Performance Goal has been achieved with respect to the Performance Period and (ii) the number of whole and/or partial Shares, if any, which, subject to compliance with the vesting requirements of Section 4, the Grantee shall be entitled to receive with respect to each PSU (with such number of whole and/or partial Shares being hereafter referred to as the “Share Delivery Factor”). Such certification shall be final, conclusive and binding on the Grantee, and on all other persons, to the maximum extent permitted by law.

4. Vesting.

(a) The PSUs are subject to forfeiture to the Company until they become non-forfeitable in accordance with this Section 4. Except as provided in the following sentence, the risk of forfeiture will lapse on the PSUs, and such PSUs shall thereupon become vested, only if the Grantee remains employed by the Company (or a subsidiary) through and on **December 31, 2021** (the “Vest Date”). Notwithstanding the foregoing, if the Grantee’s employment with the Company (or a subsidiary) terminates by reason of death prior to **December 31, 2021**, the risk of forfeiture shall lapse on all PSUs, and all unvested PSUs shall thereupon become vested on the date of death (or, if later, on the date, following the end of the Performance Period on which the Committee determines whether, and to what extent the PSUs are earned in accordance with Section 3(b) of this Agreement).

(b) Subject to any conflicting provisions in any employment agreement between the Company and the Grantee, which shall control in the event of a conflict with this Agreement, in the event that (i) the Company or a subsidiary terminates the Grantee’s employment with the Company or a subsidiary for any reason prior to the Vest Date or (ii) the Grantee terminates employment with the Company or a subsidiary for any reason (other than death) prior to such date, all unvested PSUs shall be cancelled and forfeited, effective as of the Grantee’s separation from service. Notwithstanding anything to the contrary in the Plan or this Agreement, and for purposes of clarity, any separation from service shall be effective as of the date the Grantee’s active employment ends and shall not be extended by any statutory or common law notice period.

5. Delivery of Shares. As soon as practicable following the Vest Date, and compliance with all applicable tax withholding as described in Section 11 hereof, but in no event later than two and one-half months after the end of the calendar year in which the Vest Date occurs, the Company shall instruct the registrar for the Company to make an entry on its books and records evidencing that the Shares underlying such vested PSUs have been duly issued as of that date; provided, however, that the Grantee may, in the alternative, elect in writing prior thereto to receive a stock certificate representing the full number of Shares acquired, which certificate may bear a restrictive legend prohibiting the transfer of such Shares for such period as may be prescribed by the Company. The Company shall not be liable to the Grantee for damages relating to any delays in issuing the certificates. The underlying Shares may be registered in the name of the Grantee's legal representative or estate in the event of the death of the Grantee. In the event of the acceleration of the lapse of forfeiture restrictions upon the death of the Grantee as contemplated by Section 4(a) of this Agreement, this process shall occur as soon as possible following such vesting date, but in no event later than two and one-half months after the end of the calendar year in which such vesting date occurs. Notwithstanding anything in the Agreement, the Company may make delivery of Shares in settlement of PSUs by either (A) delivering certificates representing such Shares to the Grantee, registered in the name of the Grantee, or (B) by depositing such Shares into a stock brokerage account maintained for the Grantee.

6. Electronic Delivery/Acceptance. The Company may, in its sole discretion, decide to deliver any documents related to the PSUs or future Awards granted under the Plan by electronic means or request the Grantee's consent to participate in the Plan by electronic means. By accepting this Award, the Grantee hereby consents and agrees to receive such documents by electronic delivery and agrees to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

7. Transferability.

(a) Except as provided below, or except to the minimal extent required by law, the PSUs are nontransferable and may not be assigned, alienated, pledged, attached, sold or otherwise transferred or encumbered by the Grantee, except by will or the laws of descent and distribution, and upon any such transfer, by will or the laws of descent and distribution (or upon such transfer required by law), the transferee shall hold such PSUs subject to all the terms and conditions that were applicable to the Grantee immediately prior to such transfer. Notwithstanding the foregoing, the Grantee may transfer any vested PSUs to members of his immediate family (defined as his spouse, children or grandchildren) or to one or more trusts for the exclusive benefit of such immediate family members or partnerships in which such immediate family members are the only partners if the transfer is approved by the Committee and the Grantee does not receive any consideration for the transfer. Any such transferred portion of the PSUs shall continue to be subject to the same terms and conditions that were applicable to such portion of the PSUs immediately prior to transfer (except that such transferred PSUs shall not be further transferable by the transferee). No transfer of a portion of the PSUs shall be effective to bind the Company unless the Company shall have been furnished with written notice

thereof and a copy of such evidence as the Committee may deem necessary to establish the validity of the transfer and the acceptance by the transferee of the terms and conditions hereof.

(b) Upon any transfer by will or the laws of descent and distribution (or upon any such transfer required by law), such transferee shall take the PSUs and the Shares delivered in connection therewith (the “Transferee Shares”) subject to all the terms and conditions that were (or would have been) applicable to the PSUs and the Transferee Shares immediately prior to such transfer.

(c) Following settlement and issuance of Shares, in the event the Company permits Grantee to arrange for sale of Shares through a broker or another designated agent of the Company, Grantee acknowledges and agrees that the Company may block any such sale and/or cancel any order to sell placed by the Grantee, in each case if the Grantee is not then permitted under the Company’s insider trading policy to engage in transactions with respect to securities of the Company. If the Committee determines that the ability of the Grantee to sell or transfer shares of Common Stock is restricted, then the Company may notify the Grantee in accordance with Section 18 of this Agreement. The Grantee may only sell such Shares in compliance with such notification from the Company.

8. Rights of Grantee. Prior to the delivery, if any, of Shares to the Grantee pursuant to the provisions of Section 5, the Grantee shall not have any rights of a shareholder of the Company, including, but not limited to, the right to receive dividend payments, on account of the PSUs.

9. Unfunded Nature of PSUs. The Company will not segregate any funds representing the potential liability arising under this Agreement. The Grantee’s rights in respect of this Agreement are those of an unsecured general creditor of the Company. The liability for any payment under this Agreement will be a liability of the Company and not a liability of any of its officers, directors or Affiliates.

10. Securities Laws. The Company may condition delivery of Shares for any vested PSUs upon the prior receipt from the Grantee of any undertakings which it may determine are required to assure that the Shares are being issued in compliance with federal and state securities laws.

11. Withholding. Regardless of any action the Company, any of its Subsidiaries and/or the Grantee’s employer takes with respect to any or all income tax, social insurance, payroll tax, payment on account or other tax-related items related to the Grantee’s participation in the Plan and legally applicable to the Grantee (“Tax-Related Items”), the Grantee acknowledges that the ultimate liability for all Tax-Related Items is and remains the Grantee’s responsibility and may exceed the amount actually withheld by the Company or any of its affiliates. The Grantee further acknowledges that the Company and/or its Subsidiaries (i) make no representations or undertakings regarding the treatment of any Tax-Related Items in connection with any aspect of the PSUs, including, but not limited to, the grant, vesting or settlement of the PSUs, the issuance of Shares or cash upon settlement of the PSUs, the subsequent sale of Shares acquired pursuant to such delivery and the receipt of any dividends

and/or dividend equivalents; and (ii) do not commit to and are under no obligation to structure the terms of any award to reduce or eliminate the Grantee's liability for Tax-Related Items or achieve any particular tax result. Further, if the Grantee becomes subject to tax in more than one jurisdiction between the Grant Date and the date of any relevant taxable event, the Grantee acknowledges that the Company and/or its Subsidiaries may be required to withhold or account for Tax-Related Items in more than one jurisdiction.

Prior to any relevant taxable or tax withholding event, as applicable, the Grantee will pay or make adequate arrangements satisfactory to the Company and/or its Subsidiaries to satisfy all Tax-Related Items. In this regard, the Grantee authorizes the Company and/or its Subsidiaries, or their respective agents, at their discretion, to satisfy the obligations with regard to all Tax-Related Items by one or a combination of the following:

- (a) withholding from the Grantee's wages or other cash compensation paid to the Grantee by the Company and/or its Subsidiaries; or
- (b) withholding from proceeds of the Shares acquired following settlement either through a voluntary sale or through a mandatory sale arranged by the Company (on the Grantee's behalf pursuant to this authorization); or
- (c) withholding in Shares to be delivered upon settlement.

To avoid negative accounting treatment, the Company and/or its Subsidiaries may withhold or account for Tax-Related Items by considering applicable statutory withholding amounts or other applicable withholding rates. If the obligation for Tax-Related Items is satisfied by withholding in Shares, for tax purposes, the Grantee is deemed to have been issued the full number of Shares attributable to the awarded PSUs, notwithstanding that a number of Shares are held back solely for the purpose of paying the Tax-Related Items due as a result of any aspect of the Grantee's participation in the Plan.

The Grantee shall pay to the Company and/or its Subsidiaries any amount of Tax-Related Items that the Company and/or its Subsidiaries may be required to withhold or account for as a result of the Grantee's participation in the Plan that are not satisfied by the means previously described. The Company may refuse to issue or deliver the Shares or the proceeds of the sale of Shares, if the Grantee fails to comply with the Grantee's obligations in connection with the Tax-Related Items.

By accepting this grant of PSUs, the Grantee expressly consents to the methods of withholding Tax-Related Items by the Company and/or its subsidiaries as set forth hereunder, including the withholding of Shares and the withholding from the Grantee's wages/salary or other amounts payable to the Grantee. All other Tax-Related Items related to the PSUs and any Shares delivered in satisfaction thereof are the Grantee's sole responsibility.

12. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Delaware, without giving effect to any principle of law that could result in the application of the law of any other jurisdiction.

13. Amendments. This Agreement may be amended or modified at any time by an instrument in writing signed by the parties hereto, except as otherwise provided in Section 3(a) or Sections 15 or 16 of this Agreement regarding permitted unilateral action by the Committee or in Section 13(a) of the Plan related to amendments or alterations that do not adversely affect the rights of the Grantee in this Award.

14. Administration. This Agreement shall at all times be subject to the terms and conditions of the Plan. The Committee shall have sole and complete discretion with respect to all matters reserved to it by the Plan and decisions of the Committee with respect thereto and this Agreement shall be final and binding upon the Grantee and the Company. In the event of any conflict between the terms and conditions of this Agreement and the Plan, the provisions of this Agreement shall control. The Committee has the authority and discretion to determine any questions which arise in connection with the award of the PSUs hereunder.

15. Compliance with Code Section 409A. It is the intention of the Company and Grantee that this Agreement not result in an unfavorable tax consequences to Grantee under Code Section 409A. Accordingly, Grantee consents to any amendment of this Agreement as the Company may reasonably make in furtherance of such intention, and the Company shall promptly provide, or make available to, Grantee a copy of such amendment. Any such amendments shall be made in a manner that preserves to the maximum extent possible the intended benefits to Grantee. This paragraph does not create an obligation on the part of Company to modify this Agreement and does not guarantee that the amounts or benefits owed under the Agreement will not be subject to interest and penalties under Code Section 409A.

16. Imposition of Other Requirements. The Company reserves the right to impose other requirements on the Grantee's participation in the Plan, on the PSUs and on any Shares acquired under the Plan, to the extent the Company determines it is necessary or advisable in order to comply with local law or facilitate the administration of the Plan, and to require the Grantee to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing. The Grantee agrees, upon demand of the Company or the Committee, to do all acts and execute, deliver and perform all additional documents, instruments and agreements which may be reasonably required by the Company or the Committee, as the case may be, to implement the provisions and purposes of the Plan and this Agreement.

17. No Right to Continued Employment. Neither the plan nor this agreement shall confer on the Grantee any right to be retained, in any position, as an employee, consultant or director of the Company, and nothing in this agreement or the Plan shall be construed to limit the discretion of the Company (or the subsidiary that employs the Grantee) to terminate the Grantee's employment at any time, with or without cause.

18. Notices. Any notice, request, instruction or other document given under this Agreement shall be in writing and may be delivered by such method as may be permitted by the Company, and shall be addressed and delivered, in the case of the Company, to the

Secretary of the Company at the principal office of the Company and, in the case of the Grantee, to the Grantee's address as shown in the records of the Company or to such other address as may be designated in writing (or by such other method approved by the Company) by either party.

19. Award Subject to Plan. This Award is subject to the Plan as approved by the shareholders of the Company. In the event of conflict between any term or provision contained herein and a term or provision of the Plan, the applicable terms and provisions of this Agreement will govern and prevail.

20. Severability. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement and each other provision of this Agreement shall be severable and enforceable to the extent permitted by law.

21. Discretionary Nature of Plan; No Vested Rights. The Plan is discretionary in nature and limited in duration, and may be amended, cancelled, or terminated by the Company, in its sole discretion, at any time. The grant of the Award represented by this Agreement is exceptional, voluntary and occasional and does not create any contractual or other right to receive an award or benefit in lieu of an award in the future, even if awards have been granted repeatedly in the past. Future Awards, if any, will be at the sole discretion of the Company, including, but not limited to, the form and timing of an Award, the number of Shares subject to the Award, and the vesting provisions. Any amendment, modification or termination of the Plan shall not constitute a change or impairment of the terms and conditions of the Grantee's employment with the Company.

22. Termination Indemnities. The Grantee's Award and the Shares subject to the Award, and the income and value of the same, are extraordinary items of compensation outside the scope of the Grantee's employment or services contract, if any. As such, the PSUs are not part of normal or expected compensation for purposes of calculating any severance, resignation, termination, redundancy, dismissal, end of service payments, bonuses, long-service awards, pension, or retirement benefits or welfare benefits or similar payments.

23. English Language. The Grantee acknowledges and agrees that it is the Grantee's express intent that the Plan, this Agreement, any addendum and all other documents, notices and legal proceedings entered into, given or instituted pursuant to the Award, be drawn up in English. Unless specifically indicated, if the Grantee has received the Plan, this Agreement, any addendum or any other documents related to the Award translated into a language other than English, and if the meaning of the translated version is different than the English version, the English version shall control.

24. Nature of Grant. In accepting the Award, the Grantee acknowledges, understands and agrees that:

- (i) the Plan is established voluntarily by the Company, it is discretionary in nature, and may be modified, amended, suspended or terminated by the Company at any time, to the extent permitted by the Plan;
- (ii) all decisions with respect to future Awards or other grants, if any, will be at the sole discretion of the Company;
- (iii) the grant of the PSUs and the Grantee's participation in the Plan shall not create a right to employment or be interpreted as forming an employment or service contract with the Company, the Grantee's employer or any Subsidiary, and shall not interfere with the ability of the Company, the Grantee's employer or any Subsidiary, as applicable, to terminate the Grantee's employment or service relationship (if any);
- (iv) the Grantee is voluntarily participating in the Plan;
- (v) the PSUs and any Shares issued under the Plan and the income and value of the same are not intended to replace any pension rights or compensation;
- (vi) the future value of the Shares underlying the PSUs is unknown and indeterminable;
- (vii) unless otherwise agreed with the Company, the Award and the Shares subject to the Award, and the income and value of same, are not granted as consideration for, or in connection with, the service Grantee may provide as a director of a Subsidiary of the Company;
- (viii) no claim or entitlement to compensation or damages shall arise from forfeiture of the PSUs resulting from Separation from Service (for any reason whatsoever, whether or not later found to be invalid or in breach of employment laws in the jurisdiction where the Grantee is employed or the terms of the Grantee's employment agreement, if any), and in consideration of the grant of the PSUs to which the Grantee is otherwise not entitled, the Grantee irrevocably agrees never to institute any claim against the Company, any of its Subsidiaries or the Grantee's employer, waives his ability, if any, to bring any such claim, and releases the Company, its Subsidiaries and the Grantee's employer from any such claim; if, notwithstanding the foregoing, any such claim is allowed by a court of competent jurisdiction, then, by participating in the Plan, the Grantee shall be deemed irrevocably to have agreed not to pursue such claim and agrees to execute any and all documents necessary to request dismissal or withdrawal of such claim; and
- (ix) the Grantee acknowledges and agrees that neither the Company, the Grantee's employer nor any Subsidiary shall be liable for any foreign exchange rate fluctuation between the Grantee's local currency and the United States Dollar that may affect the value of the PSUs or of any amounts due to the Grantee pursuant to the vesting and settlement of the PSU or the subsequent sale of any Shares issued upon settlement.

25. Data Protection. Except if the Grantee resides in the European Union, the European Economic Area or other jurisdiction designated by the Company, in which case the Grantee is subject to the special terms and conditions set forth in the Addendum, the Grantee explicitly and unambiguously consents to the collection, use and transfer, in electronic or other form, of the Grantee's personal data as described in the Agreement and any other PSU grant materials by and among, as applicable, the Grantee, the Company, the Grantee's employer, and the Company's Subsidiaries for the exclusive purpose of implementing, administering and managing the Grantee's participation in the Plan.

The Company and its Subsidiaries, including the Grantee's employer hold certain personal information about the Grantee, including, but not limited to, his or her name, home address, email address and telephone number, date of birth, social security number, passport number or other employee identification number, salary, nationality, job title, any Shares or directorships held in the Company, details of all Awards or any other entitlement to Shares awarded, canceled, purchased, vested, unvested or outstanding in Grantee's favor ("Data"), for the exclusive purpose of managing and administering the Plan.

The Company and its Subsidiaries, including the Grantee's employer, will transfer Data amongst themselves as necessary for the purpose of implementation, administration and management of the Grantee's participation in the Plan, and the Company and its Subsidiaries, including the Grantee's employer, may each further transfer Data to a designated Plan broker, administrative agent or such other stock plan service provider as may be selected by the Company presently or in the future (a "Plan Service Provider"), which may be assisting the Company in the implementation, administration and management of the Plan. These recipients may be located in the Grantee's country or elsewhere throughout the world, such as the United States and any recipient's country (e.g., the United States) may have different data privacy laws and protections than the Grantee's country. The Grantee understands that if he or she resides outside the United States, the Grantee may request a list with the names and addresses of any potential recipients of the Data by contacting the Grantee's local human resources representative. The Grantee hereby authorizes (where required under applicable law) the Company, any Plan Service Provider and any other possible recipients which may assist the Company (presently or in the future) to receive, possess, use, retain and transfer the Data, in electronic or other form, for the sole purpose of implementing, administering and managing the Grantee's participation in the Plan. Furthermore, the Grantee acknowledges and understands that the transfer of the Data to the Company or its Subsidiaries, including the Grantee's employer, to any Plan Service Provider, or to any third parties is necessary for the Grantee's participation in the Plan. The Grantee understands that Data will be held only as long as is necessary to implement, administer and manage the Grantee's participation in the Plan. The Grantee understands that if he or she resides outside the United States, the Grantee may, at any time, view the Data, request additional information about the storage and processing of the Data, require any necessary amendments to the Data or refuse or withdraw the consents herein by contacting the Grantee's local human resources representative in writing. The Grantee understands that he or she is providing the consents herein on a purely voluntary basis. If the Grantee does not consent, or if the Grantee later seeks to revoke his or her consent, the Grantee's employment status or service and career with the Company and its Subsidiaries will not be affected. The only consequence of refusing or

withdrawing the Grantee's consent is that the Company may not be able to grant the Grantee PSUs or other awards or administer or maintain such awards. Therefore, the Grantee acknowledges that withdrawal of consent may affect the Grantee's ability to vest in or realize benefits from the PSUs, and the Grantee's ability to participate in the Plan, in which case neither the Company nor any of its Subsidiaries, including the Grantee's employer, will have any liability or obligation to the Grantee related to this Award. For more information on the consequences of refusal to consent or withdrawal of consent, the Grantee understands that he or she may contact his or her local human resources representative.

Finally, upon request of the Company or the Grantee's employer, the Grantee agrees to provide an executed data privacy consent form (or any other agreements or consents that may be required by the Company and/or the Grantee's employer) that the Company and/or the Grantee's employer may deem necessary to obtain from the Grantee for the purpose of administering the Grantee's participation in the Plan in compliance with the data privacy laws in the Grantee's country, either now or in the future. The Grantee understands and agrees that the Grantee will not be able to participate in the Plan if the Grantee fails to provide any such consent or agreement requested by the Company and/or the Grantee's employer.

26. Private Placement. The grant of the PSUs is not intended to be a public offering of securities in the Grantee's country of residence (and country of employment, if different). The Company has not submitted any registration statement, prospectus or other filings with the local securities authorities (unless otherwise required under local law), and the grant of the PSUs is not subject to the supervision of the local securities authorities.

27. Addendum to Agreement. Notwithstanding any provisions of this Agreement to the contrary, the Award shall be subject to any special terms and conditions for the Grantee's country of residence (and country of employment, if different), as are set forth in the applicable addendum (the "Addendum") as attached to the Agreement. Further, if the Grantee transfers residence and/or employment to another country reflected in an Addendum to the Agreement, the special terms and conditions for such country will apply to the Grantee to the extent the Company determines, in its sole discretion, that the application of such terms is necessary or advisable in order to comply with local laws, rules and regulations or to facilitate operation and administration of the Plan. Any applicable Addendum shall constitute part of this Agreement.

28. No Advice Regarding Grant. The Company is not providing any tax, legal or financial advice, nor is the Company making any recommendations regarding the Grantee's participation in the Plan, or his acquisition or sale of the underlying Shares. The Grantee acknowledges that he should consult with his own personal tax, legal and financial advisors regarding his participation in the Plan before taking any action related to the Plan.

29. Entire Agreement. This Agreement represents the entire understanding and agreement between the parties with respect to the subject matter of this Agreement and supersedes and replaces all previous agreements, arrangements, understandings, rights, obligations and liabilities between the parties in respect of such matters.

30. Execution. By electronically or otherwise accepting this Agreement, the Grantee acknowledges his or her understanding and acceptance of the terms and conditions of the Award. The Company has no obligation to issue the Grantee Shares under this Agreement if the Grantee does not accept the Award. Further, any acceptance of Shares issued pursuant to this Agreement shall constitute the Grantee's acceptance of the Award and the Grantee's agreement with all terms and conditions of the Award, as set forth in the Plan and this Agreement.

31. Insider Trading / Market Abuse Laws. The Grantee acknowledges that, depending on the Grantee's or the Grantee's broker's country of residence or where the Shares are listed, the Grantee may be subject to insider trading and/or market abuse laws, which may affect the Grantee's ability to accept, acquire, sell or otherwise dispose of Shares, rights to shares (e.g., PSUs) or rights linked to the value of shares (e.g., phantom awards, futures) during such times as the Grantee is considered to have "inside information" regarding the Company as defined by the laws or regulations in the Grantee's country. Local insider trading laws and regulations may prohibit the cancellation or amendment of orders the Grantee placed before the Grantee possessed inside information. Furthermore, the Grantee could be prohibited from (i) disclosing the inside information to any third party (other than on a "need to know") and (ii) "tipping" third parties or causing them otherwise to buy or sell securities. The Grantee should keep in mind third parties includes fellow employees. Any restrictions under these laws and regulations are separate from and in addition to any restrictions that that may be imposed under The requirements of these laws may or may not be consistent with the terms of any applicable Company's insider trading policy. The Grantee acknowledges that it is his or her responsibility to be informed of and compliant with any such laws and such Company policies, and is hereby advised to speak to his or her personal legal advisor on this matter.

32. Waiver. The Grantee acknowledges that a waiver by the Company of a breach of any provision of this Agreement shall not operate or be construed as a waiver of any other provision of this Agreement, or of a prior or subsequent breach by the Grantee or any other Grantee.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the ___ day of _____, 2019. By execution of this Agreement the Grantee acknowledges receipt of a copy of the Plan, and agrees to the terms and conditions of the Plan and this Agreement.

NASDAQ, INC.

By: _____
Title:
[EMPLOYEE NAME]

Appendix A

Performance Goals for PSU Grant 2019-2021 Performance Period

This Appendix A to the Agreement sets forth the Performance Goals to be achieved and, depending upon the extent (if any) to which the Performance Goals are achieved, the number of whole and/or partial Shares, if any, which the Grantee shall have the right to receive with respect to each PSU. Capitalized terms not otherwise defined herein shall have the meaning ascribed to them in the Agreement and the Plan.

Certain Definitions

“Closing Price” means the 30-day calendar average closing price of a share of a company’s stock ending on the last trading day of the Performance Period.

“Opening Price” means the 30-day calendar average closing price of a share of a company’s stock ending on the trading day preceding the first day of the Performance Period. The Opening Price shall be adjusted for stock splits and reverse stock splits that occur during the Performance Period.

“Payout Governor” means that regardless of percentile ranking for either Performance Goal, if the Company’s TSR is negative, the Grantee shall be entitled to receive no more than 100% of the PSUs.

“Peer Group” means a group of peer companies consisting of the following global exchanges: ASX Ltd, BM&F Bovespa, Bolsa Mexicana de Valores, Bolsas Y Mercados Espanoles, CBOE Holdings Inc, CME Group Inc, Deutsche Boerse AG, Euronext, Hong Kong Exchange, Intercontinental Exchange, Japan Exchange, London Stock Exchange Group plc, NEX Group plc, Singapore Exchange and TMX Group Inc.

“Price Cap” means that regardless of the actual stock price growth over the Performance Period, the final stock price will be limited to 250% of the grant date price for purposes of calculating the final award of PSUs to the Grantee.

“S&P 500” means the companies constituting the Standard & Poor’s 500 Index as of the beginning of the Performance Period. Any component company of the Standard & Poor’s 500 Index that is acquired, taken private, delisted, liquidated or no longer publicly traded due to filing for bankruptcy protection at any time during the Performance Period will be eliminated from the S&P 500 for the entire Performance Period. There will be no adjustments to the S&P 500 to account for any other changes to the Standard & Poor’s 500 Index during the Performance Period.

“TSR” means the total shareholder return during the Performance Period, which will be calculated as the (i) Closing Price minus Opening Price plus cumulative dividends, *divided by* (ii) Opening Price. No adjustments to TSR shall be made for stock issuances or stock buybacks during the Performance Period. Each company’s TSR shall be calculated in the local currency to eliminate foreign exchange fluctuations.

Goal 1: TSR Performance Relative to the S&P 500

The Performance Goal for 50% of the PSUs shall be the Company’s three-year TSR percentile rank versus the S&P 500.

For this portion of the award, each PSU shall, subject to the vesting provisions set forth in the Agreement and the Payout Governor, entitle the Grantee to receive Shares based on the levels of achievement in the following table.

Table 1: Levels of Achievement

Percentile Rank of the Company’s Three-Year TSR Versus the S&P 500	Resulting Shares Earned (% of Half of Target)
≥85 th Percentile	200%
67.5 th Percentile	150%
50 th Percentile	100%
25 th Percentile	50%
15 th Percentile	30%
0 Percentile	0%

For levels of achievement between points, the resulting Shares earned will be calculated based on straight-line interpolation.

The resulting shares earned will be subject to the 250% Price Cap. If the Nasdaq stock price grows greater than 250% over the Performance Period, the resulting number of shares will be fewer than 200% of target shares. For example: (formulaic resulting shares earned X 250% Price Cap) / (stock price at time of delivery of shares) = resulting actual shares earned.

Goal 2: TSR Performance Relative to a Peer Group

The Performance Goal for 50% of the PSUs shall be the Company’s three-year TSR percentile rank versus the Peer Group. For this portion of the award, each PSU shall, subject to the vesting provisions set forth in the Agreement and the Payout Governor, entitle the Grantee to receive Shares based on the levels of achievement in the following table.

Table 2: Levels of Achievement

Percentile Rank of the Company's Three-Year TSR Versus the Peer Group	Resulting Shares Earned (% of Half of Target)
≥85 th Percentile	200%
67.5 th Percentile	150%
50 th Percentile	100%
25 th Percentile	50%
15 th Percentile	30%
0 Percentile	0%

For levels of achievement between points, the resulting Shares earned will be calculated based on straight-line interpolation.

The resulting shares earned will be subject to the 250% Price Cap. If the Nasdaq stock price grows greater than 250% over the Performance Period, the resulting number of shares will be fewer than 200% of target shares. For example: (formulaic resulting shares earned X 250% Price Cap) / (stock price at time of delivery of shares) = resulting actual shares earned.

Other Terms and Conditions

To the extent consistent with the Code and the Plan, the Committee reserves the right to modify any calculation described in this Appendix A to adjust for unanticipated circumstances or situations, as it deems necessary. All actions taken by the Committee pursuant to this Appendix A shall be final, conclusive and binding upon the Grantee, and all other persons, to the maximum extent permitted by law.



One Liberty Plaza
50th Floor
New York, NY 10006 / USA
Nasdaq.com

April 24, 2019

Lauren Dillard
[Address]

Dear Lauren:

I am pleased to offer you employment with Nasdaq, Inc. ("Nasdaq" or the "Company") in the position of Executive Vice President, Global Information Services. This position will be based out of our One Liberty Plaza, New York office. You will report to Adena Friedman and perform such duties and functions, consistent with your position, as may be assigned to you from time to time. Your employment will begin on or about June 15, 2019 (the "Start Date").

The terms and conditions of your employment are as follows, and are subject to approval by the Nasdaq Management Compensation Committee ("the Committee"):

1. Your base salary will be \$525,000 per annum paid on a bi-weekly basis, in accordance with the Company's regular payroll practices and subject to appropriate withholdings and deductions. You hereby agree to devote substantially all of your business time and attention to your responsibilities at the Company and the affairs of the Company.
2. You will receive a one-time non-deferred Sign-on Cash Bonus equal to \$1,500,000, less applicable taxes and withholdings, payable within ninety days of your commencement date. If you resign your employment with Nasdaq without Good Reason, or Nasdaq terminates your employment for Cause, within one year of your start date you will be required to pay this Sign-on Cash Bonus back to Nasdaq. You agree to repay the total amount due within 60 days of the last date of employment.
3. Starting in 2019 you will be eligible to participate in the Nasdaq Corporate Incentive Program (CIP), subject to the terms and conditions therein. Your target bonus opportunity will be 150% of your base salary, or \$787,500, payable during the normal award payment timeframe (expected March of each year). Your 2019 CIP payout will not be prorated based on your start date and will be guaranteed at no less than \$787,500, with a maximum opportunity will be \$1,575,000, contingent on your continued employment. Any upside beyond target will be based on corporate financial, business unit and individual performance results.

After 2019, the level of actual payout could range from 0%-200% of your total target bonus opportunity, and will be based upon corporate financial, business unit and individual performance results.

The CIP is a discretionary program that may be modified, suspended or discontinued at any time with or without notice at the discretion of management and the Board. In addition, your participation in the CIP does not guarantee participation or receipt of any payout in any future years. Furthermore, your participation does not create any contractual or other right to participate in the CIP or to receive any payout, even if you had participated in the CIP or received payouts repeatedly.

4. On or around April 1, 2020 and April 1, 2021, you will receive a minimum annual equity grant value of \$1,500,000, contingent upon continued employment, which will be comprised of 100% three-year Performance Share Units (PSUs), subject to the approval of the Management Compensation Committee. The three year PSUs shall vest 100% after 3 years from grant date. The program detail and vesting schedule is outlined in the Executive Vice President Long Term Incentive Plan Brochure, enclosed with this letter. The equity grants are subject to your continued employment and satisfactory performance with the Company and subject to applicable Company approvals pursuant to the Plan.

Beginning in 2022, you will be eligible to receive further equity grants subject to the terms and conditions of the Equity Plan in effect at the time of the grant.

5. You will also be eligible to receive a one-time welcome equity grant of \$5,000,000, which will be comprised of 50% PSUs and 50% Restricted Share Units (RSUs), subject to the approval of the Management Compensation Committee. The PSUs shall vest 100% in or around January 2022 after the 3-year performance cycle valuation. The RSUs shall vest 70% one year after the grant date and 30% two years after the grant date. Such vesting shall occur unless you voluntarily resign without Good Reason or are terminated for Cause before each such vesting date. These equity awards are subject to the approval of the Management Compensation Committee. Your welcome equity grant will be awarded in or around June 2019. The equity grant will be based on the closing stock price on the date the Committee approves the grant.
6. As a full-time employee, you will be eligible to participate in Nasdaq's employee benefit programs generally available to similarly situated Company employees, as may be in effect from time to time at the Company, subject to the terms and conditions of the relevant plans. If you elect health and welfare benefits during your initial enrollment period, they will become effective the first day of the month following employment. In addition, you will be eligible for four weeks of vacation per calendar year.
7. As an Executive Vice President (EVP) of the Company, you will be eligible to participate in the Company's executive benefits, including executive health exams and financial planning services. These programs are provided to you 100% company-paid; you are responsible for the taxes if you use the financial planning benefit.
8. This offer is subject to a satisfactory completion of a background check (including, but not limited to fingerprint check and drug test), as applicable to your location jurisdiction and as evaluated by the Company in its sole discretion. It is recommended that you not resign from, or give notice to, your current employer until you have been notified that you have successfully cleared the background check. In addition, this offer is contingent upon you providing satisfactory proof of identity and legal authority to work in the United States.
9. If the Company terminates your employment, other than for Cause, or if you voluntarily resign for Good Reason, you will be entitled to severance pay, which will be no less than 1.5x salary

plus target bonus plus 12 months of health insurance coverage at the active employee rate. Additionally, your unvested equity at the time of termination of employment will continue to vest for an additional 18 months after termination. If the termination occurs prior to the full vesting of your one-time welcome equity grant, 100% of the welcome equity grant vesting will be accelerated upon termination; PSUs will vest at target performance. Per the Nasdaq, Inc. Equity Incentive Plan, the Management Compensation Committee of the Board of Directors shall have the authority to determine any additional vesting continuation or acceleration upon termination of employment.

10. Definitions of "Cause" and "Good Reason"

- a) "Cause" means (i) your conviction of, or pleading *nolo contendere* to, any crime, whether a felony or misdemeanor, involving the purchase or sale of any security, mail or wire fraud, theft, embezzlement, moral turpitude, or Nasdaq or its affiliates' property (with the exception of minor traffic violations or similar misdemeanors); (ii) your repeated neglect of duties; or (iii) your willful misconduct in connection with the performance of duties.
- b) "Good Reason" shall mean (i) reducing your position, duties, or authority; or (ii) relocating your principal work location beyond a 50 mile radius of your work location; provided that no event or condition shall constitute Good Reason unless
 - (A) you give written notice specifying your objection to such event or condition within 90 days following the occurrence of such event or condition, (B) such event or condition is not corrected, in all material respects, in a manner that is reasonably satisfactory to you within 30 days following the receipt of such notice, and (C) you resign from your employment within not more than 30 days following the expiration of the 30-day period described in the foregoing clause (B)

11. If you are terminated by the Company, other than for Cause, or for Good Reason (as those terms are defined in the Change in Control Severance Plan in effect at that time) within two years following a change-in-control, you will be entitled to severance pay under the EVP Change in Control Severance Plan, which equates to no less than 2x salary plus 1 times target bonus plus prorated current year bonus plus 12 months of health insurance coverage at the active employee rate. Any unvested equity (including PSUs and RSUs) will vest upon termination, subject to the rules in the Nasdaq Equity Incentive Plan; termination for Good Reason (as defined by the Change in Control Severance Plan) will be considered an Involuntary Termination for purposes of equity vesting.

12. If your employment terminates upon Death or Permanent Disability, 100% of the one-time welcome equity grant vesting will be accelerated upon separation. Any other benefits, if any, shall be determined in accordance with the plans, policies and practices of the Company.

- a) "Permanent Disability" means either (i) the inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or can be expected to last for a continuous period of not less than 12 months or (ii) you are, by reason of any medically determinable physical or mental impairment that can be expected to result in death or can be expected to last for a continuous period of not less than 12 months, receiving income replacement benefits for a period of not less than three months under an accident and health plan covering employees of the Company. You shall be deemed Permanently Disabled if you are is determined to be (i) totally disabled by the Social Security Administration or (ii) disabled in accordance with a

disability insurance program, provided such definition of disabled under the program complies with the definition of Permanent Disability hereunder. Otherwise, such Permanent Disability shall be certified by a physician chosen by the Company and reasonably acceptable to you (unless you are then legally incapacitated, in which case such physician shall be reasonably acceptable to your authorized legal representative).

13. As a condition of employment with the Company, you are required to execute the Company's Continuing Obligations Agreement attached hereto as **Appendix A** (the "Continuing Obligations Agreement"). Kindly review and execute the Continuing Obligations Agreement and return it with your signed copy of this letter.
14. The Company maintains and from time to time modifies and implements various Company policies and procedures including, but not limited to, a Company Employee Handbook and Nasdaq's Code of Ethics and Global Trading Policy. The Code, Trading Policy and Prohibited Company List are attached hereto as **Appendix B**. You will be expected to comply with all such policies and procedures.
15. By signing below, to the best of your knowledge you also represent and warrant that you are not subject to any contract, agreement, or restrictive covenant of any kind that would prevent you from accepting employment with the Company and/or beginning work for the Company, or from freely and fully performing your duties hereunder. You further promise that should you become aware of any reason you cannot join or remain employed by the Company, or fully execute your responsibilities for the Company, you will immediately notify the Company of such development, in writing. Similarly, if you receive any communication from a former employer or any other person or entity claiming you cannot join or continue employment at the Company, you will immediately notify the Company in writing. You also represent that you will abide by all contractual obligations you may have to all prior employers and that you will not retain, review, or utilize any other person's or entity's confidential or proprietary information in connection with your work for the Company or share or disclose such information to any other person or entity. Finally, prior to and during the course of your entire employment with the Company, you agree that you will immediately notify the Company if you are detained or arrested by any law enforcement agency, regardless of the severity of the charges, as soon as possible after such action (this will not necessarily disqualify you from employment).
16. This offer of employment, with all referenced attachments, constitutes the entire offer, superseding any prior offers, understandings, communications, representations and/or agreements with respect to the subject matter hereof. This offer of employment shall be governed by the laws of the State of New York without giving effect to the principles of conflicts of law.

Your employment will be on an "at-will" basis meaning that either you or the Company may terminate your employment at any time and for any reason, with or without cause or prior notice. The Company also reserves the right to modify the terms, benefits, and conditions of your employment at any time.

You are required to disclose to us any agreements that may affect your eligibility to be employed by Nasdaq, its affiliates or subsidiaries, or that may limit the manner in which you may be employed. If nothing is disclosed, we will proceed on the belief that no such agreements exist and nothing will prevent you from performing the duties of your position.

You agree not to bring any third party confidential information to Nasdaq, its affiliates or subsidiaries, including that of any former employer, and that in performing your duties you will

not in any way utilize any such information. You further agree that, during the term of your employment, you will not engage in any other employment, occupation, consulting or other business activity directly related to the business in which we are now involved or become involved during the term of your employment, nor will you engage in any other activities that conflict with your obligations to us, consistent with the Company's Global Code of Ethics.

In the event the Company withdraws from or terminates this Agreement (other than for reasons that would constitute Cause) after you resigned from your current employer and before your Start Date, you shall be deemed to have commenced employment with the Company and to have been terminated without Cause.

Lauren, we look forward to your joining the Company. Please do not hesitate to contact me if you have any questions. To accept this offer of employment, please sign below and return by April 26, 2019.

Sincerely,



Bryan E. Smith
Senior Vice President, Chief People Officer

I hereby accept the terms of the offer described above for employment with Nasdaq, Inc.

Lauren B. Dillard 4/30/2019

Name Date

Enclosures:

Appendix A - Continuing Obligations Agreement

Appendix B-Global Code of Ethics, Global Trading Policy, and Prohibited Company List

CERTIFICATION

I, Adena T. Friedman, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Nasdaq, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ Adena T. Friedman

Name: Adena T. Friedman

Title: President and Chief Executive Officer

Date: August 5, 2019

CERTIFICATION

I, Michael Ptasznik, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Nasdaq, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ Michael Ptasznik

Name: Michael Ptasznik
 Title: Executive Vice President, Accounting and Corporate Strategy and Chief Financial Officer

Date: August 5, 2019

**Certification of CEO and CFO Pursuant to
18 U.S.C. Section 1350
as Adopted Pursuant to
Section 906 of the Sarbanes-Oxley Act of 2002**

In connection with the Quarterly Report on Form 10-Q of Nasdaq, Inc. (the "Company") for the period ended June 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Adena T. Friedman, as President and Chief Executive Officer of the Company, and Michael Ptasznik, as Executive Vice President, Accounting and Corporate Strategy and Chief Financial Officer of the Company, each hereby certifies, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to the best of her or his knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of the operations of the Company.

/s/ Adena T. Friedman

Name: Adena T. Friedman
Title: President and Chief Executive Officer
Date: August 5, 2019

/s/ Michael Ptasznik

Name: Michael Ptasznik
Title: Executive Vice President, Accounting and Corporate
Strategy and Chief Financial Officer
Date: August 5, 2019

This certification accompanies the Report pursuant to § 906 of the Sarbanes-Oxley Act of 2002 and shall not, except to the extent required by the Sarbanes-Oxley Act of 2002, be deemed filed by the Company for purposes of § 18 of the Securities Exchange Act of 1934, as amended.