NASDAQ, INC.
Form 10-Q
August 02, 2017

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, 2017

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: 000-32651

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.)
One Liberty Plaza, New York, New York	10006
(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)

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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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 and post 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		Accelerated filer
Non-accelerated filer	(Do not check if a smaller reporting company)	Smaller reporting company

Emerging growth company
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.

Class	Outstanding at July 27, 2017
Common Stock, $.01 par value per share	166,796,254 shares

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Nasdaq, Inc.
Form 10-Q
For the Quarterly Period Ended June 30, 2017

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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 ISE" refers to the options exchange operated by International Securities Exchange, 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.

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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
2016 Credit Facility: $400 million senior unsecured term loan facility which matures on November 25, 2019
2017 Credit Facility: $1 billion senior unsecured term loan facility which matures on April 25, 2022
2020 Notes: $600 million aggregate principal amount of 5.55% senior unsecured notes due January 15, 2020
2021 Notes: €600 million aggregate principal amount of 3.875% senior unsecured notes due June 7, 2021
2023 Notes: €600 million aggregate principal amount of 1.75% senior unsecured notes due May 19, 2023
2024 Notes: $500 million aggregate principal amount of 4.25% senior unsecured notes due June 1, 2024
2026 Notes: $500 million aggregate principal amount of 3.85% senior unsecured notes due June 30, 2026
ASU: Accounting Standards Update
CCP: Central Counterparty
EMIR: European Market Infrastructure Regulation
Equity Plan: Nasdaq Equity Incentive Plan
ESPP: Nasdaq Employee Stock Purchase Plan
ETP: Exchange Traded Product

Exchange Act: Securities Exchange Act of 1934, as amended
FASB: Financial Accounting Standards Board
FICC: Fixed Income and Commodities Trading and Clearing
FINRA: Financial Industry Regulatory Authority
IPO: Initial Public Offering
ISE: U.S. Exchange Holdings, Inc. and its subsidiaries
LIBOR: London Interbank Offered Rate
MTF: Multilateral Trading Facility
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

SEC: U.S. Securities and Exchange Commission
SERP: Supplemental Executive Retirement Plan
SFSA: Swedish Financial Supervisory Authority
SMARTS: SMARTS Group Holdings Pty

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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
* * * * * *
The following is a non-exclusive list of registered trademarks, registered service marks, or trademarks or service marks of Nasdaq or its subsidiaries, in the United States and/or other countries or jurisdictions:

@TRADE®, ACES®, AT TRADE®, AT-TRADE®, AGGREGATION, TRANSPARENCY, CONTROL®, AUTO WORKUP®, AXE®, BOARDVANTAGE, BWISE®, BWISE BUSINESS IN CONTROL®, BWISE RAPID DEPLOYMENT SOLUTION®, BX VENTURE MARKET®, CANADIAN DIVIDEND ACHIEVERS®, CCBN®, CCN®, CCN NEWSNET DESIGN, CCNMATTHEWS®, CLICK XT®, CONDICO®, CYBER SECURITY®, D.A.L.I®, DEFENSE OF INTERNATIONAL MARKETS AND EXCHANGES SYMPOSIUM®, DIMES®, DIRECTORS DESK®, DIRECTORSDESK®, DIVIDEND ACHIEVERS®, DORSEY WRIGHT®, DREAM IT. DO IT.®, DWA®, DWA MATRIX®, EQQQ, E (design), E-SPEED®, ESPEED®, ESPEEDOMETER®, EXACTEQUITY®, EXIGO, FINQLOUD®, FINQLOUD REGULATORY RECORDS RETENTION® FIRST NORTH®, FONDSBØRSEN®, FTEN®, GENIUM®, GIDS®, GLOBE NEWSWIRE®, GO! POWERED BY MARKETWIRE®, HACK®, IGNITE YOUR AMBITION®, INET®, INTERNATIONAL SECURITIES EXCHANGE®, INVESTOR WORLD®, IPOWORLD®, ISE, ISE BIG DATA®, ISE BLACK SWAN®, ISE FX OPTIONS®, ISE GEMINI®, ISE MOBILE PAYMENTS®, ISEE SELECT®, ISSUERWORLD®, ITCH®, KFXAKTIEINDEX®, LONGITUDE®, MARKET INTELLIGENCE DESK®, MARKET LINQUIDITY, MARKET MECHANICS®, MARKETSITE®, MARKETWIRE®, MARKETWIRE BEYOND WORDS®, MARKETWIRE RESONATE®, MARKETWIRE GO! ®, MARKETWIRED RESONATE®, MARKETWIRED®, MW®, MW MARKET WIRED®, MW MARKETWIRED THE POWER OF INFLUENCE®, MY CCBN®, MYMEDIAINFO®, NAREX®, NASDAQ®, NASDAQ 100 INDEX®, NASDAQ - FINANCIAL®, NASDAQ BIOTECHNOLOGY INDEX®, NASDAQ CANADA®, NASDAQ CANADA COMPOSITE INDEX®, NASDAQ CANADA INDEX®, NASDAQ CAPITAL MARKET®, NASDAQ COMPOSITE®, NASDAQ COMPOSITE INDEX®, NASDAQ COMPUTER INDEX®, NASDAQ DIVIDEND ACHIEVERS®, NASDAQ DUBAI®, NASDAQ DUBAI ACADEMY®, NASDAQ EUROPE®, NASDAQ EUROPE COMPOSITE INDEX®, NASDAQ FINANCIAL-100 INDEX®, NASDAQ FUTURES®, NASDAQ FX®, NASDAQ GLOBAL MARKET®, NASDAQ GLOBAL SELECT MARKET®, NASDAQ INDUSTRIAL INDEX®, NASDAQ INTERACT®, NASDAQ INTERNET INDEX®, NASDAQ IQ FUND®, NASDAQ IR INSIGHT®, NASDAQ JAPAN®, NASDAQ MARKET ANALYTIX®, NASDAQ MARKET CENTER®, NASDAQ MARKET FORCES®, NASDAQ MARKET VELOCITY®, NASDAQ MARKETSITE®, NASDAQ MAX®, NASDAQ MAX MARKET ANALYTIX®, NASDAQ OMX®, NASDAQ OMX ALPHA INDEXES®, NASDAQ OMX GREEN ECONOMY INDEX®, NASDAQ OMX NORDIC®, NASDAQ PRIVATE MARKET®, NASDAQ Q-50 INDEX®, NASDAQ TELECOMMUNICATIONS INDEX®, NASDAQ TOTALVIEW®, NASDAQ TRADER®, NASDAQ TRANSPORTATION INDEX®, NASDAQ US ALL MARKET®, NASDAQ WORKSTATION®, NASDAQ WORKSTATION II®, NASDAQ WORLD®, NASDAQ-100®, NASDAQ-100 EUROPEANFUND®, NASDAQ-100 EUROPEAN TRACKER®, NASDAQ-100 EUROPEAN TRACKER FUND®, NASDAQ-100 INDEX®, NASDAQ-100 INDEX EUROPEAN TRACKER FUND®, NASDAQ-100 INDEX TRACKING STOCK®, NDX®, NEWS RELEASE EXPRESS®, NFX®, NFX WORLD CURRENCY FUTURES®, NLX®, NOIS®, NORDIX®, NPM®, OMX®, OMX COPENHAGEN 20®, OMX HELSINKI 25®, OMX STIBOR FUTURE®, OMX STOCKHOLM 30®, OMX TECHNOLOGY®, OMXC25®, OMXH25®, OMXS30®, OMXS3FUT®, ON THE WIRE®, OTW®, OVERUNDER®, PHILADELPHIA STOCK EXCHANGE®, PHLX®, PHLX XL®, PIXL®, PRECISE TRADE®, PRF®, Q THE NEXT GREAT THING®, QQQ®, QTARGET®,

QVIEW®, R3®, RISKWAY®, RISKWRAPPER®, RISKXPOSURE®, RX®, S.A.X.E.S®, SECONDMARKET®, SIGNALXPRESS SX®, SMARTS®, SMARTSONLINE®, STINA®, STRUCTURED LIQUIDITY PROGRAM®, THE NASDAQ STOCK MARKET®, THE STOCK MARKET FOR THE NEXT 100 YEARS®, TOTAL EQUITY SOLUTION®, TRADEGUARD®, TX®, ULL®, ULTRA LOW LATENCY®, ULTRAFEED®, VX PROXY®, WIZER®, XDE®, XO DORSEY WRIGHT & ASSOCIATES®, YFIRUNDIR®, YLIALLE®, ÖVERUNDER®

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All other trademarks and service marks used herein are the property of their respective owners.

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 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 this Quarterly Report on Form 10-Q for the quarter ended June 30, 2017, the “Risk Factors” section in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 that was filed with the SEC on May 10, 2017, and the “Risk Factors” section in our Annual Report on Form 10-K for the fiscal year ended December 31, 2016 that was filed with the SEC on March 1, 2017.

* * * * * *

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. These disclosures will be included on Nasdaq’s website under “Investor Relations.”

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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," " "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 2017 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 return 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.

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, including the fact that such integration may be more difficult, time consuming or costly than expected, and our ability to realize synergies from business combinations and acquisitions;
- loss of significant trading and clearing volumes or values, fees, market share, listed companies, data products customers or other customers;
- 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;
- 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.

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 discussed under the caption "Part II. Item 1A. Risk Factors," in this Quarterly Report on Form 10-Q for the quarter ended June 30, 2017, our Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 that was filed with the SEC on May 10, 2017, and more fully described in the "Risk Factors" section in our Annual Report on Form 10-K for the fiscal year ended December 31, 2016 that was filed with the SEC on March 1, 2017. 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 1. 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.

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

	June 30, 2017 (unaudited)	December 31, 2016
Assets		
Current assets:		
Cash and cash equivalents	$ 356	$ 403
Restricted cash	18	15
Financial investments, at fair value	300	245
Receivables, net	392	429
Default funds and margin deposits	3,671	3,301
Other current assets	184	167
Total current assets	4,921	4,560
Property and equipment, net	384	362
Deferred tax assets	633	717
Goodwill	6,237	6,027
Intangible assets, net	2,102	2,094
Other non-current assets	383	390
Total assets	$ 14,660	$ 14,150
Liabilities		
Current liabilities:		
Accounts payable and accrued expenses	$ 149	$ 175
Section 31 fees payable to SEC	169	108
Accrued personnel costs	124	207
Deferred revenue	265	162
Other current liabilities	115	129
Default funds and margin deposits	3,671	3,301
Short-term debt	494	—
Total current liabilities	4,987	4,082
Long-term debt	3,058	3,603
Deferred tax liabilities	732	720
Non-current deferred revenue	161	171
Other non-current liabilities	146	144
Total liabilities	9,084	8,720
Commitments and contingencies		
Equity		
Nasdaq stockholders' equity:		
Common stock, $0.01 par value, 300,000,000 shares authorized, shares issued: 171,027,324 at June 30, 2017 and 170,501,186 at December 31, 2016; shares outstanding: 166,392,912 at June 30, 2017 and 166,579,468 at December 31, 2016	2	2
Additional paid-in capital	3,011	3,104
	(225)	(176)

Common stock in treasury, at cost: 4,634,412 shares at June 30, 2017 and 3,921,718 shares at December 31, 2016		
Accumulated other comprehensive loss	(892)	(979)
Retained earnings	3,680	3,479
Total Nasdaq stockholders’ equity	5,576	5,430
Total liabilities and equity	$ 14,660	$ 14,150

See accompanying notes to condensed consolidated financial statements.

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2017	2016	2017	2016
Revenues:				
Market Services	$620	$532	$1,226	$1,104
Corporate Services	164	162	325	305
Information Services	144	134	282	268
Market Technology	72	69	138	126
Total revenues	1,000	897	1,971	1,803
Transaction-based expenses:				
Transaction rebates	(304)	(256)	(606)	(541)
Brokerage, clearance and exchange fees	(94)	(82)	(180)	(169)
Revenues less transaction-based expenses	602	559	1,185	1,093
Operating expenses:				
Compensation and benefits	163	164	324	316
Professional and contract services	38	35	74	70
Computer operations and data communications	30	27	60	52
Occupancy	23	19	46	39
General, administrative and other	30	17	49	32
Marketing and advertising	8	8	15	14
Depreciation and amortization	47	41	92	79
Regulatory	8	6	16	13
Merger and strategic initiatives	11	35	17	44
Restructuring charges	—	33	—	41
Total operating expenses	358	385	693	700
Operating income	244	174	492	393
Interest income	2	1	4	2
Interest expense	(36)	(32)	(73)	(60)
Other investment income	1	2	2	3
Net income from unconsolidated investees	2	1	6	3
Income before income taxes	213	146	431	341
Income tax provision	66	76	114	139
Net income attributable to Nasdaq	$147	$70	$317	$202
Per share information:				
Basic earnings per share	$0.89	$0.42	$1.91	$1.23
Diluted earnings per share	$0.87	$0.42	$1.87	$1.20
Cash dividends declared per common share	$0.38	$—	$0.70	$0.57

See accompanying notes to condensed consolidated financial statements.

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2017	2016	2017	2016
Net income	$147	$70	$317	$202
Other comprehensive income (loss):				
Foreign currency translation gains (losses):				
Net foreign currency translation gains (losses)	124	(127)	166	11
Income tax benefit (expense)	(29)	37	(79)	(7)
Total other comprehensive income (loss), net of tax	95	(90)	87	4
Comprehensive income (loss) attributable to Nasdaq	$242	$(20)	$404	$206

See accompanying notes to condensed consolidated financial statements.

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

	Six Months Ended June 30,	
	2017	2016
Cash flows from operating activities:		
Net income	$317	$202
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	92	79
Share-based compensation	34	35
Deferred income taxes	8	(7)
Non-cash restructuring charges	—	8
Net income from unconsolidated investees	(6)	(3)
Other reconciling items included in net income	21	4
Net change in operating assets and liabilities, net of effects of acquisitions:		
Receivables, net	34	(6)
Other assets	22	15
Accounts payable and accrued expenses	(34)	5
Section 31 fees payable to SEC	61	57
Accrued personnel costs	(87)	(53)
Deferred revenue	76	111
Other liabilities	(24)	(18)
Net cash provided by operating activities	514	429
Cash flows from investing activities:		
Purchases of trading securities	(234)	(245)
Proceeds from sales and redemptions of trading securities	201	194
Purchases of available-for-sale investment securities	(12)	(8)
Proceeds from maturities of available-for-sale investment securities	6	7
Acquisition of businesses, net of cash and cash equivalents acquired	—	(1,460)
Purchases of property and equipment	(64)	(51)
Other investment activities	(1)	(10)
Net cash used in investing activities	(104)	(1,573)
Cash flows from financing activities:		
Proceeds from commercial paper, net	494	—
Repayments of long-term debt	(670)	(1,033)
Payment of debt extinguishment cost	(9)	—
Proceeds from utilization of credit commitment, net of debt issuance costs	10	833
Proceeds from issuances of senior unsecured notes and term loan facility	—	1,558
Cash paid for repurchase of common stock	(156)	(45)
Cash dividends	(116)	(94)
Proceeds received from employee stock activity	30	28
Payments related to employee shares withheld for taxes	(49)	(57)
Proceeds (disbursements) of customer funds	2	(38)
Net cash (used in) provided by financing activities	(464)	1,152

Effect of exchange rate changes on cash and cash equivalents and restricted cash	10	1
Net increase (decrease) in cash and cash equivalents and restricted cash	(44)	9
Cash and cash equivalents and restricted cash at beginning of period	418	357
Cash and cash equivalents and restricted cash at end of period	$374	$366
Supplemental Disclosure Cash Flow Information		
Cash paid for:		
Interest	$97	$67
Income taxes, net of refund	$59	$127

See accompanying notes to condensed consolidated financial statements.

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Nasdaq, Inc.
Notes to Condensed Consolidated Financial Statements (unaudited)
1. Organization and Nature of Operations
Nasdaq, Inc. is a leading provider of trading, clearing, exchange technology, regulatory, securities listing, information and public company services. Our global offerings are diverse and include trading and clearing across multiple asset classes, trade management services, data products, financial indexes, capital formation solutions, corporate solutions, and market technology products and services. Our technology powers markets across the globe, supporting equity derivative trading, clearing and settlement, cash equity trading, fixed income trading and many other functions.
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 energy derivatives market which offers cash settled energy derivatives based on key energy benchmarks including oil, natural gas and U.S. power. In addition, we also operate three Canadian markets for the trading of 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. 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 and depository receipts, warrants, convertibles, rights, fund units and exchange traded funds as well as trading and clearing of derivatives and clearing of resale and repurchase agreements.
Nasdaq Commodities is the brand name for Nasdaq's worldwide suite of commodity-related products and services. Nasdaq Commodities' offerings include oil, power, natural gas

and carbon emission markets, tanker and dry cargo freight, seafood derivatives, iron ore, electricity certificates and clearing services. The 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, DROP functionality and connectivity to various data feeds. We also provide co-location services to market participants, whereby firms may lease cabinet space and power to house their own equipment and servers within our data centers. Our broker services operations offer technology and customized securities administration solutions to financial participants in the Nordic market.
Corporate Services
Our Corporate Services segment includes our Corporate Solutions and Listing Services businesses.
Our Corporate Solutions business serves corporate clients, including companies listed on our exchanges and private companies. We help organizations manage the two-way flow of information with their key constituents, including their board members and investors, and with clients and the public through our suite of advanced technology, analytics, and consultative services. Our Corporate Solutions business primarily offers products to serve the following key areas: IR intelligence, public relations, board and leadership, and digital media services.
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 services for private companies.

As of June 30, 2017, there were 2,912 total listings on The Nasdaq Stock Market, including 345 separately listed ETPs. The combined market capitalization was approximately $10.1 trillion. In Europe, the Nasdaq Nordic and Nasdaq Baltic exchanges, together with Nasdaq First North, were home to 945 listed companies with a combined market capitalization of approximately $1.5 trillion.

Information Services

Our Information Services segment includes our Data Products and our Index Licensing and Services businesses. Our Data Products business sells and distributes historical and real-time quote and trade information to market participants and data distributors. Our data products enhance transparency of the market activity within the exchanges that we operate and

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provide critical information to professional and non-professional investors globally.

Our Index Licensing and Services 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, 2017, we had 316 ETPs licensed to Nasdaq's indexes which had $147 billion of assets under management.

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 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 90 marketplaces in 50 countries. Market Technology also provides market surveillance services to broker-dealer firms worldwide, as well as enterprise governance, risk management and compliance software 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 6, "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 for the interim periods presented. 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 Annual Report on Form 10-K for the fiscal year ended December 31, 2016.

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.

Tax Matters

We use the asset and liability method to determine income taxes on all transactions recorded in the condensed consolidated financial statements. Deferred tax assets and liabilities are determined based on differences between the financial statement carrying amounts and the tax basis of existing assets and liabilities (i.e., temporary differences) and are measured at the enacted rates that will be in effect when these differences are realized. If necessary, a valuation allowance is established to reduce deferred tax assets to the amount that is more likely than not to be realized.

In order to recognize and measure our unrecognized tax benefits, management determines whether a tax position is more likely than not to be sustained upon examination, including resolution of any related appeals or litigation processes, based on the technical merits of the position. Once it is determined that a position meets the recognition thresholds, the position is measured to determine the amount of benefit to be recognized in the condensed consolidated financial statements. Interest and/or penalties related to income tax matters are recognized in income tax expense.

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

	Three Months Ended June 30,		Percentage Change
	2017	2016	
	($ in millions)		
Income tax provision	$66	$76	(13.2)%
Effective tax rate	31.0 %	52.1 %	

	Six Months Ended June 30, ($ in millions)		
	2017	2016	Percentage Change
Income tax provision	$114	$139	(18.0)%
Effective tax rate	26.5 %	40.8 %	

The lower income tax provision and effective tax rate in the second quarter and first six months of 2017 when compared with the same periods in 2016 is primarily due to the recognition of excess tax benefits associated with the vesting of employee share-based compensation arrangements. See “Recently Adopted Accounting Pronouncements” below for further

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discussion. In addition, in the second quarter of 2017, we recognized previously unrecognized tax benefits associated with positions taken in prior years which also contributed to the lower income tax provision and effective tax rate in both periods. Furthermore, in the second quarter of 2016, we received an unfavorable ruling from the Finnish Supreme Administrative Court which resulted in an increase to tax expense. The lower income tax provision in the second quarter and first six months of 2017 is partially offset by an increase in income tax expense associated with the increase in income before taxes in the second quarter and first six months of 2017.

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 the history of pre-tax earnings and losses, are taken into account in assessing the ability to realize deferred tax assets.

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 2011 through 2016 are subject to examination by the Internal Revenue Service. Several state tax returns are currently under examination by the respective tax authorities for the years 2005 through 2014 and we are subject to examination for the years 2015 and 2016. Non-U.S. tax returns are subject to examination by the respective tax authorities for the years 2008 through 2016. 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. Based on new information which became available to us in the second quarter of 2017, we recognized $4 million in previously unrecognized tax benefits associated with positions taken in prior years. In addition, we anticipate that the amount of unrecognized tax benefits at June 30, 2017 will significantly decrease in the next twelve months as we expect to settle certain tax audits.

From 2009 through 2012, we recorded tax benefits associated with certain interest expense incurred in Sweden. Our position is supported by a 2011 ruling we received from the Swedish Supreme Administrative Court. However, under new legislation effective January 1, 2013, limitations are imposed on certain forms of interest expense. Because this legislation is unclear with regard to our ability to continue to claim such interest deductions, Nasdaq filed an application for an advance tax ruling with the Swedish Council for Advance Tax Rulings. In June 2014, we received an unfavorable ruling from the Swedish Council for Advance Tax Rulings. We appealed this ruling to the Swedish Supreme Administrative Court; however the Swedish Supreme Administrative Court denied our request for a ruling based on procedural requirements. We have received notices from the Swedish Tax Agency that interest deductions for the years 2013 through 2015 have been disallowed. We have appealed to the Swedish Lower Administrative Court and continue to expect a favorable decision. Since January 1, 2013, we have recorded tax benefits of $53 million associated with this matter. We continue to pay all assessments from the Swedish Tax Agency while this matter is pending. If the Swedish Courts agree with our position we will receive a refund of all paid assessments; if the Swedish Courts disagree with our position, we will record tax expense of $44 million, or $0.26 per diluted share, which is gross of any related U.S. tax benefits and reflects the impact of foreign currency translation. We expect to record recurring quarterly tax benefits of $1 million to $2 million with respect to this matter for the foreseeable future.

Although no new U.S. tax legislation has been enacted, we are currently assessing the impact various tax reform proposals will have on our condensed consolidated financial statements.

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Recently Adopted Accounting Pronouncements

Accounting Standard	Description	Effective Date	Effect on the Financial Statements or Other Significant Matters
Compensation - Stock Compensation In March 2016, the FASB issued ASU 2016-09, “Improvements to Employee Share-Based Payment Accounting.”	This ASU involves several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. This guidance requires all income tax effects of awards to be recognized as income tax expense or benefit in the income statement when the awards vest or are settled, as opposed to additional paid-in-capital where it was previously recorded. This guidance impacts the calculation of our total diluted share count for the earnings per share calculation, as calculated under the treasury stock method. It also allows an employer to repurchase more of an employee’s shares for tax withholding purposes without triggering liability accounting. All tax-related cash flows resulting from share-based payments are reported as operating activities on the statement of cash flows. In regards to forfeitures, a policy election is required to either estimate the number of awards that are expected to vest or account for forfeitures as they occur.	We adopted this new standard on January 1, 2017 on a prospective basis for the impacts on the accounting for income taxes and the effect on earnings per share. We have adopted the changes in cash flow statement classification retrospectively.	The adoption resulted in the recognition of excess tax benefit in our provision for income taxes rather than additional paid-in capital, which was immaterial for the three months ended June 30, 2017 and was $23 million for the six months ended June 30, 2017.
Compensation - Stock Compensation In May 2017, the FASB issued ASU 2017-09, “Scope of Modification Accounting.”	This ASU clarifies when changes to the terms or conditions of a share-based payment award must be accounted for as modifications. Under the new guidance, modification accounting is required only if the fair value, the vesting conditions, or the classification of the award (as equity or liability) changes as a result of the change in terms or conditions.	We adopted this new standard on June 30, 2017 on a prospective basis.	We do not anticipate a material impact on our consolidated financial statements as a result of adopting this standard.

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Recently Issued Accounting Pronouncements

Accounting Standard	Description	Effective Date	Effect on the Financial Statements or Other Significant Matters
Business Combination In January 2017, the FASB issued ASU 2017-01, "Clarifying the Definition of a Business."	This ASU clarifies the definition of a business with the objective of adding guidance to assist companies with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. The new guidance is expected to reduce the number of transactions that need to be further evaluated as businesses. Early adoption is permitted for certain types of transactions.	January 1, 2018, with early adoption permitted.	This new standard is required to be applied prospectively and therefore, may impact how we account for future acquisitions.
Goodwill In January 2017, the FASB issued ASU 2017-04, "Simplifying the Test for Goodwill Impairment."	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. Early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017.	January 1, 2020, with early adoption as of January 1, 2017 permitted.	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. Therefore, the second step of the goodwill impairment test was not required. 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.
Financial Instruments - Credit Losses In June 2016, the FASB issued ASU 2016-13, "Measurement of Credit Losses on Financial Instruments."	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.	January 1, 2020, with early adoption as of January 1, 2019 permitted.	We are currently assessing the impact that this standard will have on our consolidated financial statements.
Leases	Under this ASU, at the commencement date, lessees will be required to recognize a lease	January 1, 2019, with	We are currently assessing the impact that this standard will have

In February 2016, the FASB issued ASU 2016-02, “Leases.”	liability, which is a lessee’s obligation to make lease payments arising from a lease, measured on a discounted basis; and a right-of-use asset, which is an asset that represents the lessee’s right to use, or control the use of, a specified asset for the lease term. This guidance is not applicable for leases with a term of 12 months or less. Lessor accounting is largely unchanged.	early adoption permitted.	on our consolidated financial statements.
Financial Instruments - Overall In January 2016, the FASB issued ASU 2016-01, “Recognition and Measurement of Financial Assets and Financial Liabilities.”	This ASU requires that most equity investments be measured at fair value, with subsequent changes in fair value recognized in net income. Under this new guidance, Nasdaq will no longer be able to recognize unrealized holding gains and losses on equity securities classified today as available-for-sale in accumulated other comprehensive income within stockholders’ equity. This new standard does not change the guidance for classifying and measuring investments in debt securities and loans. This new guidance also impacts financial liabilities accounted for under the fair value option and affects the presentation and disclosure requirements for financial assets and liabilities.	January 1, 2018. Early adoption is not permitted.	As we do not have a significant investment in financial instruments impacted by this standard, we do not anticipate a material impact on our consolidated financial statements at the time of adoption of this new standard.
Revenue From Contracts With Customers In May 2014, the FASB issued ASU 2014-09, “Revenue from Contracts with Customers (Topic 606),” which supersedes the revenue recognition guidance in Accounting Standards Codification, “Revenue Recognition.”	The new revenue recognition standard sets forth a five-step revenue recognition model to determine when and how revenue is recognized. The core principle of the guidance is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration it expects to receive in exchange for those goods or services. The standard also requires more detailed disclosures. The standard provides alternative methods of initial adoption.	January 1, 2018, with early adoption permitted.	See discussion below.

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Revenue From Contracts With Customers

We are currently assessing the expected impact of the adoption of Topic 606 on our consolidated financial statements. We have determined that revenue and expense recognition for our Market Technology business and revenue recognition for our Listing Services business will be impacted, however we currently do not anticipate these changes to have a material impact on our consolidated financial statements at the time of adoption of this new standard. We do not anticipate an impact to revenue and expense recognition for our other businesses.

The following are key items to note regarding the accounting for our Market Technology and Listing Services businesses under Topic 606:

- revenue recognition for existing and new contracts will be recognized in earlier stages under the new standard;
- expense recognition for Market Technology contracts will be recognized in earlier stages under the new standard;
- a portion of revenues and expenses that were previously deferred will be recognized either in prior period revenues, through restatement, or as an adjustment to retained earnings upon adoption of the new standard; and
- the overall value of our contracts and the timing of cash flows from customers will not change.

We have reviewed all of the existing customer contracts in our Market Technology and Listings businesses and we are currently evaluating the impact of adopting the new standard under both the retrospective and modified approaches and will select a transition approach once we have completed this evaluation. In addition, we are gathering the required information to be disclosed for all businesses.

Market Technology. In our Market Technology business, we enter into contracts with customers to develop technology solutions, license the right to use software, and provide post-contract support and other services to our customers. Under current accounting policies, we do not recognize revenue or expense until we begin the final stage of the contract as we are not able to establish vendor specific objective evidence of fair value for individual elements of the contract. Under Topic 606, we will no longer defer recognition of revenue and expense until the final stage of the contract. For each of our contracts, we have identified multiple performance obligations, allocated the transaction price to these obligations and will recognize revenue for each of these obligations as they are satisfied. Expenses will no longer be deferred, with the exception of commission expense, but will be recognized as incurred.

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Since revenue and expense will be recognized in earlier stages of the contract, the balance sheet accounts for deferred revenue and costs will decline upon adoption of Topic 606. Due to the complexity of certain contracts, the revenue recognition treatment under the new standard will be dependent on contract-specific terms and may vary in some instances.

Listing Services. Amounts received for initial listing fees and additional listing fees are generally deferred and revenue is recognized over estimated service periods of six and four years, respectively. Under Topic 606, we have identified the performance obligations associated with these services and will record revenue upon satisfaction of each performance obligation. We expect to recognize initial listing fees over a shorter period on average than the current estimated service period. Since we expect to recognize revenues earlier under Topic 606, the balance sheet account for deferred revenue will decline upon adoption.

During the remainder of 2017, we will implement any required changes to our systems and processes to meet the new accounting, reporting and disclosure requirements and will update our internal controls accordingly. We will also review any new contracts entered into throughout the year. We do not believe there are any significant barriers to implementation of the new standard.

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3. Restructuring Charges

2015 Restructuring Plan

During the first quarter of 2015, we performed a comprehensive review of our processes, businesses and systems in a company-wide effort to improve performance, cut costs, and reduce spending. This restructuring plan was completed in the second quarter of 2016.

The following table presents a summary of restructuring plan charges in the Condensed Consolidated Statements of Income:

	June 30, 2016	
	Three Months Ended	Six Months Ended
	($ in millions)	
Severance	$ 18	$ 22
Facilities-related	1	1
Asset impairments	5	8
Other	9	10
Total restructuring charges	$ 33	$ 41

During the second quarter of 2016, we recognized restructuring charges totaling $33 million, including

severance costs of $18 million related to workforce reductions of 188 positions across our organization, $5 million for asset impairments, primarily related to fixed assets and capitalized software that have been retired and $9 million of other charges. For the six months ended June 30, 2016, we recognized restructuring charges totaling $41 million, including severance costs of $22 million related to workforce reductions of 201 positions across our organization, $8 million for asset impairments, primarily related to fixed assets and capitalized software that have been retired and $10 million of other charges.

Restructuring Reserve

Severance

The accrued severance balance was $9 million at June 30, 2017 and $17 million at December 31, 2016. As of June 30, 2017, the accrued severance is included in other current liabilities in the Condensed Consolidated Balance Sheets and will be paid in 2017.

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4. Acquisitions

We completed the following acquisitions in 2016. Financial results of each transaction are included in our Condensed Consolidated Statements of Income from the date of each acquisition.

2016 Acquisitions

	Purchase Consideration	Total Net Assets (Liabilities) Acquired	Total Net Deferred Tax Liability	Acquired Intangible Assets	Goodwill
	(in millions)				
ISE	$1,070	$ 83	$ (185)	$ 623	$ 549
Boardvantage	242	28	(38)	111	141
Marketwired	111	(1)	(5)	31	86
Nasdaq CXC	116	6	(20)	76	54

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The amounts in the table above represent the allocation of purchase price as of June 30, 2017. The preliminary allocations of the purchase price were 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 are 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. We finalized the allocation of the purchase price for Marketwired and Nasdaq CXC in February 2017. In the second quarter of 2017, we finalized the allocation of the price for Boardvantage and ISE. There were no adjustments to the provisional values during the 12 month measurement period for Nasdaq CXC and ISE. In the second quarter of 2016, we recorded a measurement period adjustment of $5 million related to our acquisition of Marketwired which is discussed below under “Acquisition of Marketwired.” In the second quarter of 2017, we recorded a measurement period adjustment of $7 million related to our acquisition of Boardvantage which is discussed below under “Acquisition of Boardvantage.”

See “Intangible Assets” below for further discussion of intangible assets acquired through our 2016 acquisitions.

Acquisition of ISE

On June 30, 2016, we acquired ISE for $1,070 million. We acquired net assets, at fair value, totaling $83 million and recorded a net deferred tax liability of $185 million, comprised of a deferred tax liability of $266 million and a deferred tax asset of $81 million, related to differences in the U.S. GAAP and tax basis of our investment in ISE. ISE is part of our Market Services, Information Services and Market Technology segments.

In May 2016, we issued the 2023 Notes and in June 2016, we issued the 2026 Notes to fund this acquisition. See “1.75% Senior Unsecured Notes,” and “3.85% Senior Unsecured Notes,” of Note 8, “Debt Obligations,” for further discussion.

Acquisition of Boardvantage

In May 2016, we acquired Boardvantage for $242 million ($197 million in cash paid plus $45 million in working capital adjustments, which primarily includes cash acquired). We acquired net assets, at fair value, totaling $28 million and recorded a net deferred tax liability of $45 million, comprised of a deferred tax liability of $46 million and a deferred tax asset of $1 million, related to differences in the U.S. GAAP and tax basis of our investment in Boardvantage. This acquisition expanded our Corporate Solutions board and leadership business within our Corporate Services segment. In the second quarter of 2017, we recorded a measurement period adjustment of $7 million to the estimated fair value of deferred tax assets to reflect a revised assessment following the receipt of new information. The adjustment resulted in an increase to deferred tax assets recorded and a decrease to goodwill. The adjustment did not result in an impact to our Condensed Consolidated Statements of Income. Boardvantage is part of our Corporate Solutions business within our Corporate Services segment.

Nasdaq borrowed $197 million under the revolving credit commitment of a previous credit facility to fund this acquisition.

Acquisition of Marketwired

In February 2016, we acquired Marketwired for $111 million ($109 million in cash paid plus $2 million in working capital adjustments). We acquired net liabilities, at fair value, totaling $1 million and recorded a deferred tax liability of $10 million related to differences in the U.S. GAAP and tax basis of our investment in Marketwired. In the second quarter of 2016, we recorded a measurement period adjustment of $5 million to the estimated fair value of deferred tax liabilities to reflect a revised assessment following the receipt of new information. The adjustment resulted in a decrease to both deferred tax liabilities recorded and goodwill. The adjustment did not result in an impact to our Condensed Consolidated Statements of Income. Marketwired is part of our Corporate Solutions business within our Corporate Services segment.

Nasdaq borrowed $109 million under the revolving credit commitment of a previous credit facility to fund this acquisition.

Acquisition of Nasdaq CXC

In February 2016, we acquired Nasdaq CXC for $116 million ($115 million in cash paid plus $1 million in working capital adjustments). We acquired net assets, at fair value, totaling $6 million and recorded a deferred tax liability of

$20 million related to differences in the U.S. GAAP and tax basis of our investment in Nasdaq CXC. Nasdaq CXC is part of our Market Services segment and our Data Products business within our Information Services segment. Nasdaq used cash on hand and borrowed $55 million under the revolving credit commitment of a previous credit facility to fund this acquisition.

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Intangible Assets

The following table presents the details of acquired intangible assets at the date of each acquisition. All acquired intangible assets with finite lives are amortized using the straight-line method.

	2016			
	ISE	Boardvantage	Marketwired	Nasdaq CXC
	($ in millions)			
Intangible Assets				
Exchange registrations	$467	$ —	$ —	$—
Discount rate used	8.6 %	—	—	—
Estimated average useful life	Indefinite	—	—	—
Customer relationships	$148	$ 103	$ 29	$76
Discount rate used	9.1 %	15.5 %	16.4 %	10.3 %
Estimated average useful life	13 years	14 years	6 years	17 years
Trade name	$8	$ 2	$ 2	$—
Discount rate used	8.6 %	15.0 %	15.8 %	—
Estimated average useful life	Indefinite	1 year	2 years	—
Technology	$—	$ 6	$ —	$—
Discount rate used	—	15.5 %	—	—
Estimated average useful life	—	5 years	—	—
Total intangible assets	$623	$ 111	$ 31	$76

Exchange Registrations

As part of our acquisition of ISE we acquired exchange registrations. The exchange registrations represent licenses that provide ISE with the ability to operate its option exchanges. Nasdaq views these intangible assets as a perpetual license to operate the exchanges so long as ISE meets its regulatory requirements. Nasdaq selected a variation of the income approach called the Greenfield Approach to value the exchange registrations. The Greenfield Approach refers to a discounted cash flow analysis that assumes the buyer is building the exchange from a start-up business to a normalized level of operations as of the acquisition date. This discounted cash flow model considers the required resources and eventual returns from the build-out of operational exchanges and the acquisition of customers, once the exchange registrations are obtained. The advantage of this approach is that it reflects the actual expectations that will arise from an investment in the registrations and it directly values the registrations. The Greenfield Approach relies on assumptions regarding projected revenues, margins, capital expenditures, depreciation, and working capital during the two year pre-trade phase, the 10 year ramp-up period, as well as the terminal period.

In developing a discount rate for the exchange registrations, 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.

Customer Relationships

As part of our acquisitions of ISE, Boardvantage, Marketwired, and Nasdaq CXC we acquired customer relationships. Customer relationships represent the non-contractual and contractual relationships with customers.

Methodology

For our acquisitions of ISE, Boardvantage, Marketwired and Nasdaq CXC, 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 acquisitions of Marketwired and Nasdaq CXC, 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 15 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.

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Pro Forma Results and Acquisition-related Costs

The condensed consolidated financial statements for the three and six months ended June 30, 2017 and 2016 include the financial results of the above 2016 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.

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5. Goodwill and Acquired Intangible Assets

Goodwill

The following table presents the changes in goodwill by business segment during the six months ended June 30, 2017:

	Market Services	Corporate Services	Information Services	Market Technology	Total
	(in millions)				
Balance at December 31, 2016	$3,390	$ 674	$ 1,806	$ 157	$6,027
Measurement period adjustment	—	(7)	—	—	(7)
Foreign currency translation adjustment	114	16	74	13	217
Balance at June 30, 2017	$3,504	$ 683	$ 1,880	$ 170	$6,237

In the second quarter of 2017, we recorded a measurement period adjustment of $7 million to the estimated fair value of deferred tax assets related to our acquisition of Boardvantage. See “Acquisition of Boardvantage,” of Note 4, “Acquisitions,” for further discussion of the Boardvantage acquisition. The adjustment was made to reflect a revised assessment of deferred tax assets following the receipt of new information. The adjustment resulted in an increase to deferred tax assets recorded and a decrease to goodwill and is reflected in the above table. The measurement period adjustment was recorded as a revision in our second quarter 2017 Condensed Consolidated Balance Sheets. The adjustment did not result in an impact to our Condensed Consolidated Statements of Income.

As of June 30, 2017, the amount of goodwill that is expected to be deductible for tax purposes in future periods is $836 million.

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, 2017 and 2016; 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.

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Acquired Intangible Assets

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

	June 30, 2017				December 31, 2016			
	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	$31	$ (20)	$11	6	$38	$ (24)	$14	5
Customer relationships	1,387	(499)	888	18	1,394	(464)	930	18
Other	5	(4)	1	8	7	(6)	1	6
Foreign currency translation adjustment	(126)	46	(80)		(160)	58	(102)	
Total finite-lived intangible assets	$1,297	$ (477)	$820		$1,279	$ (436)	$843	
Indefinite-Lived Intangible Assets								
Exchange and clearing registrations	$1,257	$ —	$1,257		$1,257	$ —	$1,257	
Trade names	129	—	129		130	—	130	
Licenses	52	—	52		52	—	52	
Foreign currency translation adjustment	(156)	—	(156)		(188)	—	(188)	
Total indefinite-lived intangible assets	$1,282	$ —	$1,282		$1,251	$ —	$1,251	
Total intangible assets	$2,579	$ (477)	$2,102		$2,530	$ (436)	$2,094	

Amortization expense for acquired finite-lived intangible assets was $22 million for the three months ended June 30, 2017, $19 million for the three months ended June 30, 2016, $45 million for the six months ended June 30, 2017, and $36 million for the six months ended June 30, 2016. The increase in amortization expense in 2017 compared with 2016 was primarily due to additional acquired intangible assets in the second quarter of 2016.

The estimated future amortization expense (excluding the impact of foreign currency translation adjustments of $80 million as of June 30, 2017) of acquired finite-lived intangible assets as of June 30, 2017 is as follows:

	(in millions)
2017[1]	$ 49
2018	90
2019	76
2020	75
2021	74
2022 and thereafter	536

Total	$ 900

(1) Represents the estimated amortization to be recognized for the remaining six months of 2017.

6. Investments

The following table presents the details of our investments:

	June 30, 2017	December 31, 2016
	(in millions)	
Trading securities	$277	$ 228
Available-for-sale investment securities	23	17
Equity method investments	133	124
Cost method investments	149	144

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 $160 million as of June 30, 2017 and $172 million as of December 31, 2016, are assets utilized to meet regulatory capital requirements primarily for our clearing operations at Nasdaq Clearing.

Available-for-Sale Investment Securities

Available-for-sale investment securities, which are included in financial investments, at fair value in the Condensed Consolidated Balance Sheets, are primarily comprised of short-

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term certificates of deposit and commercial paper. As of June 30, 2017 and December 31, 2016, the cumulative unrealized gains and losses on these securities were immaterial.

Equity Method Investments

As of June 30, 2017 and December 31, 2016, our equity method investments primarily included equity interests in OCC and EuroCCP N.V.

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 $2 million for the three months ended June 30, 2017, $1 million for the three months ended June 30, 2016, $6 million for the six months ended June 30, 2017, and $3 million for the six months ended June 30, 2016. The increase in the three and six months ended June 30, 2017 compared with the same periods in 2016 was primarily due to our additional 20.0% ownership interest in OCC, which we acquired in connection with our acquisition of ISE on June 30, 2016, bringing our total ownership interest in OCC to 40.0%. These increases were partially offset by $2 million of wind down costs associated with an equity method investment that was previously written off.

Capital Contribution to OCC

In March 2015, in connection with being designated systemically important by the Financial Stability Oversight Council, OCC implemented a capital plan under which the options exchanges that are OCC's stockholders made new capital contributions to OCC, committed to make further capital contributions in the future under certain specified circumstances, and received certain commitments from OCC with respect to future dividend payments and related matters. Under the OCC capital plan, OCC's existing exchange stockholders, including Nasdaq and ISE, each contributed a pro-rata share of $150 million in new equity capital. Nasdaq's and ISE's capital contributions were each $30 million. OCC's exchange stockholders also committed to provide, as may become necessary from time to time, additional replenishment

capital on a pro-rata basis if certain capital thresholds are triggered. For its part, OCC adopted specific policies with respect to fees, customer refunds and stockholder dividends, which envision an annual dividend payment to its stockholders equal to the portion of OCC's after-tax income that exceeds OCC's capital requirements after payment of refunds to OCC's clearing members (with such customer refunds generally to constitute 50% of the portion of OCC's pre-tax income that exceeds OCC's capital requirements). After the SEC staff approved the OCC capital plan and the stockholders made their capital contributions, the plan's further effectiveness was suspended under the applicable SEC rules because certain parties petitioned the full Commission to reconsider the capital plan's approval. This stay was lifted by the SEC in September 2015, allowing OCC to implement the plan and in February 2016, the SEC issued an order approving the OCC capital plan as previously implemented and dismissed the petitions challenging that plan. The petitioners filed for a stay of the SEC's order, which would have blocked OCC from paying a dividend under the OCC capital plan. The Federal Court of Appeals for the District of Columbia Circuit, or the Court of Appeals, denied the requested stay, permitting OCC to pay a dividend which Nasdaq received in February 2016. The petitioners also appealed the SEC's order to the Court of Appeals . The Court of Appeals heard arguments on the case in March 2017. The case remains pending until the court announces its decision.

Cost Method Investments

The carrying amount of our cost method investments is included in other non-current assets in the Condensed Consolidated Balance Sheets. As of June 30, 2017 and December 31, 2016, our cost method investments primarily represented our 5% ownership interest in Borsa Istanbul, and our 5% ownership interest in LCH.Clearnet Group Limited.

The Borsa Istanbul shares, which were issued to us in the first quarter of 2014, are part of the consideration received under a market technology agreement. This investment has a cost basis of $75 million which is guaranteed to us via a put option negotiated as part of the market technology agreement.

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7. 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, 2017 and 2016 are reflected in the following table:

	Initial Listing Revenues	Listing of Additional Shares Revenues	Annual Renewal and Other Revenues	Market Technology Revenues	Total
	(in millions)				
Balance at January 1, 2017	$54	$ 37	$ 57	$ 185	$333
Additions	7	6	392	89	494
Revenue recognized	(8)	(12)	(285)	(111)	(416)
Translation adjustment	—	—	1	14	15
Balance at June 30, 2017	$53	$ 31	$ 165	$ 177	$426
Balance at January 1, 2016	$59	$ 53	$ 28	$ 187	$327
Additions	5	7	428	118	558
Revenue recognized	(9)	(15)	(284)	(109)	(417)
Translation adjustment	—	—	1	5	6
Balance at June 30, 2016	$55	$ 45	$ 173	$ 201	$474

The additions and revenue recognized for initial listing revenues, listing of additional shares revenues and annual renewal and other revenues primarily reflect revenues from our Listing Services business within our Corporate Services segment.

For our market technology contracts, total revenues, as well as costs incurred, are deferred until significant customizations are completed and delivered. Once delivered, deferred revenue and the related deferred costs are recognized over the post-contract support period. For these market technology contracts, we have included the deferral of costs in other current assets and other non-current assets in the Condensed Consolidated Balance Sheets.

At June 30, 2017, we estimate that our deferred revenue, which is primarily corporate services and market technology revenues, will be recognized in the following years:

	Initial Listing Revenues	Listing of Additional Shares Revenues	Annual Renewal and Other Revenues	Market Technology Revenues	Total
	(in millions)				
Fiscal year ended:					
2017[(1)]	$8	$ 10	$ 152	$ 43	$213
2018	15	12	11	44	82
2019	13	6	1	35	55
2020	9	3	1	32	45
2021	5	—	—	14	19
2022 and thereafter	3	—	—	9	12
	$53	$ 31	$ 165	$ 177	$426

(1) Represents deferred revenue that is anticipated to be recognized over the remaining six months of 2017.

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.

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8. Debt Obligations

The following table presents the changes in the carrying amount of our debt obligations during the six months ended June 30, 2017:

	December 31, 2016	Additions	Payments, Accretion and Other	June 30, 2017
	(in millions)			
Short-term debt - commercial paper	$—	$ 813	$ (319)	$ 494
Long-term debt:				
5.55% senior unsecured notes due January 15, 2020	598	—	—	598
5.25% senior unsecured notes repaid on May 26, 2017	369	—	(369)	—
3.875% senior unsecured notes due June 7, 2021	625	—	56	681
4.25% senior unsecured notes due June 1, 2024	495	—	1	496
1.75% senior unsecured notes due May 19, 2023	622	—	55	677
3.85% senior unsecured notes due June 30, 2026	495	—	1	496
$400 million senior unsecured term loan facility due November 25, 2019 (average interest rate of 2.39% for the period January 1, 2017 through June 30, 2017)	399	—	(299)	100
$1 billion revolving credit commitment due April 25, 2022 (average interest rate of 2.40% for the period April 25, 2017 through June 30, 2017)	—	15	(5)	10
Total long-term debt	3,603	15	(560)	3,058
Total debt obligations	$ 3,603	$ 828	$ (879)	$ 3,552

Commercial Paper Program

In April 2017, we entered into a U.S. dollar commercial paper program, or the Commercial Paper Program. The 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 fluctuate as short term interest rates and demand fluctuate. The fluctuation of these rates due to market conditions may impact our interest expense.

In May 2017, we used a combination of cash on hand and net proceeds from the sale of commercial paper to redeem all of our $370 million aggregate principal amount of 5.25% senior unsecured notes, or the 2018 Notes. In addition, in June 2017, we used net proceeds from the sale of commercial paper to repay $300 million of the amount outstanding on the 2016 Credit Facility. See “Early Extinguishment of 2018 Notes” and “2016 Credit Facility” below for further discussion.

As of June 30, 2017, 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 14 to 91 days and the weighted-average maturity is 44 days. The weighted-average effective interest rate is 1.53% 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, 2017, 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.
With the exception of the 2020 Notes, 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.
5.55% Senior Unsecured Notes
In January 2010, Nasdaq issued the 2020 Notes. The 2020 Notes pay interest semiannually at a rate of 5.55% per annum until January 15, 2020.
Early Extinguishment of 2018 Notes
In December 2010, Nasdaq issued the 2018 Notes. The 2018 Notes paid interest semiannually at a rate of 5.25% per annum.

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In May 2017, we redeemed all of our 2018 Notes using a combination of cash on hand and net proceeds from the sale of commercial paper issued through the Commercial Paper Program. See "Commercial Paper Program" above for further discussion of our Commercial Paper Program. In connection with the early extinguishment of the 2018 Notes, we recorded a pre-tax charge of $9 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 the three and six months ended June 30, 2017.

3.875% Senior Unsecured Notes

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 increase in the carrying amount of $56 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, 2017.

4.25% Senior Unsecured Notes

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

In May 2016, Nasdaq issued the 2023 Notes. We used the net proceeds from the 2023 Notes and the 2026 Notes to fund our acquisition of ISE. See "Acquisition of ISE," of Note 4, "Acquisitions," for further discussion of the ISE acquisition.

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 increase in the carrying amount of $55 million noted in the "Payments, Accretion and Other" column in the table above 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, 2017.

3.85% Senior Unsecured Notes

In June 2016, Nasdaq issued the 2026 Notes. We used the net proceeds from the 2023 Notes and the 2026 Notes to fund our acquisition of ISE. See "Acquisition of ISE," of Note 4, "Acquisitions," for further discussion of the ISE acquisition.

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%.

Credit Facilities

As of June 30, 2017, the amounts in the table above reflect the aggregate principal amount, less the unamortized debt issuance costs which are being accreted through interest expense over the life of the applicable credit facility. Nasdaq is permitted to repay borrowings under our credit facilities at any time in whole or in part, without penalty. We are also required to repay loans outstanding under our credit facilities with net cash proceeds from sales of property and assets of Nasdaq and its subsidiaries (excluding inventory sales and other sales in the ordinary course of business) and casualty and condemnation proceeds, in each case subject to specified exceptions and thresholds.

Our credit facilities contain 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 pay dividends. Our credit facilities allow us to pay cash dividends on our common stock. The facilities also contain customary affirmative covenants, including access to financial statements, notice of defaults and certain other material events, maintenance of business and insurance, and events of default, including cross-defaults to our material indebtedness.

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 our 2014 credit facility. See “2014 Credit Facility” below for further discussion. 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.

As of June 30, 2017, total borrowings under the 2017 Credit Facility were $15 million. We utilized these borrowings for general corporate purposes. Of the $985 million that is available for borrowing, $495 million is required to provide liquidity support for the principal amount outstanding under the Commercial Paper Program as of June 30, 2017. In addition, $1 million has been utilized for a letter of credit. As such, the total remaining amount available under the 2017 Credit Facility was $489 million as of June 30, 2017. See “Commercial Paper Program” above for further discussion of our Commercial Paper Program.

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Borrowings under the revolving credit facility of the 2017 Credit Facility pay interest monthly and swingline borrowings pay interest quarterly 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.
The 2017 Credit Facility includes an option for Nasdaq to propose an increase in the available aggregate amount by up to $500 million, subject to the consent of the lenders funding the increase and certain other conditions.
2016 Credit Facility
In March 2016, Nasdaq entered into the 2016 Credit Facility. In March 2016, loans in an aggregate principal amount of $400 million were drawn under the 2016 Credit Facility and the net proceeds were used to partially repay amounts outstanding under the revolving credit commitment of the 2014 credit facility. See "2014 Credit Facility" below for further discussion of our 2014 credit facility.
Loans under the 2016 Credit Facility pay interest monthly 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 varies with Nasdaq's debt rating.
In June 2017, we used net proceeds from the sale of commercial paper issued through the Commercial Paper Program to repay $300 million of the amount outstanding on the 2016 Credit Facility. The remaining amount outstanding of $100 million is due upon maturity at November 25, 2019. See "Commercial Paper Program" above for further discussion of our Commercial Paper Program. In connection with the partial repayment of the amount outstanding on the 2016 Credit Facility, we recorded a pre-tax charge of $1 million which related to the write-off of unamortized debt issuance costs related to the $300 million payment. This charge is included in general, administrative and other expense in the Condensed Consolidated Statements of Income for the three and six months ended June 30, 2017.
2014 Credit Facility
In November 2014, Nasdaq entered into the 2014 credit facility. The 2014 credit facility consisted of a $750 million revolving credit commitment (with sublimits for non-dollar borrowings, swingline borrowings and letters of credit). Loans under the 2014 credit facility had 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 varied with Nasdaq's debt rating.
In April 2017, Nasdaq entered into the 2017 Credit Facility which replaced the 2014 credit facility. As a result, our 2014 credit facility has been terminated. No amounts were outstanding on the 2014 credit facility during 2017. See "2017 Credit Facility" above for further discussion of our 2017 Credit Facility.

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 $182 million at June 30, 2017 and $170 million at December 31, 2016 in available liquidity, none of which was utilized.
Debt Covenants
At June 30, 2017, we were in compliance with the covenants of all of our debt obligations.
9. 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 the three months ended June 30, 2017, $2 million for the three months ended June 30, 2016, $7 million for the six months ended June 30, 2017 and $5 million for the six months ended June 30, 2016.
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 $4 million for both the three months ended June 30, 2017 and 2016 and $8 million for both the six months ended June 30, 2017 and 2016.

10. Share-Based Compensation

We have a share-based compensation program that provides our board of directors broad discretion in creating employee equity incentives. 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, 2017 and 2016 in the Condensed Consolidated Statements of Income:

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	Three Months Ended June 30, 2017	2016	Six Months Ended June 30, 2017	2016
	(in millions)			
Share-based compensation expense before income taxes	$19	$19	$34	$35
Income tax benefit	(8)	(7)	(14)	(14)
Share-based compensation expense after income taxes	$11	$12	$20	$21

Common Shares Available Under Our Equity Plan

As of June 30, 2017, we had approximately 5.6 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 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. We generally recognize compensation expense for restricted stock awards on a straight-line basis over the requisite service period of the award, taking into account an estimated forfeiture rate.

Summary of Restricted Stock Activity

The following table summarizes our restricted stock activity for the six months ended June 30, 2017:

	Restricted Stock	
	Number of Awards	Weighted-Average Grant Date Fair Value
Unvested balances at January 1, 2017	2,560,578	$ 45.92
Granted	610,357	65.89
Vested	(469,431)	44.05
Forfeited	(135,637)	49.15
Unvested balances at June 30, 2017	2,565,867	$ 50.84

At June 30, 2017, $63 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

The grant date fair value of PSUs is based on the closing price at the date of grant less the present value of future cash dividends. PSUs are based on performance measures that impact the amount of shares that each recipient will receive upon vesting. We report the target number of PSUs granted, unless we have determined that it is more likely than not, based on the actual achievement of performance measures, that an

employee will receive a different amount of shares underlying the PSUs, in which case we report the amount of shares the employee is likely to receive. 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

Under the one-year performance-based program, an employee 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 performance period. Compensation cost is recognized over the performance period and the three-year vesting period, taking into account an estimated forfeiture rate.

During 2016, certain grants of PSUs with a one-year performance period exceeded the applicable performance parameters. As a result, an additional 56,533 units above target were considered granted in the first quarter of 2017 and are included in the below table.

Three-Year PSU Program

Under the three-year performance-based program, each individual receives PSUs 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. 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 PSU's 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 2014 with a three-year performance period exceeded the applicable performance parameters. As a result, an additional 538,892 units above target were considered granted in the first quarter of 2017 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, 2017 and 2016:

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	Six Months Ended June 30,	
	2017	2016
Weighted-average risk free interest rate[1]	1.44 %	0.84 %
Expected volatility[2]	19.2 %	21.0 %
Weighted-average grant date share price	$69.45	$66.36
Weighted-average fair value at grant date	$81.57	$93.30

(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, 2017:

	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, 2017	378,766	$ 52.55	1,314,668	$ 63.18
Granted	195,847	65.49	803,189	55.55
Vested	(10,729)	53.72	(1,079,925)	42.83
Forfeited	(34,703)	54.27	(24,178)	88.98
Unvested balances at June 30, 2017	529,181	$ 57.20	1,013,754	$ 78.20

At June 30, 2017, $13 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, $33 million of total unrecognized compensation cost is expected to be recognized over a weighted-average period of 1.6 years.

Stock Options

The fair value of stock options are estimated using the Black-Scholes option-pricing model. Each grant has a 10-year life. In January 2017, our CEO received 268,817 performance-based non-qualified stock options which will vest annually over a three-year period, starting at the date of the grant with each

vesting contingent upon the achievement of performance parameters. There were no stock option awards granted during the six months ended June 30, 2016.

Summary of Stock Option Activity

A summary of stock option activity for the six months ended June 30, 2017 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, 2017	1,406,371	$ 22.32	2.65	$ 63
Granted	268,817	66.68		
Exercised	(1,034,161)	21.72		

Forfeited	(578)	22.23		
Outstanding at June 30, 2017	640,449	$ 41.90	5.48	$ 19
Exercisable at June 30, 2017	371,632	$ 23.98	2.66	$ 18

We received net cash proceeds of $21 million from the exercise of 993,745 stock options for the three months ended June 30, 2017 and received net cash proceeds of $22 million from the exercise of 1,034,161 stock options for the six months ended June 30, 2017. We received net cash proceeds of $19 million from the exercise of 540,656 stock options for the three months ended June 30, 2016 and received net cash proceeds of $21 million from the exercise of 627,467 stock options for the six months ended June 30, 2016.

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 30, 2017 of $71.49 and the exercise price, times the number of shares) based on stock options with an exercise price less than Nasdaq's closing price of $71.49 as of June 30, 2017, 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, 2017 was 0.4 million. As of June 30, 2016, 2.0 million outstanding stock options were exercisable and the weighted-average exercise price was $25.94.

The total pre-tax intrinsic value of stock options exercised was $49 million for the three months ended June 30, 2017 and $17 million for the three months ended June 30, 2016, $51 million for the six months ended June 30, 2017 and $20 million for the six months ended June 30, 2016.

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ESPP

We have an ESPP under which approximately 2.2 million shares of our common stock have been reserved for future issuance as of June 30, 2017. 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 $1 million for both the three months ended June 30, 2017 and 2016 and $2 million for both the six months ended June 30, 2017 and 2016.

11. Nasdaq Stockholders' Equity

Common Stock

At June 30, 2017, 300,000,000 shares of our common stock were authorized, 171,027,324 shares were issued and 166,392,912 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 cancelled. When treasury shares are reissued, they are recorded at the average cost of the treasury shares acquired. We held 4,634,412 shares of common stock in treasury as of June 30, 2017 and 3,921,718 shares as of December 31, 2016, 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.

Share Repurchase Program

In the fourth quarter of 2014, our board of directors authorized the repurchase of up to $500 million of our outstanding common stock and in the first quarter of 2016, our board of directors authorized the repurchase of an additional $370 million of our

outstanding common stock under our share repurchase program.

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.

There were no shares repurchased during the second quarter of 2017.

The following table summarizes our share repurchase activity:

	Six Months Ended June 30,	
	2017	2016
Number of shares of common stock repurchased	2,215,757	746,840
Average price paid per share	$70.64	$60.37
Total purchase price (in millions)	$156	$45

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, 2017, the remaining amount authorized for share repurchases under the program was $273 million.

Other Repurchases of Common Stock

During the first six months of 2017, we repurchased 710,892 shares of our common stock in settlement of employee tax withholding obligations arising from the vesting of restricted stock.

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. At June 30, 2017 and December 31, 2016, no shares of preferred stock were issued or outstanding.

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Cash Dividends on Common Stock

During the six months ended June 30, 2017, 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 30, 2017	$ 0.32	March 17, 2017	$ 53	March 31, 2017
April 25, 2017	0.38	June 16, 2017	63	June 30, 2017
			$ 116	

The total amount paid of $116 million was recorded in retained earnings in the Condensed Consolidated Balance Sheets at June 30, 2017.

In July 2017, the board of directors declared a regular quarterly cash dividend of $0.38 per share on our outstanding common stock. The dividend is payable on September 29, 2017 to shareholders of record at the close of business on September 15, 2017. The estimated amount of this dividend is $63 million. In April 2017, the board of directors declared a regular quarterly cash dividend of $0.38 per share on our outstanding common stock which reflects a 19.0% increase from our prior quarterly cash dividend of $0.32. Future declarations of quarterly dividends and the establishment of future record and payment dates are subject to approval by the board of directors.

In April 2017, our board of directors adopted a dividend policy with the intention to provide shareholders with regular and growing dividends over the long term as earnings and cash flow grow.

12. 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,	
	2017	2016	2017	2016
	(in millions, except share and per share amounts)			
Numerator:				
Net income attributable to common shareholders	$ 147	$ 70	$ 317	$ 202
Denominator:				
Weighted-average common shares outstanding for basic earnings per share	165,415,989	165,018,990	165,941,641	164,650,341
Weighted-average effect of dilutive securities:				
Employee equity awards	3,072,316	3,186,818	3,410,429	3,382,688
Weighted-average common shares outstanding for diluted earnings per share	168,488,305	168,205,808	169,352,070	168,033,029
Basic and diluted earnings per share:				
Basic earnings per share	$ 0.89	$ 0.42	$ 1.91	$ 1.23
Diluted earnings per share	$ 0.87	$ 0.42	$ 1.87	$ 1.20

Stock options to purchase 640,449 shares of common stock and 4,108,802 shares of restricted stock and PSUs were outstanding at June 30, 2017. For the three months ended June 30, 2017, we included 371,632 of the outstanding stock options and 3,829,256 shares of restricted stock and PSUs in the computation of diluted earnings per share, on a weighted-average basis, as their inclusion was dilutive. For the six months ended June 30, 2017, we included 371,632 of the outstanding stock options and 3,474,721 shares of restricted stock and PSUs in the computation of diluted earnings per share, on a weighted-average basis, as their inclusion was dilutive. The remaining

stock options, shares of restricted stock and PSUs are antidilutive, and as such, they were properly excluded.

Stock options to purchase 1,999,020 shares of common stock and 4,603,954 shares of restricted stock and PSUs were outstanding at June 30, 2016. For the three months ended June 30, 2016, we included all of the outstanding stock options and 4,229,100 shares of restricted stock and PSUs in the computation of diluted earnings per share, on a weighted-average basis, as their inclusion was dilutive. For the six months ended June 30, 2016, we included all of the outstanding stock

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options and 3,858,076 shares of restricted stock and PSUs in the computation of diluted earnings per share, on a weighted-average basis, as their inclusion was dilutive. The remaining shares of restricted stock and PSUs are antidilutive, and as such, they were properly excluded.

13. Fair Value of Financial Instruments

The following table presents our financial assets that are measured at fair value on a recurring basis as of June 30, 2017 and December 31, 2016. We did not have any financial liabilities measured at fair value on a recurring basis as of June 30, 2017 and December 31, 2016.

	June 30, 2017			
	Total	Level 1	Level 2	Level 3
	(in millions)			
Financial investments, at fair value	$300	$277	$23	$ —
Default fund and margin deposit investments	1,991	1,488	503	—
Total	$2,291	$1,765	$526	$ —

	December 31, 2016			
	Total	Level 1	Level 2	Level 3
	(in millions)			
Financial investments, at fair value	$245	$228	$17	$ —
Default fund and margin deposit investments	1,900	1,763	137	—
Total	$2,145	$1,991	$154	$ —

Our Level 1 financial investments, at fair value were primarily comprised of trading securities, mainly highly rated European government debt securities. Of these securities, $160 million as of June 30, 2017 and $172 million as of December 31, 2016 are assets utilized to meet regulatory capital requirements, primarily for our clearing operations at Nasdaq Clearing. Level 2 financial investments, at fair value were primarily comprised of available-for-sale investment securities in short-term certificates of deposit and commercial paper as of June 30, 2017 and were primarily comprised of available-for-sale investment securities in short-term commercial paper as of December 31, 2016.

Our default fund and margin deposit investments include cash contributions invested by Nasdaq Clearing, in accordance with its investment policy. Of the total balance of $3,671 million recorded in the Condensed Consolidated Balance Sheets as of June 30, 2017, $1,488 million of cash contributions have been invested in highly rated European, and to a lesser extent, U.S. government debt securities or central bank certificates and $503 million of cash contributions have been invested in reverse repurchase agreements. The remainder of this balance is held in cash. Of the total balance of $3,301 million recorded in the

Condensed Consolidated Balance Sheets as of December 31, 2016, $137 million of cash contributions have been invested in reverse repurchase agreements and $1,763 million of cash contributions have been invested in highly rated European, and to a lesser extent, U.S. government debt securities and central bank certificates. The remainder of this balance is held in cash. See Note 14, "Clearing Operations," for further discussion of default fund contributions and margin deposits.

There were no transfers between Level 1 and Level 2 of the fair value hierarchy as of June 30, 2017 and December 31, 2016.

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.
In addition, our investments in OCC and EuroCCP N.V. are accounted for under the equity method of accounting and our investments in Borsa Istanbul and LCH.Clearnet Group Limited are carried at cost. See “Equity Method Investments,” and “Cost Method Investments,” of Note 6, “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 $3.8 billion at both June 30, 2017 and December 31, 2016. 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, 2017. 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 8, “Debt Obligations.”
14. Clearing Operations
Nasdaq Clearing
Nasdaq Clearing is authorized and supervised under EMIR as a multi-asset clearinghouse by the SFSA and is authorized to conduct clearing operations in Norway by the Norwegian Ministry of Finance. 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, freight and fuel oil derivatives, iron ore 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

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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, clearing members' open positions are aggregated to create a single portfolio for which default fund and margin collateral requirements are calculated. 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 ensure the alignment of risk between Nasdaq Clearing and its clearing members.

Default Fund Contributions and Margin Deposits

As of June 30, 2017, clearing member default fund contributions and margin deposits were as follows:

	June 30, 2017		
	Cash Contributions	Non-Cash Contributions	Total Contributions
	(in millions)		
Default fund contributions	$334	$ 127	$ 461
Margin deposits	3,337	4,409	7,746
Total	$3,671	$ 4,536	$ 8,207

In accordance with its investment policy, of the total cash contributions of $3,671 million, Nasdaq Clearing has invested $1,488 million in highly rated European, and to a lesser extent, U.S. government debt securities or central bank certificates and cash contributions of $503 million in reverse repurchase agreements. The remainder of this balance is held in cash. Of the total default fund contributions of $461 million, Nasdaq Clearing can utilize $395 million as capital resources in the event of a counterparty default. The remaining balance of $66 million pertains to member posted surplus balances.

Default Fund Contributions

Contributions made 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 Condensed 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, 2017, Nasdaq Clearing committed capital totaling $118 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 will serve to secure the obligations of a clearing member 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. These cash deposits are recorded in default funds and margin deposits in the Condensed Consolidated Balance Sheets as both a current

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asset and 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 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 traded 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, the estimated liability was nominal and no liability was recorded as of June 30, 2017.

The market value of derivative contracts outstanding prior to netting was as follows:

	June 30, 2017 (in millions)
Commodity and seafood options, futures and forwards(1)(2)(3)	$ 578
Fixed-income options and futures(1)(2)	700
Stock options and futures(1)(2)	130
Index options and futures(1)(2)	185
Total	$ 1,593

(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.

The total number of derivative contracts cleared through Nasdaq Clearing for the six months ended June 30, 2017 and 2016 was as follows:

	June 30, 2017	June 30, 2016
Commodity and seafood options, futures and forwards(1)	1,397,771	1,790,752
Fixed-income options and futures	10,160,127	7,942,528

Stock options and futures	13,526,164	16,193,401
Index options and futures	21,616,323	26,709,292
Total	46,700,385	52,635,973

(1) The total volume in cleared power related to commodity contracts was 647 Terawatt hours (TWh) for the six months ended June 30, 2017 and 875 TWh for the six months ended June 30, 2016.

The outstanding contract value of resale and repurchase agreements was $4.4 billion as of June 30, 2017 and $5.5 billion at June 30, 2016. The total number of contracts cleared was 3,953,901 for the six months ended June 30, 2017 and was 3,895,795 for the six months ended June 30, 2016.

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 $19 million at June 30, 2017;

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- 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 $24 million at June 30, 2017; 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 mutualized default fund, 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.

15. 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 14, "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 $13 million at June 30, 2017 and at December 31, 2016. As discussed in "Other Credit Facilities," of Note 8, "Debt Obligations," clearing-related credit facilities, which are available in multiple currencies, totaled $182 million at June 30, 2017 and $170 million at December 31, 2016, 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 Cantor Fitzgerald. As of June 30, 2017, we have contributed $19 million of clearing deposits to Cantor Fitzgerald 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 Cantor Fitzgerald through the Fixed Income Clearing Corporation. 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 one business day. All of Execution Access' obligations under the clearing arrangement with Cantor Fitzgerald are guaranteed by Nasdaq. 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.

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.

Lease Commitments

We lease some of our office space under non-cancelable operating leases with third parties and sublease office space to third parties. Some of our lease agreements contain renewal options and escalation clauses based on increases in property taxes and building operating costs.

Other Guarantees

We have provided other guarantees of $3 million as of June 30, 2017 and December 31, 2016. These guarantees are primarily related to obligations for our rental and leasing contracts as well as performance guarantees on certain market technology contracts related to the delivery of software technology and support services. We have received financial guarantees from various financial institutions to support the above 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 14, "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. At June 30, 2017, these escrow agreements provide for future payment of $28 million

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and are 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.

Legal and Regulatory Matters

As previously disclosed, we were named as a defendant in a putative class action, Rabin v. NASDAQ OMX PHLX LLC, et al., No. 15-551 (E.D. Pa.), filed in 2015 in the United States District Court for the Eastern District of Pennsylvania. On April 21, 2016, the court entered an order granting our motion to dismiss the complaint. The plaintiff appealed the dismissal to the Court of Appeals for the Third Circuit on May 18, 2016. Given that the complaint was dismissed at the preliminary stage of the proceeding, we are unable to estimate what, if any, liability may result from this litigation. However, we believe (as the district court concluded) that the claims are without merit, and we intend to defend the dismissal on appeal vigorously.

We also 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. 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 with prejudice, concluding that most of the plaintiffs' theories were foreclosed

by absolute immunity and in any event that the plaintiffs failed to state any claim. The plaintiffs have appealed the judgment of dismissal to the United States Court of Appeals for the Second Circuit. The Second Circuit heard oral argument on August 24, 2016. On August 25, 2016, the Second Circuit issued an order requesting the SEC's views on whether the district court had subject-matter jurisdiction over the case, and whether the defendants are immune from suit regarding the challenged conduct. The SEC filed its brief on November 28, 2016. The exchanges and plaintiffs filed supplemental briefs responding to the SEC's brief on December 12, 2016. Given the preliminary nature of the proceedings, and particularly the fact that the complaints have been dismissed, we are unable to estimate what, if any, liability may result from this litigation. However, we believe (as the district court concluded) that the claims are without merit and will continue to litigate vigorously.

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 inquiry and oversight. These matters could result in censures, fines, penalties or other sanctions. Management believes the outcome of any resulting actions will not have a material impact on its consolidated financial position or results of operations. However, Nasdaq is unable to predict the outcome or the timing of the ultimate resolution of theses 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.

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16. 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 operating segments for the three and six months ended June 30, 2017 and 2016:

	Market Services	Corporate Services	Information Services	Market Technology	Corporate Items	Consolidated
	(in millions)					
Three Months Ended June 30, 2017						
Total revenues	$620	$ 164	$ 144	$ 72	$ —	$ 1,000
Transaction-based expenses	(398)	—	—	—	—	(398)
Revenues less transaction-based expenses	222	164	144	72	—	602
Operating income (loss)	$121	$ 45	$ 105	$ 16	$ (43)	$ 244
Three Months Ended June 30, 2016						
Total revenues	$532	$ 162	$ 134	$ 69	$ —	$ 897
Transaction-based expenses	(338)	—	—	—	—	(338)
Revenues less transaction-based expenses	194	162	134	69	—	559
Operating income (loss)	$105	$ 41	$ 96	$ 17	$ (85)	$ 174
Six Months Ended June 30, 2017						
Total revenues	$1,226	$ 325	$ 282	$ 138	$ —	$ 1,971
Transaction-based expenses	(786)	—	—	—	—	(786)
Revenues less transaction-based expenses	440	325	282	138	—	1,185
Operating income (loss)	$241	$ 88	$ 207	$ 28	$ (72)	$ 492
Six Months Ended June 30, 2016						
Total revenues	$1,104	$ 305	$ 268	$ 126	$ —	$ 1,803
Transaction-based expenses	(710)	—	—	—	—	(710)
Revenues less transaction-based expenses	394	305	268	126	—	1,093
Operating income (loss)	$218	$ 75	$ 193	$ 27	$ (120)	$ 393

Certain amounts are allocated to corporate items in our management reports based on the decision that those activities should not be used to evaluate the segment’s ongoing operating performance. The following items are allocated to corporate items for segment reporting purposes:

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 segment’s ongoing activity in each period.

Restructuring charges: Restructuring charges are associated with our 2015 restructuring plan to improve performance, cut costs and reduce spending and as of June 30, 2016 are primarily related to (i) severance and other termination benefits, (ii) asset impairment charges, and (iii) other charges. We do not allocate these restructuring costs because they do not contribute to a meaningful evaluation of a particular segment's ongoing operating performance.
Merger and strategic initiatives expense: We have pursued various strategic initiatives and completed a number of acquisitions 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

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the size, timing and complexity of the transaction. 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.

Other significant items: We have excluded certain other charges or gains that are the result of other non-comparable events to measure operating performance. For the three and six months ended June 30, 2017, other significant items included loss on

extinguishment of debt. For the three and six months ended June 30, 2016, other significant items include the release of a sublease loss reserve due to the early exit of a facility. We believe the exclusion of such amounts allows management and investors to better understand the financial results of Nasdaq.

* * * * * *

A summary of our corporate items is as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2017	2016	2017	2016
	(in millions)			
Amortization expense of acquired intangible assets	$22	$19	$45	$36
Restructuring charges	—	33	—	41
Merger and strategic initiatives expense	11	35	17	44
Loss on extinguishment of debt	10	—	10	—
Sublease loss reserve	—	(2)	—	(2)
Other	—	—	—	1
Total	$43	$85	$72	$120

For further discussion of our segments' results, see "Part I. Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations—Segment Operating Results."

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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.

Business Overview

We are a leading provider of trading, clearing, exchange technology, regulatory, securities listing, information and public company services. Our global offerings are diverse and include trading and clearing across multiple asset classes, trade management services, data products, financial indexes, capital formation solutions, corporate solutions, and market technology products and services. Our technology powers markets across the globe, supporting equity derivative trading, clearing and settlement, cash equity trading, fixed income trading and many other functions.

Business Environment

We serve listed companies, market participants and investors by providing derivative, commodities, cash equity, and fixed income markets, thereby facilitating economic growth and corporate entrepreneurship. We provide market technology to exchanges, clearing organizations and central securities depositories around the world. We also offer companies and other organizations access to innovative products, software solutions and services that increase transparency, mitigate risk, improve board efficiency and facilitate better corporate governance. In broad terms, our business performance is impacted by a number of drivers including macroeconomic events affecting the risk and return of financial assets, investor sentiment, government and private sector demands for capital, the regulatory environment for capital markets, changing technology, particularly in the financial services industry, and changes in investment patterns and priorities. Our future revenues and net income will continue to be influenced by a number of domestic and international economic trends including, among others:

- Trading volumes and values in equity derivative, cash equity and FICC, which are driven primarily by overall macroeconomic conditions;
- The number of companies seeking equity financing, which is affected by factors such as investor demand, the global economy, and availability of diverse sources of financing, as well as tax and regulatory policies;
- The demand for information about, or access to, our markets, which is dependent on the products we trade, our importance as a liquidity center, and the quality and pricing of our data and trade management services;
- The demand by companies and other organizations for the products sold by our Corporate Solutions business, which is largely driven by the overall state of the economy and the attractiveness of our offerings;
- The demand for licensed ETPs and other financial products based on our indexes as well as changes to the underlying assets associated with existing licensed financial products;
- The challenges created by the automation of market data consumption, including competition and the quickly evolving nature of the data business;
- The outlook of our technology customers for capital market activity;
- Continuing pressure in transaction fee pricing due to intense competition in the U.S. and Europe;
- Competition related to pricing, product features and service offerings;
- Regulatory changes relating to market structure or affecting certain types of instruments, transactions, pricing structures or capital market participants; and
- Technological advances and members' and customers' demand for speed, efficiency, and reliability.

The current consensus forecast for gross domestic product growth for the U.S. is 2.2% in 2017 and 2.3% in 2018 and the Eurozone is 1.9% in 2017 and 1.7% in 2018. U.S. growth forecasts for 2017 have recently improved slightly after gradually declining since the start of 2016 and remain highly dependent on the fiscal priorities of the new administration. Growth forecasts for the Eurozone in 2017 dropped sharply following the Brexit vote but have since more than fully recovered. While we expect continued modest annual growth in many of our non-trading segments (Corporate Services, Information Services, and Market Technology), we recognize that there are a number of significant structural and political issues continuing to impact the global economy. Consequently, sustained instability could return at any time, resulting in an increased level of market volatility, oscillating trading volumes, and a more cautious outlook by the clients of our non-trading segments. Following elevated volatility levels in 2015, volatility has

continued to decline since the first quarter of 2016 and remained extremely low in the second quarter of 2017. Following a weak 2016 and a slow start to 2017, IPO activity improved slightly in the second quarter of 2017. Additional impacts on our business drivers include the international enactment and implementation of new legislative and regulatory initiatives, notably MiFID II in Europe, the evolution of market participants' trading and investment strategies, and the continued rapid progression and deployment of new technology in the financial services industry.
The business environment that influences our financial performance in 2017 may be characterized as follows:

- Intense competition among U.S. exchanges and dealer-owned systems for cash equity trading and strong competition between MTFs and exchanges in Europe for cash equity trading;
- Globalization of exchanges, customers and competitors extending the competitive horizon beyond national markets; and

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- Improvement in fund flows and market performance in ETPs.

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,” and Note 16, “Business Segments,” to the condensed consolidated financial statements for further discussion of our reportable segments, as well as how management allocates resources, assesses performance and manages these businesses as four separate segments.

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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,	
	2017	2016	2017	2016
Market Services				
Equity Derivative Trading and Clearing				
U.S. equity options				
Total industry average daily volume (in millions)	14.8	14.1	14.7	14.7
Nasdaq PHLX matched market share	16.8 %	16.2 %	17.0 %	16.1 %
The Nasdaq Options Market matched market share	9.8 %	7.1 %	9.6 %	7.1 %
Nasdaq BX Options matched market share	0.7 %	1.0 %	0.7 %	0.9 %
Nasdaq ISE Options matched market share(1)	9.0 %	0.2 %	9.3 %	0.1 %
Nasdaq GEMX Options matched market share(1)	4.9 %	— %	5.3 %	— %
Nasdaq MRX Options matched market share(1)	0.2 %	— %	0.1 %	— %
Total matched market share executed on Nasdaq's exchanges	41.4 %	24.5 %	42.0 %	24.2 %
Nasdaq Nordic and Nasdaq Baltic options and futures				
Total average daily volume of options and futures contracts(2)	376,280	439,520	356,603	445,798
Cash Equity Trading				
Total U.S.-listed securities				
Total industry average daily share volume (in billions)	6.85	7.25	6.85	7.89
Matched share volume (in billions)	79.4	80.6	154.1	174.3
The Nasdaq Stock Market matched market share	14.4 %	14.0 %	14.2 %	14.4 %
Nasdaq BX matched market share	3.2 %	2.3 %	2.9 %	2.2 %
Nasdaq PSX matched market share	0.8 %	1.1 %	0.9 %	1.0 %
Total matched market share executed on Nasdaq's exchanges	18.4 %	17.4 %	18.0 %	17.6 %
Market share reported to the FINRA/Nasdaq Trade Reporting Facility	33.9 %	33.0 %	34.4 %	32.4 %
Total market share(3)	52.3 %	50.4 %	52.4 %	50.0 %
Nasdaq Nordic and Nasdaq Baltic securities				
Average daily number of equity trades executed on Nasdaq's exchanges	594,901	447,231	549,501	476,768
Total average daily value of shares traded (in billions)	$5.7	$5.2	$5.3	$5.4
Total market share executed on Nasdaq's exchanges	65.7 %	63.0 %	65.3 %	62.6 %
FICC				
Fixed Income				
U.S. fixed income notional trading volume (in billions)	$4,755	$5,255	$9,796	$11,223
Total average daily volume of Nasdaq Nordic and Nasdaq Baltic fixed income contracts	118,234	91,107	114,748	96,246
Commodities				
Power contracts cleared (TWh)(4)	268	455	647	875
Corporate Services				
Initial public offerings				
The Nasdaq Stock Market	36	25	53	35
Exchanges that comprise Nasdaq Nordic and Nasdaq Baltic	39	25	50	33
Total new listings				
The Nasdaq Stock Market(5)	64	73	106	120

Exchanges that comprise Nasdaq Nordic and Nasdaq Baltic(6)	45	33	61	47
Number of listed companies				
The Nasdaq Stock Market(7)	2,912	2,868	2,912	2,868
Exchanges that comprise Nasdaq Nordic and Nasdaq Baltic(8)	945	873	945	873
Information Services				
Number of licensed ETPs	316	267	316	267
ETP assets under management tracking Nasdaq indexes (in billions)	$147	$108	$147	$108
Market Technology				
Order intake (in millions)(9)	$64	$69	$111	$91
Total order value (in millions)(10)	$799	$769	$799	$769

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(1) For the three and six months ended June 30, 2016, Nasdaq ISE, Nasdaq GEMX and Nasdaq MRX matched market share represents one day of trading volume.
(2) Includes Finnish option contracts traded on EUREX Group.
(3) 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.
(4) Transactions executed on Nasdaq Commodities or OTC and reported for clearing to Nasdaq Commodities measured by Terawatt hours (TWh).
(5) 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.
(6) 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.
(7) Number of total listings on The Nasdaq Stock Market at period end, including 345 separately listed ETPs at June 30, 2017 and 277 at June 30, 2016.
(8) Represents companies listed on the Nasdaq Nordic and Nasdaq Baltic exchanges and companies on the alternative markets of Nasdaq First North at period end.
(9) Total contract value of orders signed during the period.
(10) Represents total contract value of signed orders that are yet to be recognized as revenue. Market technology deferred revenue, as discussed in Note 7, "Deferred Revenue," to the condensed consolidated financial statements, represents consideration received that is yet to be recognized as revenue for these signed orders.

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Financial Summary

The following table summarizes our financial performance for the three and six months ended June 30, 2017 when compared with the same periods in 2016. The comparability of our results of operations between reported periods is impacted by the acquisitions of Nasdaq CXC and Marketwired in February 2016, Boardvantage in May 2016, and ISE in June 2016. See "2016 Acquisitions," of Note 4, "Acquisitions," to the condensed consolidated financial statements for further discussion. For a detailed discussion of our results of operations, see "Segment Operating Results" below.

	Three Months Ended June 30,			Six Months Ended June 30,		
	2017	2016	Percentage Change	2017	2016	Percentage Change
	(in millions, except per share amounts)			(in millions, except per share amounts)		
Revenues less transaction-based expenses	$602	$559	7.7 %	$1,185	$1,093	8.4 %
Operating expenses	358	385	(7.0)%	693	700	(1.0)%
Operating income	244	174	40.2 %	492	393	25.2 %
Interest expense	(36)	(32)	12.5 %	(73)	(60)	21.7 %
Income before income taxes	213	146	45.9 %	431	341	26.4 %
Income tax provision	66	76	(13.2)%	114	139	(18.0)%
Net income attributable to Nasdaq	$147	$70	110.0 %	$317	$202	56.9 %
Diluted earnings per share	$0.87	$0.42	107.1 %	$1.87	$1.20	55.8 %
Cash dividends declared per common share	$0.38	$—	100.0 %	$0.70	$0.57	22.8 %

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.”

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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,		Percentage Change		Six Months Ended June 30,		Percentage Change	
	2017	2016			2017	2016		
	(in millions)				(in millions)			
Market Services	$620	$532	16.5	%	$1,226	$1,104	11.1	%
Transaction-based expenses	(398)	(338)	17.8	%	(786)	(710)	10.7	%
Market Services revenues less transaction-based expenses	222	194	14.4	%	440	394	11.7	%
Corporate Services	164	162	1.2	%	325	305	6.6	%
Information Services	144	134	7.5	%	282	268	5.2	%
Market Technology	72	69	4.3	%	138	126	9.5	%
Total revenues less transaction-based expenses	$602	$559	7.7	%	$1,185	$1,093	8.4	%

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 for the three and six months ended June 30, 2017 and 2016:

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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, 2017	2016	Percentage Change	Six Months Ended June 30, 2017	2016	Percentage Change
	(in millions)			(in millions)		
Market Services Revenues:						
Equity Derivative Trading and Clearing Revenues[1]	$191	$103	85.4 %	$382	$204	87.3 %
Transaction-based expenses:						
Transaction rebates	(115)	(53)	117.0 %	(228)	(102)	123.5 %
Brokerage, clearance and exchange fees[1]	(9)	(4)	125.0 %	(20)	(9)	122.2 %
Equity derivative trading and clearing revenues less transaction-based expenses	67	46	45.7 %	134	93	44.1 %
Cash Equity Trading Revenues[2]	333	339	(1.8)%	652	721	(9.6)%
Transaction-based expenses:						
Transaction rebates	(185)	(198)	(6.6)%	(368)	(429)	(14.2)%
Brokerage, clearance and exchange fees[2]	(84)	(78)	7.7 %	(159)	(159)	— %
Cash equity trading revenues less transaction-based expenses	64	63	1.6 %	125	133	(6.0)%
FICC Revenues	24	26	(7.7)%	49	52	(5.8)%
Transaction-based expenses:						
Transaction rebates	(4)	(5)	(20.0)%	(10)	(10)	— %
Brokerage, clearance and exchange fees	(1)	—	(100.0)%	(1)	(1)	— %
FICC revenues less transaction-based expenses	19	21	(9.5)%	38	41	(7.3)%
Trade Management Services Revenues	72	64	12.5 %	143	127	12.6 %
Total Market Services revenues less transaction-based expenses	$222	$194	14.4 %	$440	$394	11.7 %

(1) Includes Section 31 fees of $9 million in the second quarter of 2017, $18 million in the first six months of 2017, $4 million in the second quarter of 2016 and $9 million for the first six months of 2016. 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 $80 million in the second quarter of 2017, $152 million for the first six months of 2017, $73 million in the second quarter of 2016 and $148 million in the first six months of 2016. 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 and equity derivative trading and clearing revenues less transaction-based expenses increased in the second quarter and first six months of 2017 compared with the same periods in 2016 primarily due to the inclusion of revenues from our acquisition of ISE.

Further impacting the increase in equity derivative trading and clearing revenues in the second quarter and first six months of 2017 was an increase in Section 31 pass-through fee revenue.

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. The increase in the second quarter and first six months of 2017 compared with the same periods in 2016 was primarily due to the inclusion of Section 31 fees from our acquisition of ISE.

Transaction rebates, in which we credit a portion of the per share execution charge to the market participant, increased in the

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second quarter and first six months of 2017 compared with the same periods in 2016 primarily due to the inclusion of rebates associated with our acquisition of ISE.
Brokerage, clearance and exchange fees increased in the second quarter of 2017 and first six months of 2017 compared with the same periods in 2016 primarily due to higher Section 31 pass-through fees due to the inclusion of Section 31 fees from our acquisition of ISE.
Cash Equity Trading Revenues
Cash equity trading revenues decreased in the second quarter and first six months of 2017 compared with the same periods in 2016. The decreases were primarily due to:

- lower U.S. industry trading volumes, partially offset by;
- higher European industry trading volumes;
- an increase in Section 31 pass-through fee revenue; and
- an increase in our overall U.S. matched market share and European market share executed on Nasdaq's exchanges.

Cash equity trading revenues less transaction-based expenses increased in the second quarter of 2017 compared with the same period in 2016. The increase was primarily due to:

- an increase in European cash equities revenues due to higher industry trading volumes and market share executed on Nasdaq’s exchanges.

Cash equity trading revenues less transaction-based expenses decreased in the first six months of 2017 compared with the same period in 2016. The decrease was primarily due to:

- lower U.S. industry trading volumes, partially offset by;
- an increase in our overall U.S. matched market share and European market share executed on Nasdaq’s exchanges; and
- higher European industry trading volumes.

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 are 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. The increase in Section 31 fees in the second quarter and first six months of 2017 compared with the same periods in 2016 was primarily due to higher dollar value traded on Nasdaq’s exchanges.
Transaction rebates decreased in the second quarter and first six months of 2017 compared with the same periods in 2016. For The Nasdaq Stock Market, Nasdaq PSX and Nasdaq CXC, 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 decrease in transaction rebates in the second quarter and first six months of 2017 compared with the same periods in 2016 was primarily due to:

- lower U.S. industry trading volumes, partially offset by;
- an increase in our overall U.S. matched market share.

Brokerage, clearance and exchange fees increased in the second quarter of 2017 compared with the same period in 2016 and were flat for the first six months of 2017 compared with the same period in 2016. The increase in the second quarter is primarily due to an increase in Section 31 pass-through fees, partially offset by a decline in routing fees.
FICC Revenues
FICC revenues and FICC revenues less transaction-based expenses decreased in the second quarter and first six months of 2017 compared with the same periods in 2016 primarily due to volume declines in European commodities products.
Trade Management Services Revenues
Trade management services revenues increased in the second quarter and first six months of 2017 compared with the same periods in 2016 primarily due to the inclusion of revenues from our acquisition of ISE and an increase in customer demand for network connectivity.
* * * * * *

CORPORATE SERVICES

The following table shows revenues from our Corporate Services segment:

	Three Months Ended June 30,		Percentage Change	Six Months Ended June 30,		Percentage Change
	2017	2016		2017	2016	
	(in millions)			(in millions)		
Corporate Services:						
Corporate Solutions	$97	$94	3.2 %	$193	$171	12.9 %
Listing Services	67	68	(1.5)%	132	134	(1.5)%
Total Corporate Services	$164	$162	1.2 %	$325	$305	6.6 %

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Corporate Solutions Revenues
Corporate solutions revenues increased in the second quarter and first six months of 2017 compared with the same periods in 2016 primarily due to the inclusion of revenues associated with the acquisition of Boardvantage. The increase in the first six months was also due to the inclusion of revenues associated with the acquisition of Marketwired.
Listing Services Revenues
Listing services revenues decreased in the second quarter and first six months of 2017 compared with the same periods in

2016 primarily due to a decrease in U.S. listing of additional share fees as a result of the implementation of our all-inclusive annual fee, partially offset by an increase in European listing services revenues.
* * * * * *
INFORMATION SERVICES
The following table shows revenues from our Information Services segment:

	Three Months Ended June 30,		Percentage Change		Six Months Ended June 30,		Percentage Change	
	2017	2016			2017	2016		
	(in millions)				(in millions)			
Information Services:								
Data Products	$111	$107	3.7	%	$219	$213	2.8	%
Index Licensing and Services	33	27	22.2	%	63	55	14.5	%
Total Information Services	$144	$134	7.5	%	$282	$268	5.2	%

Data Products Revenues
Data products revenues increased in the second quarter and first six months of 2017 compared with the same periods in 2016 primarily due to growth in proprietary data products revenues.
Index Licensing and Services Revenues
Index licensing and services revenues increased in the second quarter and first six months of 2017 compared with the same

periods in 2016 primarily due to higher assets under management in ETPs linked to Nasdaq indexes.

* * * * * *
MARKET TECHNOLOGY
The following table shows revenues from our Market Technology segment:

	Three Months Ended June 30,		Percentage Change		Six Months Ended June 30,		Percentage Change	
	2017	2016			2017	2016		
	(in millions)				(in millions)			
Market Technology	$72	$ 69	4.3	%	$138	$126	9.5	%

Market Technology Revenues

Market technology revenues increased in the second quarter and first six months of 2017 compared with the same periods in 2016 primarily due to an increase in revenues from software, licensing and support, software as a service, particularly growth in SMARTS surveillance subscriptions, as well as higher change request revenues.

Total Order Value

Total order value, which represents the total contract value of orders signed that are yet to be recognized as revenues, was

$799 million as of June 30, 2017 and $769 million as of June 30, 2016. As of June 30, 2017, market technology deferred revenue of $177 million represents consideration received that is yet to be recognized as revenue for these signed orders. See Note 7, "Deferred Revenue," to the condensed consolidated financial statements for further discussion. The recognition and timing of these revenues depends on many factors, including those that are not within our control. As such, the following table of market technology revenues to be recognized in the future represents our best estimate:

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	Total Order Value (in millions)
Fiscal year ended:	
2017[(1)]	$ 128
2018	244
2019	136
2020	123
2021	78
2022 and thereafter	90
Total	$ 799

(1) Represents deferred revenue that is anticipated to be recognized over the remaining six months of 2017.

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Expenses

Operating Expenses

The following table shows our operating expenses:

	Three Months Ended June 30,		Percentage Change	Six Months Ended June 30,		Percentage Change
	2017	2016		2017	2016	
	(in millions)			(in millions)		
Compensation and benefits	$163	$164	(0.6)%	$324	$316	2.5 %
Professional and contract services	38	35	8.6 %	74	70	5.7 %
Computer operations and data communications	30	27	11.1 %	60	52	15.4 %
Occupancy	23	19	21.1 %	46	39	17.9 %
General, administrative and other	30	17	76.5 %	49	32	53.1 %
Marketing and advertising	8	8	— %	15	14	7.1 %
Depreciation and amortization	47	41	14.6 %	92	79	16.5 %
Regulatory	8	6	33.3 %	16	13	23.1 %
Merger and strategic initiatives	11	35	(68.6)%	17	44	(61.4)%
Restructuring charges	—	33	(100.0)%	—	41	(100.0)%
Total operating expenses	$358	$385	(7.0)%	$693	$700	(1.0)%

The decrease in compensation and benefits expense in the second quarter was primarily due to a favorable impact from foreign exchange of $3 million, partially offset by overall higher compensation costs resulting from our 2016 acquisitions. The increase in compensation and benefits expense in the first six months of 2017 was primarily due to overall higher compensation costs resulting from our 2016 acquisitions, partially offset by a favorable impact from foreign exchange of $4 million.

Headcount decreased to 4,337 employees at June 30, 2017 from 4,447 at June 30, 2016.

The increase in professional and contract services expense in the second quarter and first six months of 2017 was primarily due to an increase in costs from the amortization of market technology deferred costs due to the delivery of certain projects and an increase in costs in our European listing services business due to an increase in new issuer applications.

The increase in computer operations and data communications expense in the second quarter and first six months of 2017 was primarily due to higher hardware and license costs associated with our 2016 acquisitions.
The increase in occupancy expense in the second quarter and first six months of 2017 primarily reflects additional facility and rent costs associated with our 2016 acquisitions, partially offset by lower facility and rent costs as a result of our restructuring activities.
The increase in general, administrative and other expense in the second quarter and first six months of 2017 is primarily due to a pre-tax charge of $10 million which primarily included a make-whole redemption price premium paid on the early extinguishment of our 2018 Notes and lower regulatory fine collections.

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The increase in depreciation and amortization expense in the second quarter and first six months of 2017 was primarily due to additional amortization expense associated with acquired intangible assets related to our 2016 acquisitions.
The increase in regulatory expense in the second quarter and first six months of 2017 was primarily due to a rate increase for regulatory services and trade surveillance.
The decrease in merger and strategic initiatives expense in the second quarter and first six months of 2017 was primarily due

to expenses incurred during 2016 in connection with our acquisitions of ISE, Boardvantage, Marketwired, and Nasdaq CXC.
See Note 3, "Restructuring Charges," to the condensed consolidated financial statements for a discussion of our restructuring charges recorded in the second quarter and first six months of 2016.
* * * * * *
Non-operating Income and Expenses
The following table shows our non-operating income and expenses:

	Three Months Ended June 30,		Percentage Change	Six Months Ended June 30,		Percentage Change
	2017	2016		2017	2016	
	(in millions)			(in millions)		
Interest income	$2	$1	100.0 %	$4	$2	100.0 %
Interest expense	(36)	(32)	12.5 %	(73)	(60)	21.7 %
Net interest expense	(34)	(31)	9.7 %	(69)	(58)	19.0 %
Other investment income	1	2	(100.0)%	2	3	(33.3)%
Net income from unconsolidated investees	2	1	100.0 %	6	3	100.0 %
Total non-operating expenses	$(31)	$(28)	10.7 %	$(61)	$(52)	17.3 %

Interest Income
Interest income increased in the second quarter and first six months of 2017 compared with the same periods in 2016 primarily due to an increase in interest rates.
Interest Expense
The following table shows our interest expense:

	Three Months Ended June 30,		Percentage Change	Six Months Ended June 30,		Percentage Change
	2017	2016		2017	2016	
	(in millions)			(in millions)		
Interest expense	$34	$30	13.3 %	$69	$57	21.1 %
Accretion of debt issuance costs and debt discount	1	1	— %	3	2	50.0 %
Other bank and investment-related fees	1	1	— %	1	1	— %
Total interest expense	$36	$32	12.5 %	$73	$60	21.7 %

Interest expense increased in the second quarter and first six months of 2017 compared with the same periods in 2016 primarily due to our debt issuances in 2016 related to our 2016 acquisitions.

See Note 8, “Debt Obligations,” to the condensed consolidated financial statements for further discussion of our debt obligations.

Net Income from Unconsolidated Investees

Net income from unconsolidated investees in the second quarter and first six months of 2017 and 2016 primarily relates to income recognized from our equity method investment in OCC. See “Equity Method Investments,” of Note 6, “Investments,” to the condensed consolidated financial statements for further discussion of our equity method investments.

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Tax Matters

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

	Three Months Ended June 30,		Percentage Change	Six Months Ended June 30,		Percentage Change
	2017	2016		2017	2016	
	($ in millions)			($ in millions)		
Income tax provision	$66	$76	(13.2)%	$114	$139	(18.0)%
Effective tax rate	31.0%	52.1%		26.5 %	40.8 %	

For further discussion of our tax matters, see “Tax Matters,” of Note 2, “Basis of Presentation and Principles of Consolidation,” to the condensed consolidated financial statements.

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.

In order to recognize and measure our unrecognized tax benefits, management determines whether a tax position is more likely than not to be sustained upon examination, including

resolution of any related appeals or litigation processes, based on the technical merits of the position. Once it is determined that a position meets the recognition thresholds, the position is measured to determine the amount of benefit to be recognized in the condensed consolidated financial statements. Interest and/or penalties related to income tax matters are recognized in income tax expense.

Although no new U.S. tax legislation has been enacted, we are currently assessing the impact various tax reform proposals will have on our condensed consolidated financial statements.

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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 results as the items described below do not reflect 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. Investors should not rely on any single financial measure when evaluating our business. 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 viewed 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.

Restructuring charges: Restructuring charges are associated with our 2015 restructuring plan to improve performance, cut costs and reduce spending and as of June 30, 2016 were primarily related to (i) severance and other termination benefits, (ii) asset impairment charges, and (iii) other charges. We exclude these restructuring costs because these costs do not reflect future operating expenses and do not contribute to a meaningful evaluation of Nasdaq's ongoing operating performance or comparison of Nasdaq's performance between periods.

Merger and strategic initiatives expense: We have pursued various strategic initiatives and completed a number of acquisitions 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

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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 comparison in Nasdaq's performance between periods.

Other significant items: We have excluded certain other charges or gains that are the result of other non-comparable events to measure operating performance. For the three and six months ended June 30, 2017, other significant items include loss on extinguishment of debt, wind down costs associated with an equity method investment that was previously written off, and recognition of previously unrecognized tax benefits associated with positions taken in prior years. For the three and six months

ended June 30, 2016, other significant items include tax expense due to an unfavorable tax ruling received during the three months ended June 30, 2016, the impact of which related to prior periods, and the release of a sublease loss reserve due to the early exit of a facility. We believe the exclusion of such amounts allows management and investors to better understand the financial results of Nasdaq.

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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:

	Three Months Ended June 30, 2017		Three Months Ended June 30, 2016	
	Net Income	Diluted Earnings Per Share	Net Income	Diluted Earnings Per Share
	(in millions, except share and per share amounts)			
U.S. GAAP net income attributable to Nasdaq and diluted earnings per share	$147	$ 0.87	$70	$ 0.42
Non-GAAP adjustments:				
Amortization expense of acquired intangible assets	22	0.13	19	0.11
Restructuring charges	—	—	33	0.19
Merger and strategic initiatives	11	0.07	35	0.21
Extinguishment of debt	10	0.06	—	—
Other	2	0.01	—	—
Sublease loss reserve	—	—	(2)	(0.01)
Adjustment to the income tax provision to reflect non-GAAP adjustments[1]	(20)	(0.12)	(2)	(0.01)
Total non-GAAP adjustments, net of tax	25	0.15	83	0.49
Non-GAAP net income attributable to Nasdaq and diluted earnings per share	$172	$ 1.02	$153	$ 0.91
Weighted-average common shares outstanding for diluted earnings per share		168,488,305		168,205,808

	Six Months Ended June 30, 2017		Six Months Ended June 30, 2016	
	Net Income	Diluted Earnings Per Share	Net Income	Diluted Earnings Per Share
	(in millions, except share and per share amounts)			
U.S. GAAP net income attributable to Nasdaq and diluted earnings per share	$317	$ 1.87	$202	$ 1.20
Non-GAAP adjustments:				
Amortization expense of acquired intangible assets	45	0.27	36	0.21
Restructuring charges	—	—	41	0.24
Merger and strategic initiatives	17	0.10	44	0.26
Extinguishment of debt	10	0.06	—	—
Other	2	0.01	—	—
Sublease loss reserve	—	—	(2)	(0.01)
Adjustment to the income tax provision to reflect non-GAAP adjustments(1)	(32)	(0.19)	(16)	(0.09)
Total non-GAAP adjustments, net of tax	42	0.25	103	0.61
Non-GAAP net income attributable to Nasdaq and diluted earnings per share	$359	$ 2.12	$305	$ 1.81
Weighted-average common shares outstanding for diluted earnings per share		169,352,040		168,233,029

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(1) We determine the tax effect of each item based on the tax rules in the respective jurisdiction where the transaction occurred. For the three and six months ended June 30, 2017, also included in this adjustment is the recognition of previously unrecognized tax benefits of $4 million associated with positions taken in prior years. For the three and

six months ended June 30, 2016, also included in this adjustment is $27 million in tax expense associated with an unfavorable decision from the Finnish Supreme Administrative Court on a tax position.

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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. See Note 8, "Debt Obligations," to the condensed consolidated financial statements for further discussion of our debt obligations. Currently, our cost and availability of funding remain healthy.

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 annually which approximated certain tax benefits associated with the transaction of $484 million. 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.

In April 2017, we entered into the 2017 Credit Facility which replaced our existing 2014 credit facility. We also entered into the Commercial Paper Program which enables us to borrow efficiently at reasonable short-term interest rates and is supported by our 2017 Credit Facility. See "Commercial Paper," "2017 Credit Facility," and "2014 Credit Facility," of Note 8, "Debt Obligations," to the condensed consolidated financial statements for further discussion of our Commercial Paper Program and our 2017 and 2014 Credit Facilities.

In May 2017, we used a combination of cash on hand and net proceeds from the sale of commercial paper to redeem all of our 2018 Notes. In addition, in June 2017, we used net proceeds from the sale of commercial paper to repay $300 million of the amount outstanding on the 2016 Credit Facility. As of June 30, 2017, the outstanding balance of $100 million on the 2016 Credit Facility reflects the aggregate principal amount, less the unamortized debt issuance costs. See "Early Extinguishment of 2018 Notes," and "2016 Credit Facility," of Note 8, "Debt Obligations," to the condensed consolidated financial statements for further discussion.

As of June 30, 2017, total borrowings under the 2017 Credit Facility were $15 million. We utilized these borrowings for general corporate purposes. Of the $985 million that is available for borrowing, $495 million is required to provide liquidity support for the principal amount outstanding under the Commercial Paper Program as of June 30, 2017 and $1 million has been utilized for a letter of credit. As of June 30, 2017, the total remaining amount available under the 2017 Credit Facility was $489 million.

In May 2016, Nasdaq issued the 2023 Notes and in June 2016, Nasdaq issued the 2026 Notes. We used the majority of the net proceeds from the 2023 Notes of $664 million and the 2026 Notes of $495 million to fund the acquisition of ISE and related expenses. See "3.85% Senior Unsecured Notes," and "1.75% Senior Unsecured Notes," of Note 8, "Debt Obligations," and "Acquisition of ISE," of Note 4, "Acquisitions," to the condensed consolidated financial statements for further discussion.

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

Various assets and liabilities, including cash and cash equivalents, receivables, accounts payable and accrued expenses, and commercial paper can fluctuate from month to month. Working capital (calculated as current assets less current liabilities) was ($66) million at June 30, 2017, compared with $478 million at December 31, 2016, a decrease of $544 million. Current asset balance changes increased working capital by $361 million, with increases in default funds and margin deposits, financial investments, at fair value, other current assets and restricted cash, partially offset by decreases in cash and cash equivalents and receivables, net. Current liability balance changes decreased working capital by $905 million, due to increases in short-term debt, default funds and margin deposits, deferred revenue, and Section 31 fees payable to the SEC, partially offset by decreases in accrued personnel costs, accounts payable and accrued expenses, and other current liabilities.

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 our 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, clearing and broker-dealer net capital requirements, and cash flows on our liquidity and capital resources.

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Financial Assets

The following table summarizes our financial assets:

	June 30, 2017	December 31, 2016
	(in millions)	
Cash and cash equivalents	$356	$ 403
Restricted cash	18	15
Financial investments, at fair value	300	245
Total financial assets	$674	$ 663

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, 2017, our cash and cash equivalents of $356 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, 2017 decreased $47 million from December 31, 2016, primarily due to repayments of long-term debt, cash used to repurchase our common stock, and cash dividends on our common stock, partially offset by net cash provided by operating activities. See "Cash Flow Analysis" below for further discussion.

As of June 30, 2017 and December 31, 2016, restricted cash is restricted from withdrawal due to a contractual requirement or not available for general use. Restricted cash was $18 million as of June 30, 2017 and $15 million as of December 31, 2016, an increase of $3 million. The increase relates to 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 $135 million as of June 30, 2017 and $102 million as of December 31, 2016. The remaining balance held in the U.S. totaled $221 million as of June 30, 2017 and $301 million as of December 31, 2016.

Unremitted earnings of subsidiaries outside of the U.S. are used to finance our international operations and are generally considered to be indefinitely reinvested. It is not our current intent to change this position. However, the majority of cash held outside the U.S. is available for repatriation, but under current law, could subject us to additional U.S. income taxes, less applicable foreign tax credits.

Share Repurchase Program

See "Share Repurchase Program," of Note 11, "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 declared per common share on our outstanding common stock:

	2017	2016
First quarter	$0.32	$0.57
Second quarter	$0.38	$—

See "Cash Dividends on Common Stock," of Note 11, "Nasdaq Stockholders' Equity," to the condensed consolidated financial statements for further discussion of the dividends. In the first quarter of 2016, we declared a cash dividend of $0.25 in January 2016 and $0.32 in March 2016.

Financial Investments, at Fair Value

Our financial investments, at fair value totaled $300 million as of June 30, 2017 and $245 million as of December 31, 2016 and are primarily comprised of trading securities, mainly highly rated European government debt securities. Of these securities, $160 million as of June 30, 2017 and $172 million as of December 31, 2016 are assets utilized to meet regulatory capital requirements, primarily for our clearing operations at Nasdaq Clearing. See Note 6, “Investments,” to the condensed consolidated financial statements for further discussion of our trading investment securities.

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Debt Obligations

The following table summarizes our debt obligations by contractual maturity:

	Maturity Date	June 30, 2017	December 31, 2016
		(in millions)	
Short-term debt - commercial paper	Weighted-average maturity of 44 days	$494	$ —
Long-term debt:			
5.25% senior unsecured notes	Repaid May 2017	—	369
$1 billion revolving credit commitment	April 2022	10	—
$400 million senior unsecured term loan facility	November 2019	100	399
5.55% senior unsecured notes	January 2020	598	598
3.875% senior unsecured notes	June 2021	681	625
1.75% senior unsecured notes	May 2023	677	622
4.25% senior unsecured notes	June 2024	496	495
3.85% senior unsecured notes	June 2026	496	495
Total long-term debt		3,058	3,603
Total debt obligations		$3,552	$ 3,603

In addition to the $1 billion revolving credit commitment and $400 million term loan facility, we also have other credit facilities related to our Nasdaq Clearing operations in order to provide further liquidity. Other credit facilities, which are available in multiple currencies, totaled $182 million at June 30, 2017 and $170 million at December 31, 2016, in available liquidity, none of which was utilized.

At June 30, 2017, we were in compliance with the covenants of all of our debt obligations.

See Note 8, "Debt Obligations," to the condensed consolidated financial statements for further discussion of our debt obligations.

Clearing and Broker-Dealer Net 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. At June 30, 2017, our required regulatory capital of $160 million is primarily 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 operating 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. The following table summarizes the net capital requirements for our broker-dealer subsidiaries as of June 30, 2017:

Broker-Dealer Subsidiaries	Total Net Capital	Required Minimum Net Capital	Excess Capital
	(in millions)		
Nasdaq Execution Services	$8.5	$ 0.3	$ 8.2
Execution Access	49.0	0.4	48.6
NPM Securities	0.3	—	0.3

SMTX	0.9	0.3	0.6
Nasdaq Capital Markets Advisory	0.6	0.3	0.3

Other Capital Requirements

Nasdaq Execution Services

Nasdaq Execution Services also is required to maintain a $2 million minimum level of net capital under our clearing arrangement with OCC.

Nasdaq CXC

As a member of the Investment Industry Regulatory Organization of Canada, Nasdaq CXC must comply with its dealer member rules which are intended to ensure general financial soundness and liquidity. Under these rules, Nasdaq CXC is required to comply with minimum net capital requirements. At June 30, 2017, Nasdaq CXC was required to maintain minimum net capital of $0.2 million and had total net capital of approximately $9.4 million, or $9.2 million in excess of the minimum amount required.

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Cash Flow Analysis

The following table summarizes the changes in cash flows:

	Six Months Ended June 30, 2017	2016	Percentage Change
	(in millions)		
Net cash provided by (used in):			
Operating activities	$514	$429	19.8 %
Investing activities	(104)	(1,573)	(93.4)%
Financing activities	(464)	1,152	(140.3)%
Effect of exchange rate changes on cash and cash equivalents and restricted cash	10	1	900.0 %
Net increase (decrease) in cash and cash equivalents and restricted cash	(44)	9	(588.9)%
Cash and cash equivalents and restricted cash at beginning of period	418	357	17.1 %
Cash and cash equivalents and restricted cash at end of period	$374	$366	2.2 %

Net Cash Provided by Operating Activities

Net cash provided by operating activities increased $85 million for the six months ended June 30, 2017 compared with the same period in 2016. The increase was primarily due to higher net income, offset by higher estimated tax payments and higher payments of accrued personnel costs primarily driven by our 2016 acquisitions.

Net Cash Used in Investing Activities

Net cash used in investing activities decreased $1,469 million for the six months ended June 30, 2017 compared with the same period in 2016 primarily due to cash paid for acquisitions, net of cash and cash equivalents acquired of $1,460 million in 2016.

Net Cash (Used in) Provided by Financing Activities

Net cash used in financing activities for the six months ended June 30, 2017 primarily consisted of repayment of long-term debt of $670 million, $156 million related to the repurchase of our common stock, $116 million related to cash dividends paid on our common stock, partially offset by proceeds from commercial paper of $494 million.

Net cash provided by financing activities for the six months ended June 30, 2016 primarily consisted of net proceeds of $1,159 million related to the issuances of our 2023 Notes and

2026 Notes to fund our acquisition of ISE, net proceeds of $399 million from our 2016 Credit Facility and proceeds from the utilization of our 2014 Credit Facility of $833 million to partially fund our acquisitions of Boardvantage, Marketwired and Nasdaq CXC, and other general corporate purposes, partially offset by $1,033 million of cash used in connection with the repayment of the revolving credit commitment under our 2014 Credit Facility, $94 million related to cash dividends paid on our common stock, $45 million related to the repurchase of our common stock, and $38 million related to disbursements of customer funds, which were held in connection with privately negotiated securities transactions.

See “2016 Acquisitions,” of Note 4, “Acquisitions,” to the condensed consolidated financial statements for further discussion of our acquisitions.

See Note 8, “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 11, “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.

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Contractual Obligations and Contingent Commitments

Nasdaq has contractual obligations to make future payments under long-term debt obligations by contract maturity, minimum rental commitments under non-cancelable operating leases, net and other obligations. The following table shows these contractual obligations as of June 30, 2017:

	Payments Due by Period				
Contractual Obligations	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
	(in millions)				
Long-term debt obligations by contract maturity[1]	$4,190	$599	$225	$1,549	$1,817
Minimum rental commitments under non-cancelable operating leases, net[2]	413	78	138	91	106
Other obligations[3]	28	28	—	—	—
Total	$4,631	$705	$363	$1,640	$1,923

(1) Our long-term debt obligations include both principal and interest obligations. At June 30, 2017, an interest rate of 2.78% was used to compute the amount of the contractual obligations for interest on the 2017 Credit Facility and 2.98% was used to compute the amount of the contractual obligations for interest on the 2016 Credit Facility. All other debt obligations were primarily calculated on a 360-day basis at the contractual fixed rate multiplied by the aggregate principal amount at June 30, 2017. See Note 8, “Debt Obligations,” to the condensed consolidated financial statements for further discussion.

(2) We lease some of our office space under non-cancelable operating leases with third parties and sublease office space to third parties. Some of our leases contain renewal options and escalation clauses based on increases in property taxes and building operating costs.

(3) Other obligations primarily consist of potential future escrow agreement payments related to prior acquisitions.

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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.

Off-Balance Sheet Arrangements

For discussion of off-balance sheet arrangements see:

- Note 14, “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 15, “Commitments, Contingencies and Guarantees,” to the condensed consolidated financial statements for further discussion of:
  - Guarantees issued and credit facilities available;
  - Lease commitments;
  - 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

Market risk represents the potential for losses that may result from changes in the market value of a financial instrument due to changes in market conditions. 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.

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Financial Investments

As of June 30, 2017, 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 will decrease in value 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, 2017, the fair value of this portfolio would have declined by $4 million.

Debt Obligations

As of June 30, 2017, 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 borrowings under our 2017 and 2016 Credit Facilities and amounts outstanding from the sale of commercial paper under our Commercial Paper Program, all of which have variable interest rates. As of June 30, 2017, we had principal amounts outstanding of $15 million under the 2017 Credit Facility, $100 million under the 2016 Credit Facility, and $495 million of commercial paper. A hypothetical 100 basis points increase in interest rates on the 2017 Credit Facility, the 2016 Credit Facility and our outstanding commercial paper would increase interest expense by approximately $6 million based on borrowings as of June 30, 2017.

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Foreign Currency Exchange Rate Risk

As a leading global exchange group, we are subject to foreign currency transaction risk. Our primary exposure to foreign currency denominated revenues less transaction-based expenses and operating income for the three and six months ended June 30, 2017 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, 2017					
Average foreign currency rate to the U.S. dollar	1.0998	0.1136	#	N/A	N/A
Percentage of revenues less transaction-based expenses	9.2 %	8.6 %	5.8 %	76.4 %	100.0 %
Percentage of operating income	14.3 %	(2.6)%	(1.3)%	89.6 %	100.0 %
Impact of a 10% adverse currency fluctuation on revenues less transaction-based expenses	$(6)	$(5)	$ (3)	$ —	$(14)
Impact of a 10% adverse currency fluctuation on operating income	$(3)	$(1)	$ —	$ —	$(4)

	Euro	Swedish Krona	Other Foreign Currencies	U.S. Dollar	Total
	(in millions, except currency rate)				
Six Months Ended June 30, 2017					
Average foreign currency rate to the U.S. dollar	1.0823	0.1128	#	N/A	N/A
Percentage of revenues less transaction-based expenses	9.3 %	8.6 %	5.7 %	76.4 %	100.0 %
Percentage of operating income	14.3 %	— %	(2.8)%	88.5 %	100.0 %
Impact of a 10% adverse currency fluctuation on revenues less transaction-based expenses	$(11)	$(10)	$ (7)	$ —	$(28)
Impact of a 10% adverse currency fluctuation on operating income	$(7)	$—	$ (1)	$ —	$(8)

#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. Fluctuations in currency exchange rates may create volatility in our results of operations as we are required to translate the balance sheets and operational results

of these foreign currency denominated subsidiaries into U.S. dollars for consolidated reporting. The translation of foreign subsidiaries' non-U.S. dollar balance sheets into U.S. dollars for consolidated reporting results in a cumulative translation adjustment which is recorded in accumulated other comprehensive loss within stockholders' equity in the Condensed Consolidated Balance Sheets.

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Our primary exposure to net assets in foreign currencies as of June 30, 2017 is presented in the following table:

	Net Assets	Impact of a 10% Adverse Currency Fluctuation
	(in millions)	
Swedish Krona[(1)]	$3,389	$ (339)
Norwegian Krone	196	(20)
Canadian Dollar	188	(19)
British Pound	134	(13)
Euro	116	(12)
Australian Dollar	89	(9)

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(1) Includes goodwill of $2,591 million and intangible assets, net of $627 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 rigorously evaluating the counterparties with which we make investments and execute agreements. The financial investment portfolio 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 Nasdaq Fixed Income business to trade in U.S. Treasury securities. Execution Access has a clearing arrangement with Cantor Fitzgerald. As of

June 30, 2017, we have contributed $19 million of clearing deposits to Cantor Fitzgerald 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 Cantor Fitzgerald through the Fixed Income Clearing Corporation. 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 one business day. All of Execution Access' obligations under the clearing arrangement with Cantor Fitzgerald are guaranteed by Nasdaq. 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.

We are exposed to credit risk through our clearing operations with Nasdaq Clearing. See Note 14, "Clearing Operations," to the condensed consolidated financial statements for further discussion.

We also 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. On an ongoing basis, 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.

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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, 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, 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. There have been no 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, 2017 that have materially affected, or are reasonably likely to materially affect, Nasdaq’s internal control over financial reporting.

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PART II - OTHER INFORMATION
Item 1. Legal Proceedings.
See “Legal and Regulatory Matters,” of Note 15, “Commitments, Contingencies and Guarantees,” to the condensed consolidated financial statements for further discussion.
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 Annual Report on Form 10-K for the fiscal year ended December 31, 2016 as filed with the SEC on March 1, 2017 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2017, as filed with the SEC on May 10, 2017. 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.
Nasdaq issued no unregistered equity securities during the quarter ended June 30, 2017.
Issuer Purchases of Equity Securities
Share Repurchase Program
See “Share Repurchase Program,” of Note 11, “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, 2017, 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, 2017:

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 2017				
Share repurchase program	—	$ —	—	$ 273
Employee transactions	5,533	$ 69.30	N/A	N/A
May 2017				
Share repurchase program	—	$ —	—	$ 273
Employee transactions	8,467	$ 70.15	N/A	N/A
June 2017				

Share repurchase program	—	$ —	—	$ 273
Employee transactions	28,854	$ 71.08	N/A	N/A
Total Quarter Ended June 30, 2017				
Share repurchase program	—	$ —	—	$ 273
Employee transactions	42,854	$ 70.67	N/A	N/A

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

Not applicable.

Item 6. Exhibits.

The exhibits required by this item are listed on the Exhibit Index.

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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 2, 2017	By:	/s/ Adena T. Friedman
	Name:	Adena T. Friedman
	Title:	President and Chief Executive Officer
Date: August 2, 2017	By:	/s/ Michael Ptasznik
	Name:	Michael Ptasznik
	Title:	Executive Vice President, Corporate Strategy and Chief Financial Officer

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Exhibit Index

Exhibit Number	
10.1	Credit Agreement, dated as of April 25, 2017, among Nasdaq, Inc., the various lenders from time to time party thereto, Bank of America, N.A., as administrative agent and an issuing bank, and the other financial institutions party thereto (incorporated herein by reference to Exhibit 10.1 to the Current Report on Form 8-K filed on April 26, 2017).
10.2	Amendment No. 1 to Credit Agreement, dated as of April 25, 2017, among Nasdaq, Inc., the lenders party thereto and Bank of America, N.A., as administrative agent. (incorporated herein by reference to Exhibit 10.2 to the Current Report on Form 8-K filed on April 26, 2017).
10.3	Form of Commercial Paper Dealer Agreement between Nasdaq, Inc., as Issuer, and the Dealer party thereto (incorporated herein by reference to Exhibit 10.3 to the Current Report on Form 8-K filed on April 26, 2017).
10.4	Amended and Restated Board Compensation Policy, effective on May 10, 2017.*
10.5	Form of Nasdaq Restricted Stock Unit Award Certificate (employees).*
10.6	Form of Nasdaq Restricted Stock Unit Award Certificate (directors).*
10.7	Form of Nasdaq One-Year Performance Share Unit Agreement.*
10.8	Form of Nasdaq Three-Year Performance Share Unit Agreement.*
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, 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.INS	XBRL Instance Document.**
101.SCH	XBRL Taxonomy Extension Schema.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase.
101.DEF	Taxonomy Extension Definition Linkbase.
101.LAB	XBRL Taxonomy Extension Label Linkbase.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase.

*	Management contract or compensatory plan or arrangement.
**	The following materials from the Nasdaq, Inc. Quarterly Report on Form 10-Q for the three and six months ended June 30, 2017, formatted in XBRL (eXtensible Business Reporting Language): (i) Condensed Consolidated Balance Sheets as of June 30, 2017 and December 31, 2016; (ii) Condensed Consolidated Statements of Income for the three and six months ended June 30, 2017 and 2016; (iii) Condensed Consolidated Statements of Comprehensive Income (Loss) for the three and six months ended June 30, 2017 and 2016; (iv) Condensed Consolidated Statements of Cash Flows for the six months ended June 30, 2017 and 2016; and (v) notes to condensed consolidated financial statements.

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