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 September 30, 2020

OR

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

For the transition period from ________ to ________

Commission file number: 001-38855

Nasdaq, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**52-1165937**
(State or Other Jurisdiction of Incorporation or Organization)	**(I.R.S. Employer Identification No.)**

151 W. 42nd Street, New York, New York 10036
(Address of Principal Executive Offices) (Zip Code)

Registrant's telephone number, including area code: +1 212 401 8700

No Changes

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

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.01 par value per share	**NDAQ**	**The Nasdaq Stock Market**
0.875% Senior Notes due 2030	**NDAQ30**	**The Nasdaq Stock Market**
1.75% Senior Notes due 2029	**NDAQ29**	**The Nasdaq Stock Market**
1.75% Senior Notes due 2023	**NDAQ23**	**The Nasdaq Stock Market**

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

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

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

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	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.

<u>**Class**</u>	<u>**Outstanding at October 27, 2020**</u>
Common Stock, $0.01 par value per share	164,037,597 shares

Nasdaq, Inc.

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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 CXC" and "Nasdaq CX2" refer to the Canadian cash equity trading books operated by Nasdaq CXC Limited.
- "Nasdaq First North" refers to our alternative marketplaces for smaller companies and growth companies in the Nordic and Baltic regions.
- "Nasdaq GEMX" refers to the options exchange operated by Nasdaq GEMX, LLC.
- "Nasdaq ISE" refers to the options exchange operated by Nasdaq ISE, LLC.
- "Nasdaq MRX" refers to the options exchange operated by Nasdaq MRX, LLC.
- "Nasdaq Nordic" refers to collectively, Nasdaq Clearing AB, Nasdaq Stockholm AB, Nasdaq Copenhagen A/S, Nasdaq Helsinki Ltd, and Nasdaq Iceland hf.
- "Nasdaq PHLX" refers to the options exchange operated by Nasdaq PHLX LLC.
- "Nasdaq PSX" refers to the cash equity exchange operated by Nasdaq PHLX LLC.
- "The Nasdaq Options Market" refers to the options exchange operated by The Nasdaq Stock Market LLC.
- "The Nasdaq Stock Market" refers to the cash equity exchange and listing venue operated by The Nasdaq Stock Market LLC.

* * * * * *

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

401(k) Plan: Voluntary Defined Contribution Savings Plan

2017 Credit Facility: $1 billion senior unsecured revolving credit facility, which matures on April 25, 2022

2021 Notes: €600 million aggregate principal amount of 3.875% senior unsecured notes due June 7, 2021, repaid in full and terminated in March 2020

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

2029 Notes: €600 million aggregate principal amount of 1.75% senior unsecured notes due March 28, 2029

2030 Notes: €600 million aggregate principal amount of 0.875% senior unsecured notes due February 13, 2030

2050 Notes: $500 million aggregate principal amount of 3.25% senior unsecured notes due April 28, 2050

ASU: Accounting Standards Update

ASU 2016-13: Measurement of Credit Losses on Financial Instruments

AUM: Assets Under Management

CCP: Central Counterparty

EMIR: European Market Infrastructure Regulation

Equity Plan: Nasdaq Equity Incentive Plan

ESPP: Nasdaq Employee Stock Purchase Plan

ETF: Exchange Traded Fund

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

LIBOR: London Interbank Offered Rate

NFF: Nasdaq Financial Framework; Nasdaq's end-to-end technology solutions for market infrastructure operators, buy-side firms, sell-side firms and other non-financial markets

NFX: Nasdaq Futures, Inc.

NPM: The NASDAQ Private Market, LLC

NSCC: National Securities Clearing Corporation	SERP: Supplemental Executive Retirement Plan
OCC: The Options Clearing Corporation	SFSA: Swedish Financial Supervisory Authority
OTC: Over-the-Counter	S&P: Standard & Poor's
PSU: Performance Share Unit	S&P 500: S&P 500 Stock Index
SaaS: Software as a Service	TSR: Total Shareholder Return
SEC: U.S. Securities and Exchange Commission	U.S. GAAP: U.S. Generally Accepted Accounting Principles

* * * * * *

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* * * * * *

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; 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 issuers that switched from other listing venues, closed-end funds and ETPs. Data in this Quarterly Report on Form 10-Q for IPOs and new listings of equity securities on the Nasdaq Nordic and Nasdaq Baltic exchanges and Nasdaq First North also is based on data generated internally by us. IPOs and new listings data is presented as of period end. While we are not aware of any misstatements regarding industry data presented herein, our estimates involve risks and uncertainties and are subject to change based on various factors. We refer you to the "Risk Factors" section in this Quarterly Report on Form 10-Q for the quarter ended September 30, 2020, the "Risk Factors" section in our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2020 and June 30, 2020, and the "Risk Factors" section in our most recent Annual Report on Form 10-K.

* * * * * *

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

Forward-Looking Statements

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

- *our strategic direction;*
- *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 and services;*
- *the impact of pricing changes;*
- *tax matters;*
- *the cost and availability of liquidity and capital;*
- *any litigation, or any regulatory or government investigation or action, to which we are or could become a party or which may affect us; and*
- *the potential impact of the COVID-19 pandemic and the response of governments and other third parties on our business, operations, results of operations, financial condition, workforce or the operations or decisions of our customers, suppliers or business partners.*

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

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

Most of these factors are difficult to predict accurately and are generally beyond our control. You should consider the uncertainty and any risk related to forward-looking statements that we make. These risk factors are discussed under the caption "Part II. Item 1A. Risk Factors," in this Quarterly Report on Form 10-Q for the quarter ended September 30, 2020, the "Risk Factors" section in our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2020 and June 30, 2020, and more fully described in the "Risk Factors" section in our most recent Annual Report on Form 10-K. You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this report. You should carefully read this entire Quarterly Report on Form 10-Q, including "Part I. Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations" and the condensed consolidated financial statements and the related notes. Except as required by the federal securities laws, we undertake no obligation to update any forward-looking statement, release publicly any revisions to any forward-looking statements or report the occurrence of unanticipated events. For any forward-looking statements contained in any document, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995.

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

	September 30, 2020 (unaudited)	December 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	$ 584	$ 332
Restricted cash and cash equivalents	33	30
Financial investments	177	291
Receivables, net	504	422
Default funds and margin deposits	3,378	2,996
Other current assets	134	219
Total current assets	4,810	4,290
Property and equipment, net	435	384
Goodwill	6,600	6,366
Intangible assets, net	2,218	2,249
Operating lease assets	387	346
Other non-current assets	381	289
Total assets	$ 14,831	$ 13,924
Liabilities		
Current liabilities:		
Accounts payable and accrued expenses	$ 145	$ 148
Section 31 fees payable to SEC	63	132
Accrued personnel costs	184	188
Deferred revenue	290	211
Other current liabilities	101	161
Default funds and margin deposits	3,378	2,996
Short-term debt	—	391
Total current liabilities	4,161	4,227
Long-term debt	3,571	2,996
Deferred tax liabilities, net	513	552
Operating lease liabilities	397	331
Other non-current liabilities	175	179
Total liabilities	8,817	8,285
Commitments and contingencies		
Equity		
Nasdaq stockholders' equity:		
Common stock, $0.01 par value, 300,000,000 shares authorized, shares issued: 170,298,054 at September 30, 2020 and 171,075,011 at December 31, 2019; shares outstanding: 164,020,697 at September 30, 2020 and 165,094,440 at December 31, 2019	2	2
Additional paid-in capital	2,524	2,632
Common stock in treasury, at cost: 6,277,357 shares at September 30, 2020 and 5,980,571 shares at December 31, 2019	(367)	(336)
Accumulated other comprehensive loss	(1,632)	(1,686)
Retained earnings	5,484	5,027
Total Nasdaq stockholders' equity	6,011	5,639
Noncontrolling interests	3	—
Total equity	6,014	5,639
Total liabilities and equity	$ 14,831	$ 13,924

See accompanying notes to condensed consolidated financial statements.

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Revenues:				
Market Services	$ 958	$ 690	$ 2,867	$ 1,995
Corporate Services	132	124	386	368
Information Services	238	198	661	585
Market Technology	86	84	251	239
Other revenues	—	—	—	10
Total revenues	1,414	1,096	4,165	3,197
Transaction-based expenses:				
Transaction rebates	(518)	(349)	(1,526)	(1,012)
Brokerage, clearance and exchange fees	(181)	(115)	(524)	(296)
Revenues less transaction-based expenses	715	632	2,115	1,889
Operating expenses:				
Compensation and benefits	198	175	582	518
Professional and contract services	38	31	96	99
Computer operations and data communications	39	33	109	98
Occupancy	29	24	80	72
General, administrative and other	13	40	99	95
Marketing and advertising	7	8	20	29
Depreciation and amortization	51	47	149	143
Regulatory	2	8	16	23
Merger and strategic initiatives	1	10	12	25
Restructuring charges	11	30	36	30
Total operating expenses	389	406	1,199	1,132
Operating income	326	226	916	757
Interest income	—	3	4	8
Interest expense	(24)	(29)	(77)	(97)
Net gain on divestiture of business	—	—	—	27
Other income	1	—	5	1
Net income from unconsolidated investees	54	15	97	71
Income before income taxes	357	215	945	767
Income tax provision	93	65	237	196
Net income attributable to Nasdaq	$ 264	$ 150	$ 708	$ 571
Per share information:				
Basic earnings per share	$ 1.61	$ 0.91	$ 4.31	$ 3.46
Diluted earnings per share	$ 1.58	$ 0.90	$ 4.25	$ 3.42
Cash dividends declared per common share	$ 0.49	$ 0.47	$ 1.45	$ 1.38

See accompanying notes to condensed consolidated financial statements.

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net income	$ 264	$ 150	$ 708	$ 571
Other comprehensive income (loss):				
Foreign currency translation gains (losses)	60	(121)	29	(256)
Income tax benefit (expense)[1]	23	(46)	25	(47)
Foreign currency translation, net	83	(167)	54	(303)
Comprehensive income (loss) attributable to Nasdaq	$ 347	$ (17)	$ 762	$ 268

(1) Primarily relates to the tax effect of unrealized gains and losses on Euro denominated notes.

See accompanying notes to condensed consolidated financial statements.

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

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2020		2019		2020		2019	
	Shares	$	Shares	$	Shares	$	Shares	$
Common stock	164	2	165	2	165	2	165	2
Additional paid-in capital								
Beginning balance		2,533		2,713		2,632		2,716
Share repurchase program	—	(34)	(2)	(150)	(2)	(186)	(2)	(200)
Share-based compensation	—	24	1	21	1	64	1	57
Stock option exercises, net	—	1	—	1	—	2	—	1
Other issuances of common stock, net	—	—	—	—	—	12	—	11
Ending balance		2,524		2,585		2,524		2,585
Common stock in treasury, at cost								
Beginning balance		(367)		(327)		(336)		(297)
Other employee stock activity	—	—	—	(1)	—	(31)	—	(31)
Ending balance		(367)		(328)		(367)		(328)
Accumulated other comprehensive loss								
Beginning balance		(1,715)		(1,666)		(1,686)		(1,530)
Other comprehensive income (loss)		83		(167)		54		(303)
Ending balance		(1,632)		(1,833)		(1,632)		(1,833)
Retained earnings								
Beginning balance		5,301		4,829		5,027		4,558
Impact of adoption of ASU 2016-13		—		—		(12)		—
Net income		264		150		708		571
Cash dividends declared per common share		(81)		(78)		(239)		(228)
Ending balance		5,484		4,901		5,484		4,901
Total Nasdaq stockholders' equity		6,011		5,327		6,011		5,327
Noncontrolling interests								
Beginning balance		3		—		—		—
Net activity related to noncontrolling interests		—		—		3		—
Ending balance		3		—		3		—
Total Equity	164	$ 6,014	164	$ 5,327	164	$ 6,014	164	$ 5,327

See accompanying notes to condensed consolidated financial statements.

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

	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Cash flows from operating activities:		
Net income	$ 708	$ 571
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	149	143
Share-based compensation	64	57
Deferred income taxes	19	(21)
Extinguishment of debt	36	11
Net gain on divestiture of business	—	(27)
Non-cash restructuring charges	10	25
Net income from unconsolidated investees	(97)	(71)
Other reconciling items included in net income	16	7
Net change in operating assets and liabilities, net of effects of divestiture and acquisitions:		
Receivables, net	(109)	(7)
Other assets	43	(128)
Accounts payable and accrued expenses	(18)	(36)
Section 31 fees payable to SEC	(69)	(75)
Accrued personnel costs	(6)	(58)
Deferred revenue	70	52
Other liabilities	1	181
Net cash provided by operating activities	817	624
Cash flows from investing activities:		
Purchases of securities	(252)	(384)
Proceeds from sales and redemptions of securities	372	429
Proceeds from divestiture of business	—	108
Acquisition of businesses, net of cash and cash equivalents acquired	(157)	(193)
Purchases of property and equipment	(128)	(88)
Other investing activities	8	(3)
Net cash used in investing activities	(157)	(131)
Cash flows from financing activities:		
Proceeds from (repayments of) commercial paper, net	(391)	264
Repayments of borrowings under our credit commitment and debt obligations	(1,470)	(1,215)
Payment of debt extinguishment cost	(36)	(11)
Proceeds from issuances of long-term debt, net of issuance costs and utilization of credit commitment	1,928	680
Repurchases of common stock	(186)	(200)
Dividends paid	(239)	(228)
Proceeds received from employee stock activity and other issuances	14	12
Payments related to employee shares withheld for taxes	(31)	(31)
Other financing activities	3	—
Net cash used in financing activities	(408)	(729)
Effect of exchange rate changes on cash and cash equivalents and restricted cash and cash equivalents	3	(17)
Net increase (decrease) in cash and cash equivalents and restricted cash and cash equivalents	255	(253)
Cash and cash equivalents and restricted cash and cash equivalents at beginning of period	362	586
Cash and cash equivalents and restricted cash and cash equivalents at end of period	$ 617	$ 333
Supplemental Disclosure Cash Flow Information		
Cash paid for:		
Interest	$ 69	$ 97
Income taxes, net of refund	$ 218	$ 189

See accompanying notes to condensed consolidated financial statements.

Notes to Condensed Consolidated Financial Statements (Unaudited)

1. Organization and Nature of Operations

Nasdaq is a global technology company serving the capital markets and other industries. Our diverse offerings of data, analytics, software and services enables clients to optimize and execute their business vision with confidence.

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. In November 2019, we sold NFX's futures exchange business to a third party which acquired the core assets of NFX, including the portfolio of open interest in NFX contracts. As of June 30, 2020, all open interest was migrated to other exchanges. Also, in January 2020, management commenced an orderly wind-down of our Nordic broker services operations business. We expect this wind-down to continue through 2021.

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 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 a Canadian exchange for the trading of certain Canadian-listed securities.

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

Nasdaq Commodities is the brand name for Nasdaq's European commodity-related products and services. Nasdaq Commodities' offerings include derivatives in power, natural gas and carbon emission markets, seafood, electricity certificates and clearing services. These products are listed on Nasdaq Oslo ASA, except for seafood, which is listed on Fishpool, a third party platform.

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

Corporate Services

Our Corporate Services segment includes our Listing Services and Corporate Solutions businesses. These businesses deliver critical capital market and governance solutions across the lifecycle of public and private companies.

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

We continue to grow our U.S. Corporate Bond exchange for the listing and trading of corporate bonds. This exchange operates pursuant to The Nasdaq Stock Market exchange license and is powered by NFF. We also continue to grow the Nasdaq Sustainable Bond Network, a platform for increased transparency in the global sustainable bond markets.

As of September 30, 2020, there were 3,249 total listings on The Nasdaq Stock Market, including 409 ETPs. The combined market capitalization was approximately $19.2 trillion. In Europe, the Nasdaq Nordic and Nasdaq Baltic exchanges, together with Nasdaq First North, were home to 1,049 listed companies with a combined market capitalization of approximately $1.8 trillion.

Our Corporate Solutions business includes our Investor Relations Intelligence and Governance Solutions businesses, which serve both public and private companies and organizations. Our public company clients can be companies listed on our exchanges or other U.S. and global exchanges.

We help organizations enhance their ability to understand and expand their global shareholder base and improve corporate governance through our suite of advanced technology, analytics, and consultative services. We provide clients with counsel on a range of governance and sustainability-related issues. Our acquisition of OneReport in February 2020 broadened our environmental, social and governance, or ESG, offerings, which also include our ESG Advisory service and our board assessment and collaboration technology.

Information Services

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

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

Our Index business develops and licenses Nasdaq-branded indexes, associated derivatives, and financial products and sells and distributes historical and real-time index data. As of September 30, 2020, we had 335 ETPs licensed to Nasdaq's indexes which had $313 billion in AUM.

Our Investment Data & Analytics business is a leading content and analytics cloud-based solutions provider used by asset managers, investment consultants and asset owners to help facilitate better investment decisions. In March 2020, we acquired Solovis, which offers multi-asset class, public and private market portfolio management, analytics, and reporting tools used by institutional investors and consultants.

Market Technology

Powering over 100 market infrastructure operators in more than 50 countries, our Market Technology segment is a leading global technology solutions provider and partner to exchanges, clearing organizations, central securities depositories, regulators, banks, brokers, buy-side firms and corporate businesses. Our Market Technology business is the sales channel for our complete global offering to other marketplaces. Our solutions can handle a wide array of assets, including but not limited to cash equities, equity derivatives, currencies, various interest-bearing securities, commodities, energy products and digital currencies. Our solutions can also be used in the creation of new asset classes, and non-capital markets customers, including those in insurance liabilities securitization, cryptocurrencies and sports wagering. During the third quarter of 2020, we announced the launch of the cloud-deployed Nasdaq Automated Investigator, an automated solution for investigating anti-money laundering for retail and commercial banks and other financial institutions.

Nasdaq's market technology is utilized by leading markets in the U.S., Europe and Asia as well as emerging markets in the Middle East, Latin America, and Africa. Additionally, more than 170 market participants leverage our surveillance technology globally to manage their integrity obligations and assist them in complying with market rules, regulations and internal market surveillance policies.

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. These adjustments are of a normal recurring nature. All significant intercompany accounts and transactions have been eliminated in consolidation.

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

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

Accounting Estimates

In preparing our condensed consolidated financial statements, we make assumptions, judgments and estimates that can have a significant impact on our revenue, operating income and net income, as well as on the value of certain assets and liabilities in our condensed consolidated balance sheets. At least quarterly, we evaluate our assumptions, judgments and estimates, and make changes as deemed necessary.

Nasdaq has considered the impact of COVID-19 on the assumptions and estimates used in evaluating our assets and liabilities, including but not limited to our goodwill, intangible assets, equity method investments, equity securities and allowance for losses on accounts receivable. We determined that there were no material adverse impacts on our results of operations and financial position for the three and nine months ended September 30, 2020. In addition, there were no material impairment charges recorded for the three and nine months ended September 30, 2020. These estimates may change as new events occur and additional information is obtained. Actual results could differ from these estimates under different assumptions or conditions.

Recently Adopted Accounting Standard

In June 2016, the FASB issued ASU 2016-13, “Measurement of Credit Losses on Financial Instruments.” This standard changes the impairment model for certain financial instruments. The new model is a forward looking expected loss model and applies 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 trade receivables. For available-for-sale debt securities with unrealized losses, credit losses are measured in a manner similar to previous accounting, except that the losses are recognized as allowances rather than reductions in the amortized cost of the securities.

We adopted this standard on January 1, 2020 using the modified retrospective transition method. We recorded a $12 million non-cash cumulative effect adjustment to retained earnings on our opening Condensed Consolidated Balance Sheets as of January 1, 2020.

The comparative information has not been restated and continues to be reported under the accounting standards in effect for those periods. We expect the impact of the adoption of the new standard to be immaterial to our net income on an on-going basis.

At the date of adoption, the adjustment impacted by the standard related primarily to an adjustment to trade receivables. We took into consideration all financial instruments held at the date of adoption which were impacted by the standard, including reverse repurchase agreements and commercial paper, and estimated the risk of loss to be immaterial. Therefore, no adjustment was recorded for these instruments.

In accordance with the new standard, Nasdaq must recognize an allowance when a receivable or contract asset is established, regardless of whether there has been an incurred loss. Our receivables are concentrated with our member firms, market data distributors, listed companies and corporate solutions and market technology customers.

In order to assess the appropriate allowance as of January 1, 2020, we disaggregated our trade receivables by business unit and the aging of receivables. We concluded that historical loss information is a reasonable starting point on which to determine expected credit losses for trade receivables held at the date of adoption as the composition of our trade receivables at adoption of the standard is materially consistent with that used in developing the historical loss percentages for each business unit. In order to incorporate our expectation of credit losses over the life of our receivables, we considered corporate default rate averages over an extended period as compared to the period covered by our historical loss data and included an adjustment to historical loss percentages for current conditions and expected future conditions at the date of adoption.

The allowance for losses is reviewed monthly and adjustments may be required if economic conditions at the measurement date reflect stronger or weaker economic performance than the historical data implies. If circumstances change (i.e., higher than expected defaults or an unexpected material adverse change in a major customer’s ability to pay), our estimates of recoverability could be reduced by a material amount. When we deem all or a portion of a receivable uncollectible the allowance for losses is reduced by the amount being written off. Any change in the allowance is included in general, administrative and other expense in the Condensed Consolidated Statements of Income.

Receivables are shown net of the allowance for losses. The total allowance netted against receivables in the Condensed Consolidated Balance Sheets was $20 million as of September 30, 2020 and $9 million as of December 31, 2019.

Subsequent Events

There have been no subsequent events through the issuance date of this Quarterly Report on Form 10-Q that would require disclosure in, or adjustment to, the condensed consolidated financial statements.

3. Revenue From Contracts With Customers

Disaggregation of Revenue

The following tables summarize the disaggregation of revenue by major product and service and by segment for the three and nine months ended September 30, 2020 and 2019:

	Three Months Ended September 30, 2020				
	Market Services	Corporate Services	Information Services	Market Technology	Consolidated
	(in millions)				
Transaction-based trading and clearing, net	$ 183	$ —	$ —	$ —	$ 183
Trade management services	76	—	—	—	76
Listing services	—	79	—	—	79
Corporate solutions	—	53	—	—	53
Market data	—	—	107	—	107
Index	—	—	86	—	86
Investment data & analytics	—	—	45	—	45
Market technology	—	—	—	86	86
Revenues less transaction-based expenses	$ 259	$ 132	$ 238	$ 86	$ 715

	Three Months Ended September 30, 2019				
	Market Services	Corporate Services	Information Services	Market Technology	Consolidated
	(in millions)				
Transaction-based trading and clearing, net	$ 154	$ —	$ —	$ —	$ 154
Trade management services	72	—	—	—	72
Listing services	—	74	—	—	74
Corporate solutions	—	50	—	—	50
Market data	—	—	102	—	102
Index	—	—	56	—	56
Investment data & analytics	—	—	40	—	40
Market technology	—	—	—	84	84
Revenues less transaction-based expenses	$ 226	$ 124	$ 198	$ 84	$ 632

For the three months ended September 30, 2020, approximately 67.0% of Market Services revenues were recognized at a point in time and 33.0% were recognized over time. For the three months ended September 30, 2019, approximately 65.0% of Market Services revenues were recognized at a point in time and 35.0% were recognized over time. Substantially all revenues from the Corporate Services, Information Services and Market Technology segments were recognized over time for the three months ended September 30, 2020 and 2019.

	Nine Months Ended September 30, 2020				
	Market Services	Corporate Services	Information Services	Market Technology	Consolidated
	(in millions)				
Transaction-based trading and clearing, net	$ 596	$ —	$ —	$ —	$ 596
Trade management services	221	—	—	—	221
Listing services	—	228	—	—	228
Corporate solutions	—	158	—	—	158
Market data	—	—	305	—	305
Index	—	—	227	—	227
Investment data & analytics	—	—	129	—	129
Market technology	—	—	—	251	251
Revenues less transaction-based expenses	$ 817	$ 386	$ 661	$ 251	$ 2,115

	Nine Months Ended September 30, 2019					
	Market Services	Corporate Services	Information Services	Market Technology	Other Revenues	Consolidated
	(in millions)					
Transaction-based trading and clearing, net	$ 468	$ —	$ —	$ —	$ —	$ 468
Trade management services	219	—	—	—	—	219
Listing services	—	219	—	—	—	219
Corporate solutions	—	149	—	—	—	149
Market data	—	—	302	—	—	302
Index	—	—	166	—	—	166
Investment data & analytics	—	—	117	—	—	117
Market technology	—	—	—	239	—	239
Other revenues	—	—	—	—	10	10
Revenues less transaction-based expenses	$ 687	$ 368	$ 585	$ 239	$ 10	$ 1,889

For the nine months ended September 30, 2020, approximately 70.0% of Market Services revenues were recognized at a point in time and 30.0% were recognized over time. For the nine months ended September 30, 2019, approximately 65.0% of Market Services revenues were recognized at a point in time and 35.0% were recognized over time. The increase in Market Services revenues recognized at a point in time for the nine months ended September 30, 2020 compared with the same period in 2019 was primarily due to higher U.S. industry trading volumes in our equity derivative trading and clearing business and higher U.S. and European industry trading volumes in our cash equity trading business. Substantially all revenues from the Corporate Services, Information Services and Market Technology segments were recognized over time for the nine months ended September 30, 2020 and 2019.

* * * * * *

Contract Balances

Substantially all of our revenues are considered to be revenues from contracts with customers. The related accounts receivable balances are recorded in our Condensed Consolidated Balance Sheets as receivables which are net of allowance for losses of $20 million as of September 30, 2020 and $9 million as of December 31, 2019. The changes in the balance between periods were immaterial. We do not have obligations for warranties, returns or refunds to customers.

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

We do not have a material amount of revenue recognized from performance obligations that were satisfied in prior periods. We do not provide disclosures about transaction price allocated to unsatisfied performance obligations if contract durations are less than one year. Excluding our market technology contracts, for contract durations that are one-year or greater, materially all of the transaction price allocated to unsatisfied performance obligations is included in deferred revenue. For our market technology contracts, the portion of transaction price allocated to unsatisfied performance obligations is shown in the table below. Deferred revenue primarily represents our contract liabilities related to our fees for annual and initial listings, market technology, corporate solutions and information services contracts. Deferred revenue is the only significant contract asset or liability as of September 30, 2020. See Note 7, “Deferred Revenue,” for our discussion on deferred revenue balances, activity, and expected timing of recognition.

Transaction Price Allocated to Remaining Performance Obligations

As stated above, for contract durations that are one-year or greater, we do not have a material portion of transaction price allocated to unsatisfied performance obligations that are not included in deferred revenue other than for our market technology contracts.

For our market technology contracts, the following table summarizes the amount of the transaction price allocated to performance obligations that are unsatisfied as of September 30, 2020:

	(in millions)
2020[(1)]	$ 80
2021	295
2022	175
2023	80
2024	60
2025 and thereafter	140
Total	$ 830

(1) Represents performance obligations to be recognized over the remaining three months of 2020.

Market technology deferred revenue, as discussed in Note 7, "Deferred Revenue," represents consideration received that is yet to be recognized as revenue for unsatisfied performance obligations.

4. Acquisitions and Divestiture

The financial results of the below transactions are included in our condensed consolidated financial statements from the date of each acquisition or divestiture.

2020 Acquisition

Acquisition of Solovis

In March 2020, we acquired Solovis, Inc., which offers multi-asset class, public and private market portfolio management, analytics, and reporting tools used by institutional investors and consultants. Solovis is part of our Information Services segment.

2019 Acquisition and Divestiture

2019 Divestiture

Divestiture of BWise

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

2019 Acquisition

Acquisition of Cinnober

	Purchase Consideration	Total Net Assets Acquired	Total Net Deferred Tax Liability	Acquired Intangible Assets	Goodwill
			(in millions)		
Cinnober	$ 219	$ 18	$ (19)	$ 74	$ 146

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

Nasdaq used cash on hand to fund this acquisition.

The amounts in the table above represent the final allocation of the purchase price.

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

Intangible Assets

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

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

Customer Relationships

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

Methodology

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

Discount Rate

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

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

Estimated Useful Life

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

Pro Forma Results and Acquisition-Related Costs

The condensed consolidated financial statements for the three and nine months ended September 30, 2020 and 2019 include the financial results of the above acquisitions from the dates of these acquisitions. 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 nine months ended September 30, 2020:

	Market Services	Corporate Services	Information Services	Market Technology	Total
			(in millions)		
Balance at December 31, 2019	$ 3,342	$ 460	$ 2,283	$ 281	$ 6,366
Goodwill acquired	—	—	134	—	134
Foreign currency translation adjustment	49	5	40	6	100
Balance at September 30, 2020	$ 3,391	$ 465	$ 2,457	$ 287	$ 6,600

The goodwill acquired for Information Services shown above relates to our acquisition of Solovis. See “2020 Acquisition,” of Note 4, “Acquisitions and Divestiture,” for further discussion of this acquisition.

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 nine months ended September 30, 2020 and 2019; however, events such as extended economic weakness or unexpected significant declines in operating results of any of our reporting units or businesses may result in goodwill impairment charges in the future.

Acquired Intangible Assets

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

	September 30, 2020			December 31, 2019		
	Gross Amount	Accumulated Amortization	Net Amount	Gross Amount	Accumulated Amortization	Net Amount
		(in millions)			(in millions)	
Finite-Lived Intangible Assets						
Technology	$ 76	$ (21)	$ 55	$ 63	$ (19)	$ 44
Customer relationships	1,599	(624)	975	1,596	(532)	1,064
Other	18	(6)	12	18	(5)	13
Foreign currency translation adjustment	(151)	77	(74)	(159)	55	(104)
Total finite-lived intangible assets	$ 1,542	$ (574)	$ 968	$ 1,518	$ (501)	$ 1,017
Indefinite-Lived Intangible Assets						
Exchange and clearing registrations	$ 1,257	$ —	$ 1,257	$ 1,257	$ —	$ 1,257
Trade names	121	—	121	121	—	121
Licenses	52	—	52	52	—	52
Foreign currency translation adjustment	(180)	—	(180)	(198)	—	(198)
Total indefinite-lived intangible assets	$ 1,250	$ —	$ 1,250	$ 1,232	$ —	$ 1,232
Total intangible assets	$ 2,792	$ (574)	$ 2,218	$ 2,750	$ (501)	$ 2,249

Amortization expense for acquired finite-lived intangible assets was $26 million for the three months ended September 30, 2020, $25 million for the three months ended September 30, 2019, and $76 million for both the nine months ended September 30, 2020 and 2019. These amounts are included in depreciation and amortization expense in the Condensed Consolidated Statements of Income.

The estimated future amortization expense (excluding the impact of foreign currency translation adjustments of $74 million as of September 30, 2020) of acquired finite-lived intangible assets as of September 30, 2020 is as follows:

	(in millions)
2020[(1)]	$ 27
2021	109
2022	106
2023	103
2024	98
2025 and thereafter	599
Total	$ 1,042

(1) Represents the estimated amortization to be recognized over the remaining three months of 2020.

6. Investments

The following table presents the details of our investments:

	September 30, 2020	December 31, 2019
	(in millions)	
Financial investments	$ 177	$ 291
Equity method investments	$ 243	$ 156
Equity securities	$ 53	$ 49

Financial Investments

As of September 30, 2020, financial investments are comprised of trading securities, and are primarily comprised of highly rated European government debt securities, Swedish mortgage bonds and highly rated corporate debt, of which $157 million are assets primarily utilized to meet regulatory capital requirements, mainly for our clearing operations at Nasdaq Clearing. As of December 31, 2019, financial investments are comprised of trading securities, and are primarily comprised of highly rated European government debt securities, time deposits and highly rated corporate debt, of which $169 million are assets primarily utilized to meet regulatory capital requirements, mainly for our clearing operations at Nasdaq Clearing.

Equity Method Investments

We record our estimated pro-rata share of earnings or losses each period based on the most recent financial information made available to us and record any dividends as a reduction in the investment balance. As of September 30, 2020 and 2019, our equity method investments primarily included our 40.0% equity interest in OCC.

The carrying amounts of our equity method investments are included in other non-current assets in the Condensed Consolidated Balance Sheets. No material impairments were recorded to reduce the carrying value of our equity method investments for the three and nine months ended September 30, 2020 and 2019.

Net income recognized from our equity interest in the earnings and losses of these equity method investments was $54 million for the three months ended September 30, 2020, $15 million for the three months ended September 30, 2019, $97 million for the nine months ended September 30, 2020, and $71 million for the nine months ended September 30, 2019. For the three and nine months ended September 30, 2020, net income recognized included higher earnings from our OCC ownership interest as a result of high U.S. industry trading volumes. The higher earnings for the first nine months of 2019 is discussed in the following paragraph.

In February 2019, the SEC disapproved the OCC capital plan that had been established in 2015. Following the SEC disapproval, the OCC suspended customer rebates and dividends to owners, including the unpaid dividend on 2018 results. We were not able to determine the impact of the disapproval of the OCC capital plan on OCC's 2018 net income until March 2019, when OCC's 2018 financial statements were made available to us. As a result, during the first quarter of 2019, we recognized an additional $36 million of income relating to our share of OCC's net income for the year ended December 31, 2018, which is included in the $71 million for the nine months ended September 30, 2019.

Equity Securities

The carrying amounts of our equity securities are included in other non-current assets in the Condensed Consolidated Balance Sheets. We elected the measurement alternative for primarily all of our equity securities as they do not have a readily determinable fair value. No material adjustments were made to the carrying value of our equity securities for the three and nine months ended September 30, 2020 and 2019. As of September 30, 2020 and December 31, 2019, our equity securities represent various strategic investments made through our corporate venture program as well as investments acquired through various acquisitions.

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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 nine months ended September 30, 2020 are reflected in the following table:

	Initial Listing Revenues	Annual Listings Revenues	Corporate Solutions Revenues	Information Services Revenues	Market Technology Revenues	Other[1]	Total
	(in millions)						
Balance at December 31, 2019	$ 69	$ 2	$ 41	$ 82	$ 66	$ 14	$ 274
Deferred revenue billed in the current period, net of recognition	29	66	44	67	36	8	250
Revenue recognized that was included in the beginning of the period	(24)	(2)	(39)	(58)	(45)	(8)	(176)
Foreign currency translation adjustment	1	(1)	—	—	3	1	4
Balance at September 30, 2020	$ 75	$ 65	$ 46	$ 91	$ 60	$ 15	$ 352

[1] Balance at September 30, 2020 primarily includes deferred revenue from listing of additional shares fees. In the U.S., these fees will continue to run-off as a result of the implementation of our all-inclusive annual fee. Listing of additional shares fees are included in our Listing Services business.

As of September 30, 2020, we estimate that our deferred revenue will be recognized in the following years:

	Initial Listing Revenues	Annual Listings Revenues	Corporate Solutions Revenues	Information Services Revenues	Market Technology Revenues	Other[1]	Total
	(in millions)						
Fiscal year ended:							
2020[2]	$ 8	$ 65	$ 23	$ 39	$ 25	$ 4	$ 164
2021	28	—	23	52	33	5	141
2022	17	—	—	—	1	3	21
2023	10	—	—	—	1	3	14
2024	7	—	—	—	—	—	7
2025 and thereafter	5	—	—	—	—	—	5
Total	$ 75	$ 65	$ 46	$ 91	$ 60	$ 15	$ 352

(1) Other primarily includes revenues from listing of additional shares fees which are included in our Listing Services business.
(2) Represents the estimated amortization to be recognized for the remaining three months of 2020.

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.

8. Debt Obligations

The following table presents the changes in the carrying amount of our debt obligations during the nine months ended September 30, 2020:

	December 31, 2019	Additions	Payments, Foreign Currency Translation and Accretion	September 30, 2020
		(in millions)		
Short-term debt - commercial paper	$ 391	$ 990	$ (1,381)	$ —
Long-term debt:				
3.875% senior unsecured notes repaid on March 16, 2020	671	—	(671)	—
4.25% senior unsecured notes due June 1, 2024	497	—	1	498
1.75% senior unsecured notes due May 19, 2023	668	—	32	700
3.85% senior unsecured notes due June 30, 2026	497	—	—	497
1.75% senior unsecured notes due March 28, 2029	665	—	32	697
0.875% senior unsecured notes due February 13, 2030	—	644	52	696
3.25% senior unsecured notes due April 28, 2050	—	485	—	485
$1 billion senior unsecured revolving credit facility due April 25, 2022 (average interest rate of 2.37% for the period January 1, 2020 through September 30, 2020)	(2)	799	(799)	(2)
Total long-term debt	2,996	1,928	(1,353)	3,571
Total debt obligations	$ 3,387	$ 2,918	$ (2,734)	$ 3,571

Commercial Paper Program

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

In March 2020, we observed that conditions for Tier 2 commercial paper issuers were deteriorating, impacting both costs and actionable duration of commercial paper issues. To mitigate funding uncertainties and as a precautionary measure to maximize our liquidity and increase our available cash on hand, Nasdaq borrowed $799 million under the revolving credit commitment of the 2017 Credit Facility. In April 2020, Nasdaq issued the 2050 Notes and used the net proceeds to repay a portion of amounts borrowed under the 2017 Credit Facility. In June 2020, the remaining outstanding amount under the 2017 Credit Facility was repaid using cash on hand. For further discussion of the 2050 Notes, see "3.25% Senior Unsecured Notes Due 2050" below and see "2017 Credit Facility" below for further discussion of our 2017 Credit Facility. As of September 30, 2020, we had no outstanding borrowings under our commercial paper program.

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 September 30, 2020, 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. For our Euro denominated notes, the "Payments, Accretion and Other" column also includes the impact of foreign currency translation. Our senior unsecured notes are general unsecured obligations of ours and rank equally with all of our existing and future unsubordinated obligations and they are not guaranteed by any of our subsidiaries. The senior unsecured notes were issued under indentures that, among other things, limit our ability to consolidate, merge or sell all or substantially all of our assets, create liens, and enter into sale and leaseback transactions.

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

Early Extinguishment of 3.875% Senior Unsecured Notes Due 2021

Nasdaq issued the 2021 Notes in June 2013. The 2021 Notes paid interest annually at a rate of 3.875% per annum.

In March 2020, we primarily used the net proceeds from the 2030 Notes to repay in full and terminate our 2021 Notes. For further discussion of the 2030 Notes, see "0.875% Senior Unsecured Notes Due 2030" below. In connection with the early extinguishment of the 2021 Notes, we recorded a charge of $36 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 nine months ended September 30, 2020.

4.25% Senior Unsecured Notes Due 2024

In May 2014, Nasdaq issued the 2024 Notes. The 2024 Notes pay interest semiannually at a rate of 4.25% per annum until June 1, 2024. Such interest rate may vary with Nasdaq's debt rating, to the extent Nasdaq is downgraded below investment grade, up to a rate not to exceed 6.25%.

1.75% Senior Unsecured Notes Due 2023

In May 2016, Nasdaq issued the 2023 Notes. The 2023 Notes pay interest annually at a rate of 1.75% per annum until May 19, 2023. Such interest rate may vary with Nasdaq's debt rating, to the extent Nasdaq is downgraded below investment grade, 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 $32 million noted in the "Payments, Accretion and Other" column in the table above primarily reflects the translation of the 2023 Notes into U.S. dollars and is recorded in accumulated other comprehensive loss within stockholders' equity in the Condensed Consolidated Balance Sheets as of September 30, 2020.

3.85% Senior Unsecured Notes Due 2026

In June 2016, Nasdaq issued the 2026 Notes. The 2026 Notes pay interest semiannually at a rate of 3.85% per annum until June 30, 2026. Such interest rate may vary with Nasdaq's debt rating, to the extent Nasdaq is downgraded below investment grade, up to a rate not to exceed 5.85%.

1.75% Senior Unsecured Notes Due 2029

In April 2019, Nasdaq issued the 2029 Notes. The 2029 Notes pay interest annually at a rate of 1.75% per annum until March 28, 2029. Such interest rate may vary with Nasdaq's debt rating, to the extent Nasdaq is downgraded below investment grade, up to a rate not to exceed 3.75%. The 2029 Notes may be redeemed by Nasdaq at any time, subject to a make-whole amount.

The 2029 Notes have been designated as a hedge of our net investment in certain foreign subsidiaries to mitigate the foreign exchange risk associated with certain investments in these subsidiaries. The increase in the carrying amount of $32 million noted in the "Payments, Accretion and Other" column in the table above primarily reflects the translation of the 2029 Notes into U.S. dollars and is recorded in accumulated other comprehensive loss within stockholders' equity in the Condensed Consolidated Balance Sheets as of September 30, 2020.

0.875% Senior Unsecured Notes Due 2030

In February 2020, Nasdaq issued the 2030 Notes. The 2030 Notes pay interest annually in arrears, beginning on February 13, 2021 and may be redeemed by Nasdaq at any time, subject to a make-whole amount. The proceeds from the 2030 Notes, approximately $644 million after issuing the notes at a discount and deducting underwriting fees of the offering, were primarily used to redeem the 2021 Notes and for other general corporate purposes. For further discussion of the 2021 Notes, see "Early Extinguishment of 3.875% Senior Unsecured Notes Due 2021" above.

The 2030 Notes were 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 $52 million noted in the "Payments, Accretion and Other" column in the table above primarily reflects the translation of the 2030 Notes into U.S. dollars and is recorded in accumulated other comprehensive loss within stockholders' equity in the Condensed Consolidated Balance Sheets as of September 30, 2020.

3.25% Senior Unsecured Notes Due 2050

In April 2020, Nasdaq issued the 2050 Notes. The 2050 Notes pay interest semi-annually in arrears, which began on October 28, 2020 and may be redeemed by Nasdaq at any time, subject to a make-whole amount. The interest rate of 3.25% may vary with Nasdaq's debt rating, to the extent Nasdaq is downgraded below investment grade, up to a rate not to exceed 5.25%. The net proceeds from the 2050 Notes were approximately $485 million after issuing the notes at a discount and deducting underwriting fees of the offering. In April 2020, we used the net proceeds from the 2050 Notes to repay a portion of amounts previously borrowed under the 2017 Credit Facility. See "2017 Credit Facility" below for further discussion of our 2017 Credit Facility.

2017 Credit Facility

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

As discussed under “Commercial Paper Program” above, in March 2020, Nasdaq borrowed $799 million under the revolving credit commitment of the 2017 Credit Facility. In April 2020, we used the net proceeds from the 2050 Notes to repay a portion of amounts previously borrowed under the 2017 Credit Facility, and in June 2020, the remaining outstanding amount was repaid using cash on hand. The ($2) million balance represents unamortized debt issuance costs which are being accreted through interest expense over the life of the credit facility. As of September 30, 2020, availability under the 2017 Credit Facility was $1 billion. For further discussion of the 2050 Notes, see “3.25% Senior Unsecured Notes Due 2050” above.

Under our 2017 Credit Facility, borrowings under the revolving credit facility and swingline borrowings bear interest on the principal amount outstanding at a variable interest rate based on either the LIBOR or the base rate (as defined in the credit agreement) (or other applicable rate with respect to non-dollar borrowings), plus an applicable margin that varies with Nasdaq’s debt rating. We are charged commitment fees of 0.125% to 0.4%, depending on our credit rating, whether or not amounts have been borrowed. These commitment fees are included in interest expense and were not material for the three and nine months ended September 30, 2020 and 2019.

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

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

Other Credit Facilities

Certain of our European subsidiaries have several other credit facilities, which are available in multiple currencies, primarily to support our Nasdaq Clearing operations in Europe, as well to provide a cash pool credit line for one subsidiary. These credit facilities, in aggregate, totaled $214 million as of September 30, 2020 and $203 million as of December 31, 2019 in available liquidity, none of which was utilized as of September 30, 2020, and of which $15 million was utilized as of December 31, 2019. Generally, these facilities each have a one year term. The amounts borrowed under these various credit facilities bear interest on the principal amount outstanding at a variable interest rate based on a base rate (as defined in the applicable credit agreement), plus an applicable margin. We are charged commitment fees (as defined in the applicable credit agreement), whether or not amounts have been borrowed. These commitment fees are included in interest expense and were not material for the three and nine months ended September 30, 2020 and 2019.

These facilities include customary affirmative and negative operating covenants and events of default.

Debt Covenants

As of September 30, 2020, we were in compliance with the covenants of all of our debt obligations.

Transition from LIBOR

Nasdaq is currently evaluating the impact of the transition from LIBOR as an interest rate benchmark to other potential alternative reference rates. Currently, Nasdaq has debt instruments in place that reference LIBOR-based rates. As of September 30, 2020, we did not have material risk exposure to LIBOR through our outstanding debt instruments. The transition from LIBOR is estimated to take place in 2021 and Nasdaq will continue to actively assess the related opportunities and risks involved in this transition.

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 $4 million for both the three months ended September 30, 2020 and 2019, $11 million for the nine months ended September 30, 2020, and $10 million for the nine months ended September 30, 2019.

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 $6 million for the three months ended September 30, 2020, $5 million for the three months ended September 30, 2019, $17 million for the nine months ended September 30, 2020, and $15 million for the nine months ended September 30, 2019.

10. Share-Based Compensation

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

Summary of Share-Based Compensation Expense

The following table shows the total share-based compensation expense resulting from equity awards and the 15.0% discount for the ESPP for the three and nine months ended September 30, 2020 and 2019 which is included in compensation and benefits expense in the Condensed Consolidated Statements of Income:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(in millions)			
Share-based compensation expense before income taxes	$ 24	$ 21	$ 64	$ 57
Income tax benefit	(7)	(6)	(17)	(16)
Share-based compensation expense after income taxes	$ 17	$ 15	$ 47	$ 41

Common Shares Available Under Our Equity Plan

As of September 30, 2020, we had approximately 9.7 million shares of common stock authorized for future issuance under our Equity Plan.

Restricted Stock

We grant restricted stock to most active employees. The grant date fair value of restricted stock awards is based on the closing stock price at the date of grant less the present value of future cash dividends. Restricted stock awards granted to employees below the manager level 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. Restricted stock awards granted to employees at or above the manager level vest 33.3% on the second anniversary of the grant date, 33.3% on the third anniversary of the grant date, and 33.3% on the fourth anniversary of the grant date.

Summary of Restricted Stock Activity

The following table summarizes our restricted stock activity for the nine months ended September 30, 2020:

	Restricted Stock	
	Number of Awards	Weighted-Average Grant Date Fair Value
Unvested at January 1, 2020	1,486,756	$ 77.38
Granted	729,448	$ 89.36
Vested	(446,550)	$ 71.91
Forfeited	(67,013)	$ 80.40
Unvested at September 30, 2020	1,702,641	$ 83.82

As of September 30, 2020, $79 million of total unrecognized compensation cost related to restricted stock is expected to be recognized over a weighted-average period of 1.8 years.

PSUs

PSUs are based on performance measures that impact the amount of shares that each recipient will receive upon vesting. Prior to April 1, 2020, we had two performance-based PSU programs for certain officers, a one-year performance-based program and a three-year cumulative performance-based program that focuses on TSR. Effective with new equity awards issued on April 1, 2020, to better align the equity programs for eligible officers, the one-year performance-based program was eliminated and all eligible officers will participate in the three-year cumulative performance-based program. While the performance periods are complete for all PSUs granted under the one-year performance-based program, some shares underlying these PSUs have not vested.

One-Year PSU Program

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

During 2019, grants of PSUs with a one-year performance period exceeded the applicable performance parameters. As a result, an additional 26,780 units above the original target were granted in the first quarter of 2020.

Three-Year PSU Program

Under the three-year performance-based program, each eligible individual receives PSUs, subject to market conditions, with a three-year cumulative performance period that vest at the end of the performance period. Compensation cost is recognized over the three-year performance period, taking into account an estimated forfeiture rate, regardless of whether the market condition is satisfied, provided that the requisite service period has been completed. Performance will be determined by comparing Nasdaq's TSR to two peer groups, each weighted 50.0%. The first peer group consists of exchange companies, and the second peer group consists of all companies in the S&P 500. Nasdaq's relative performance ranking against each of these groups will determine the final number of shares delivered to each individual under the program. The payout under this program will be between 0.0% and 200.0% of the number of PSUs granted and will be determined by Nasdaq's overall performance against both peer groups. However, if Nasdaq's TSR is negative for the three-year performance period, regardless of TSR ranking, the payout will not exceed 100.0% of the number of PSUs granted. We estimate the fair value of PSUs granted under the three-year PSU program using the Monte Carlo simulation model, as these awards contain a market condition.

Grants of PSUs that were issued in 2017 with a three-year performance period exceeded the applicable performance parameters. As a result, an additional 43,684 units above the original target were granted in the first quarter of 2020 and were fully vested upon issuance.

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 nine months ended September 30, 2020:

	Nine Months Ended September 30,	
	2020	2019
Weighted-average risk free interest rate[(1)]	0.27 %	2.26 %
Expected volatility[(2)]	27.4 %	16.5 %
Weighted-average grant date share price	$92.34	$89.00
Weighted-average fair value at grant date	$111.50	$97.65

(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 nine months ended September 30, 2020:

	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 at January 1, 2020	317,251	$ 80.87	797,451	$ 98.31
Granted[(1)]	26,780	$ 84.17	320,328	$ 107.42
Vested	(10,104)	$ 75.85	(300,767)	$ 81.57
Forfeited	(26,984)	$ 82.27	(6,557)	$ 97.33
Unvested at September 30, 2020	306,943	$ 81.20	810,455	$ 108.13

(1) For both the one-year and the three-year PSU programs, includes additional awards granted based on overachievement of performance parameters. For the three-year PSU program, also includes target awards granted.

As of September 30, 2020, $6 million of total unrecognized compensation cost related to the one-year PSU program is expected to be recognized over a weighted-average period of 1.3 years. For the three-year PSU program, $39 million of total unrecognized compensation cost is expected to be recognized over a weighted-average period of 1.5 years.

Stock Options

There were no stock option awards granted during the nine months ended September 30, 2020.

Summary of Stock Option Activity

A summary of stock option activity for the nine months ended September 30, 2020 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, 2020	379,102	$ 54.32	5.27	$ 20
Exercised	(80,378)	23.82		
Forfeited	(435)	19.75		
Outstanding and exercisable at September 30, 2020	298,289	$ 62.59	5.69	$ 18

The net cash proceeds from the exercise of 25,113 stock options for the three months ended September 30, 2020 was $1 million. The net cash proceeds from the exercise of 80,378 stock options for the nine months ended September 30, 2020 was $2 million. The net cash proceeds from the exercise of 9,216 stock options for the three months ended September 30, 2019 was immaterial. The net cash proceeds from the exercise of 62,624 stock options for the nine months ended September 30, 2019 was $1 million.

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 September 30, 2020 of $122.71 and the exercise price, times the number of shares), 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 September 30, 2020 was 0.3 million and the weighted-average exercise price was $62.59. As of September 30, 2019, 0.3 million outstanding stock options were exercisable and the weighted-average exercise price was $49.76.

The total pre-tax intrinsic value of stock options exercised was $2 million for the three months ended September 30, 2020, $1 million for the three months ended September 30, 2019, $8 million for the nine months ended September 30, 2020, and $5 million for the nine months ended September 30, 2019.

ESPP

We have an ESPP under which approximately 4.5 million shares of our common stock were available for future issuance as of September 30, 2020. 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 September 30, 2020 and 2019, $4 million for the nine months ended September 30, 2020, and $3 million for the nine months ended September 30, 2019.

11. Nasdaq Stockholders' Equity

Common Stock

As of September 30, 2020, 300,000,000 shares of our common stock were authorized, 170,298,054 shares were issued and 164,020,697 shares were outstanding. As of December 31, 2019, 300,000,000 shares of our common stock were authorized, 171,075,011 shares were issued and 165,094,440 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 shareholder to vote in excess of 5.0% of the then-outstanding shares of Nasdaq common stock.

Common Stock in Treasury, at Cost

We account for the purchase of treasury stock under the cost method with the shares of stock repurchased reflected as a reduction to Nasdaq stockholders' equity and included in common stock in treasury, at cost in the Condensed Consolidated Balance Sheets. Shares repurchased under our share repurchase program are currently retired and canceled and are therefore not included in the common stock in treasury balance. When treasury shares are reissued, they are recorded at the average cost of the treasury shares acquired. We held 6,277,357 shares of common stock in treasury as of September 30, 2020 and 5,980,571 shares as of December 31, 2019, most of which are related to shares of our common stock withheld for the settlement of employee tax withholding obligations arising from the vesting of restricted stock and PSUs.

Share Repurchase Program

As of September 30, 2020, the remaining aggregate authorized amount under the existing share repurchase program was $446 million.

These purchases may be made from time to time at prevailing market prices in open market purchases, privately-negotiated transactions, block purchase techniques or otherwise, as determined by our management. The purchases are primarily funded from existing cash balances. The share repurchase program may be suspended, modified or discontinued at any time. The share repurchase program has no defined expiration date.

The following is a summary of our share repurchase activity, reported based on settlement date, for the nine months ended September 30, 2020 and 2019:

	Nine Month Ended September 30,	
	2020	2019
Number of shares of common stock repurchased[(1)]	1,752,474	2,053,855
Average price paid per share	$ 106.26	$ 97.37
Total purchase price (in millions)	$ 186	$ 200

(1) Excludes shares withheld upon vesting of restricted stock and PSUs of 296,786 for the nine months ended September 30, 2020 and 363,813 for the nine months ended September 30, 2019.

As discussed above in "Common Stock in Treasury, at Cost," shares repurchased under our share repurchase program are currently retired and cancelled.

Preferred Stock

Our certificate of incorporation authorizes the issuance of 30,000,000 shares of preferred stock, par value $0.01 per share, issuable from time to time in one or more series. As of September 30, 2020 and December 31, 2019, no shares of preferred stock were issued or outstanding.

Cash Dividends on Common Stock

During the first nine months of 2020, 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 28, 2020	$ 0.47	March 13, 2020	$ 78	March 27, 2020
April 22, 2020	0.49	June 12, 2020	80	June 26, 2020
July 22, 2020	0.49	September 11, 2020	81	September 25, 2020
			$ 239	

The total amount paid of $239 million was recorded in retained earnings in the Condensed Consolidated Balance Sheets at September 30, 2020.

In October 2020, the board of directors approved a regular quarterly cash dividend of $0.49 per share on our outstanding common stock. The dividend is payable on December 18, 2020 to shareholders of record at the close of business on December 4, 2020. The estimated amount of this dividend is $80 million. Future declarations of quarterly dividends and the establishment of future record and payment dates are subject to approval by the board of directors.

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

12. Earnings Per Share

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Numerator:	(in millions, except share and per share amounts)			
Net income attributable to common shareholders	$ 264	$ 150	$ 708	$ 571
Denominator:				
Weighted-average common shares outstanding for basic earnings per share	164,171,067	164,331,832	164,377,053	165,086,951
Weighted-average effect of dilutive securities:				
Employee equity awards[1]	2,328,540	1,705,665	2,071,848	1,611,232
Contingent issuance of common stock[2]	992,247	992,247	330,749	330,749
Weighted-average common shares outstanding for diluted earnings per share	167,491,854	167,029,744	166,779,650	167,028,932
Basic and diluted earnings per share:				
Basic earnings per share	$ 1.61	$ 0.91	$ 4.31	$ 3.46
Diluted earnings per share	$ 1.58	$ 0.90	$ 4.25	$ 3.42

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

(2) See "Non-Cash Contingent Consideration," of Note 17, "Commitments, Contingencies and Guarantees," for further discussion.

Securities that were not included in the computation of diluted earnings per share because their effect was antidilutive were immaterial for the three months ended September 30, 2019 and both the nine months ended September 30, 2020 and 2019. There were no securities excluded for the three months ended September 30, 2020.

13. Fair Value of Financial Instruments

The following tables present our financial assets and financial liabilities that were measured at fair value on a recurring basis as of September 30, 2020 and December 31, 2019.

	September 30, 2020				December 31, 2019			
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
	(in millions)				(in millions)			
Assets at Fair Value								
Debt securities:								
European government	$ 139	$ 139	$ —	$ —	$ 157	$ 157	$ —	$ —
Corporate	14	—	14	—	34	—	34	—
State owned enterprises and municipalities	3	—	3	—	24	—	24	—
Swedish mortgage bonds	21	—	21	—	19	—	19	—
Time deposits	—	—	—	—	57	—	57	—
Total assets at fair value	$ 177	$ 139	$ 38	$ —	$ 291	$ 157	$ 134	$ —

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 and cash equivalents, receivables, net, certain other current assets, accounts payable and accrued expenses, Section 31 fees payable to SEC, accrued personnel costs, commercial paper and certain other current liabilities.

Our investment in OCC is accounted for under the equity method of accounting. We have elected the measurement alternative for the majority of our equity securities, which primarily represent various strategic investments made through our corporate venture program. See "Equity Method Investments," and "Equity Securities," of Note 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 $3.9 billion as of September 30, 2020 and $3.6 billion as of December 31, 2019. The discounted cash flow analyses are based on borrowing rates currently available to us for debt with similar terms and maturities. As of September 30, 2020, we had no outstanding borrowings under our commercial paper program. The fair value of our commercial paper as of December 31, 2019 approximated the carrying value since the rates of interest on this short-term debt approximated market rates. 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."

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

Our non-financial assets, which include goodwill, intangible assets, and other long-lived assets, are not required to be carried at fair value on a recurring basis. Fair value measures of non-financial assets are primarily used in the impairment analysis of these assets. Any resulting asset impairment would require that the non-financial asset be recorded at its fair value. Nasdaq uses Level 3 inputs to measure the fair value of the above assets on a non-recurring basis. As of September 30, 2020 and December 31, 2019, there were no non-financial assets measured at fair value on a non-recurring basis.

14. Clearing Operations

Nasdaq Clearing

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

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

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

Nasdaq Commodities Clearing Default

In September 2018, a member of the Nasdaq Clearing commodities market defaulted due to inability to post sufficient collateral to cover increased margin requirements for the positions of the relevant member, which had experienced losses due to sharp adverse movements in the Nordic - German power market spread. Nasdaq Clearing followed default procedures and offset the future market risk on the defaulting member's positions. The default resulted in an initial loss of $133 million. In accordance with the liability waterfall, the first $8 million of the loss was allocated to Nasdaq Clearing's junior capital and the remainder was allocated on a pro-rata basis to the commodities clearing members' default funds. In September 2018, these funds were replenished.

In December 2018, we initiated a capital relief program. The capital relief program was a voluntary program open to each commodities default fund participant; each such participant who agreed to the capital relief program received a proportion of the funds made available under the capital relief program as reflected by their proportionate share of the aggregate of the clearing members' default fund replenishments. As of September 30, 2020, we have disbursed substantially all of the $23 million offered through the program. In addition to the capital relief program, we are pursuing recovery of assets from the defaulted member which will be allocated back to default fund participants.

Default Fund Contributions and Margin Deposits

As of September 30, 2020, clearing member default fund contributions and margin deposits were as follows:

	September 30, 2020		
	Cash Contributions	Non-Cash Contributions	Total Contributions
	(in millions)		
Default fund contributions	$ 482	$ 89	$ 571
Margin deposits	2,896	5,293	8,189
Total	$ 3,378	$ 5,382	$ 8,760

Of the total default fund contributions of $571 million, Nasdaq Clearing can utilize $473 million as capital resources in the event of a counterparty default. The remaining balance of $98 million pertains to member posted surplus balances.

Our clearinghouse holds material amounts of clearing member cash deposits which are held or invested primarily to provide security of capital while minimizing credit, market and liquidity risks. While we seek to achieve a reasonable rate of return, we are primarily concerned with preservation of capital and managing the risks associated with these deposits.

Clearing member cash contributions are maintained in demand deposits held at central banks and large, highly rated financial institutions or secured through direct investments, primarily central bank certificates and European government debt securities with original maturities of 90 days or less, reverse repurchase agreements, supranationals and state owned enterprise debt securities. Investments in reverse repurchase agreements are secured with highly rated government securities with maturity dates that range from 6 days to 8 days. The carrying value of these securities approximates their fair value due to the short-term nature of the instruments and reverse repurchase agreements.

Nasdaq Clearing has invested the total cash contributions of $3,378 million as of September 30, 2020 and $2,996 million as of December 31, 2019, in accordance with its investment policy as follows:

	September 30, 2020	December 31, 2019
	(in millions)	
Demand deposits	$ 1,788	$ 1,328
Central bank certificates	666	896
European government debt securities	436	508
Reverse repurchase agreements	388	116
Supranationals and state owned enterprise debt securities	100	148
Total	$ 3,378	$ 2,996

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

Default Fund Contributions

Required contributions to the default funds are proportional to the exposures of each clearing member. When a clearing member is active in more than one market, contributions must be made to all markets' default funds in which the member is active. Clearing members' eligible contributions may include cash and non-cash contributions. Cash contributions received are held in cash or invested by Nasdaq Clearing, in accordance with its investment policy, either in highly rated government debt securities, time deposits, central bank certificates or reverse repurchase agreements with highly rated government debt securities as collateral. Nasdaq Clearing maintains and manages all cash deposits related to margin collateral. All risks and rewards of collateral ownership, including interest, belong to Nasdaq Clearing. Clearing members' cash contributions are included in default funds and margin deposits in the Condensed Consolidated Balance Sheets as both a current asset and a current liability. Non-cash contributions include highly rated government debt securities that must meet specific criteria approved by Nasdaq Clearing. Non-cash contributions are pledged assets that are not recorded in the 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 September 30, 2020, Nasdaq Clearing committed capital totaling $131 million to the liability waterfall and overall regulatory capital, in the form of government debt securities, which are recorded as financial investments in the Condensed Consolidated Balance Sheets. The combined regulatory capital of the clearing members and Nasdaq Clearing is intended to secure the obligations of a clearing member exceeding such member's own margin and default fund deposits and may be used to cover losses sustained by a clearing member in the event of a default.

Margin Deposits

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

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

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

Regulatory Capital and Risk Management Calculations

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

As mentioned above, Nasdaq Clearing is the legal counterparty for each contract cleared and thereby guarantees the fulfillment of each contract. Nasdaq Clearing accounts for this guarantee as a performance guarantee. We determine the fair value of the performance guarantee by considering daily settlement of contracts and other margining and default fund requirements, the risk management program, historical evidence of default payments, and the estimated probability of potential default payouts. The calculation is determined using proprietary risk management software that simulates gains and losses based on historical market prices, extreme but plausible market scenarios, volatility and other factors present at that point in time for those particular unsettled contracts. Based on this analysis, excluding any liability related to the Nasdaq commodities clearing default (see discussion above), the estimated liability was nominal and no liability was recorded as of September 30, 2020.

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 230.0% 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 $36 million as of September 30, 2020;
- a loss sharing pool related only to the financial market that is contributed to by clearing members and only applies if the defaulting member's portfolio includes interest rate swap products;
- specific market default fund where the loss occurred (i.e., the financial, commodities, or seafood market), which includes capital contributions of the clearing members on a pro-rata basis;
- senior capital contributed to each specific market by Nasdaq Clearing, calculated in accordance with clearinghouse rules, which totaled $22 million as of September 30, 2020; and
- mutualized default fund, which includes capital contributions of the clearing members on a pro-rata basis.

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

In addition to the capital held to withstand counterparty defaults described above, Nasdaq Clearing also has committed capital of $73 million to ensure that it can handle an orderly wind-down of its operation, and that it is adequately protected against investment, operational, legal, and business risks.

Market Value of Derivative Contracts Outstanding

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

	September 30, 2020
	(in millions)
Commodity and seafood options, futures and forwards(1)(2)(3)	$ 163
Fixed-income options and futures(1)(2)	792
Stock options and futures(1)(2)	168
Index options and futures(1)(2)	100
Total	$ 1,223

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

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

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

Derivative Contracts Cleared

The following table includes the total number of derivative contracts cleared through Nasdaq Clearing for the nine months ended September 30, 2020 and 2019:

	September 30, 2020	September 30, 2019
Commodity and seafood options, futures and forwards(1)	476,480	393,153
Fixed-income options and futures	16,456,583	15,780,707
Stock options and futures	14,322,903	18,030,431
Index options and futures	41,202,460	35,752,600
Total	72,458,426	69,956,891

(1) The total volume in cleared power related to commodity contracts was 670 Terawatt hours (TWh) for the nine months ended September 30, 2020 and 614 TWh for the nine months ended September 30, 2019.

The outstanding contract value of resale and repurchase agreements was $2.4 billion as of September 30, 2020 and $2.1 billion as of September 30, 2019. The total number of contracts cleared was 3,639,384 for the nine months ended September 30, 2020 and was 5,580,836 for the nine months ended September 30, 2019.

15. Leases

We have operating leases which are primarily real estate leases for our U.S. and European headquarters and for general office space. The following table provides supplemental balance sheet information related to Nasdaq's operating leases:

Leases	Balance Sheet Classification	September 30, 2020	December 31, 2019
		(in millions)	
Assets:			
Operating lease assets	Operating lease assets	$ 387	$ 346
Liabilities:			
Current lease liabilities	Other current liabilities	$ 42	$ 61
Non-current lease liabilities	Operating lease liabilities	397	331
Total lease liabilities		$ 439	$ 392

The following table summarizes Nasdaq's lease cost:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(in millions)			
Operating lease cost[1]	$ 22	$ 19	$ 63	$ 58
Variable lease cost	8	6	20	18
Sublease income	(1)	(1)	(3)	(4)
Total lease cost	$ 29	$ 24	$ 80	$ 72

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

The following table reconciles the undiscounted cash flows for each of the first five years and total of the remaining years to the operating lease liabilities recorded in our Condensed Consolidated Balance Sheets.

	September 30, 2020
	(in millions)
2020[1]	$ 19
2021	60
2022	53
2023	49
2024	43
Thereafter	341
Total lease payments	565
Less: interest[2]	(126)
Present value of lease liabilities[3]	$ 439

(1) Represents the estimated lease payments to be made for the remaining three months of 2020.
(2) Calculated using the interest rate for each lease.
(3) Includes the current portion of $42 million.

Total lease payments in the above table exclude $8 million of legally binding minimum lease payments for leases signed as of September 30, 2020 that commenced, or will commence, as applicable, in October 2020, November 2020 and January 2021 with lease terms of 3 to 5 years.

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

	September 30, 2020
Weighted-average remaining lease term (in years)	11.6
Weighted-average discount rate	4.2 %

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

	Nine Months Ended September 30,	
	2020	2019
	(in millions)	
Cash paid for amounts included in the measurement of operating lease liabilities	$ 57	$ 59
Lease assets obtained in exchange for new operating lease liabilities	$ 94	$ 20

16. Income Taxes

Income Tax Provision

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

	Three Months Ended September 30,		Percentage Change
	2020	2019	
	(in millions)		
Income tax provision	$ 93	$ 65	43.1 %
Effective tax rate	26.1 %	30.2 %	

	Nine Months Ended September 30,		Percentage Change
	2020	2019	
	(in millions)		
Income tax provision	$ 237	$ 196	20.9 %
Effective tax rate	25.1 %	25.6 %	

The lower effective tax rate in the third quarter of 2020 was primarily due to a change in uncertain tax positions recorded in the third quarter of 2019. The lower effective tax rate in the first nine months of 2020 is primarily due to a compensation deduction which was determined to be allowable in the current year.

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

Tax Audits

Nasdaq and its eligible subsidiaries file a consolidated U.S. federal income tax return and applicable state and local income tax returns and non-U.S. income tax returns. We are subject to examination by federal, state and local, and foreign tax authorities. Federal income tax returns for the years 2012 through 2016 are currently under examination by the Internal

Revenue Service and we are subject to examination by the Internal Revenue Service for 2017 through 2019. Several state tax returns are currently under examination by the respective tax authorities for the years 2007 through 2018. Non-U.S. tax returns are subject to examination by the respective tax authorities for the years 2014 through 2019. We regularly assess the likelihood of additional assessments by each jurisdiction and have established tax reserves that we believe are adequate in relation to the potential for additional assessments. Examination outcomes and the timing of examination settlements are subject to uncertainty. 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. We do not expect to settle any material tax audits in the next twelve months.

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

17. 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 \$4 million as of September 30, 2020 and \$11 million as of December 31, 2019. As discussed in "Other Credit Facilities," of Note 8, "Debt Obligations," we also have credit facilities primarily related to our Nasdaq Clearing operations, which are available in multiple currencies, and totaled \$214 million as of September 30, 2020 and \$203 million as of December 31, 2019 in available liquidity, none of which was utilized as of September 30, 2020, and of which \$15 million was utilized as of December 31, 2019.

Execution Access is an introducing broker which operates the trading platform for our Fixed Income business to trade in U.S. Treasury securities. Execution Access has a clearing arrangement with Industrial and Commercial Bank of China Financial Services LLC, or ICBC. As of September 30, 2020, we have contributed \$10 million of clearing deposits to ICBC in connection with this clearing arrangement. These deposits are recorded in other current assets in our Condensed Consolidated Balance Sheets. Some of the trading activity in Execution Access is cleared by ICBC through the Fixed Income Clearing Corporation, with ICBC acting as agent. Execution Access assumes the counterparty risk of clients that do not clear through the Fixed Income Clearing Corporation. Counterparty risk of clients exists for Execution Access between the trade date and the settlement date of the individual transactions, which is at least one business day (or more, if specified by the U.S. Treasury issuance calendar). Counterparties that do not clear through the Fixed Income Clearing Corporation are subject to a credit due diligence process and may be required to post collateral, provide principal letters, or provide other forms of credit enhancement to Execution Access for the purpose of mitigating counterparty risk. Daily position trading limits are also enforced for such counterparties.

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

Other Guarantees

Through our clearing operations in the financial markets, Nasdaq Clearing is the legal counterparty for, and guarantees the performance of, its clearing members. See Note 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 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 issued annually 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.

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

Litigation

As previously disclosed, we are named as one of many defendants in City of Providence v. BATS Global Markets, Inc., et al., 14 Civ. 2811 (S.D.N.Y.), which was filed on April 18, 2014 in the United States District Court for the Southern District of New York. The district court appointed lead counsel, who filed an amended complaint on September 2, 2014. The amended complaint names as defendants seven national exchanges, as well as Barclays PLC, which operated a private alternative trading system. On behalf of a putative class of securities traders, the plaintiffs allege that the defendants engaged in a scheme to manipulate the markets through high-frequency trading; the amended complaint asserts claims against us under Section 10(b) of the Exchange Act and Rule 10b-5, as well as under Section 6(b) of the Exchange Act. The plaintiffs seek injunctive and monetary relief of an unspecified amount. We filed a motion to dismiss the amended complaint on November 3, 2014. In response, the plaintiffs filed a second amended complaint on November 24, 2014, which names the same defendants and alleges essentially the same violations. We then filed a motion to dismiss the second amended complaint on January 23, 2015. On August 26, 2015, the district court entered an order dismissing the second amended complaint in its entirety. The plaintiffs appealed the judgment of dismissal to the United States Court of Appeals for the Second Circuit (although opting not to appeal the dismissal with respect to Barclays PLC or the dismissal of claims under Section 6(b) of the Exchange Act). On December 19, 2017, the Second Circuit issued an opinion vacating the district court's judgment of dismissal and remanding to the district court for further proceedings. On May 18, 2018, the exchanges filed a motion to dismiss the amended complaint, raising issues not addressed in the proceedings to date. On May 28, 2019, the district court denied the exchanges' renewed motion to dismiss. The parties are currently engaged in the discovery process. On June 17, 2019, the exchanges filed a motion to certify the district court's order for immediate review by the Second Circuit and on July 16, 2019, the district court denied the motion. Given the preliminary nature of the proceedings, we are unable to estimate what, if any, liability may result from this litigation. However, we believe that the claims are without merit and will continue to litigate vigorously.

Nasdaq Commodities Clearing Default

During September 2018, a clearing member of Nasdaq Clearing's commodities market was declared in default. We have been cooperating fully with the SFSA in the associated regulatory audits. While we are currently unable to predict the final outcome of this matter, it could include penalties, such as a fine. We do not expect this matter will have a material impact on our consolidated financial statements. See "Nasdaq Commodities Clearing Default," of Note 14, "Clearing Operations," for further information on this event.

SEC Decisions

In recent years, certain industry groups have challenged the level of fees that U.S. exchanges charge for market data and connectivity. In October 2018, the SEC reversed a prior administrative decision and found that Nasdaq had not met a burden of demonstrating that certain challenged fees were fair and reasonable. In addition, the SEC remanded a series of additional challenges to market data and connectivity fees back to Nasdaq for further consideration. On June 5, 2020, a three-judge panel of the U.S. Court of Appeals for the District of Columbia Circuit vacated both SEC decisions, finding that the SEC lacked authority to review fees under the statutory provisions that it had relied upon. The applicable deadlines for a party to seek further review of the Court's decisions have now passed.

Other Matters

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

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

Tax Audits

We are engaged in ongoing discussions and audits with taxing authorities on various tax matters, the resolutions of which are uncertain. Currently, there are matters that may lead to assessments, some of which may not be resolved for several years. Based on currently available information, we believe we have adequately provided for any assessments that could result from those proceedings where it is more likely than not that we will be assessed. We review our positions on these matters as they progress. See "Tax Audits," of Note 16, "Income Taxes," for further discussion.

18. 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. Our chief operating decision maker does not review total assets or statements of income below operating income by segments as key performance metrics; therefore, such information is not presented below.

* * * * * *

The following table presents certain information regarding our business segments for the three and nine months ended September 30, 2020 and 2019:

	Market Services	Corporate Services	Information Services	Market Technology	Corporate Items	Consolidated
			(in millions)			
Three Months Ended September 30, 2020						
Total revenues	$ 958	$ 132	$ 238	$ 86	$ —	$ 1,414
Transaction-based expenses	(699)	—	—	—	—	(699)
Revenues less transaction-based expenses	259	132	238	86	—	715
Operating income (loss)	$ 154	$ 51	$ 155	$ 9	$ (43)	$ 326
Three Months Ended September 30, 2019						
Total revenues	$ 690	$ 124	$ 198	$ 84	$ —	$ 1,096
Transaction-based expenses	(464)	—	—	—	—	(464)
Revenues less transaction-based expenses	226	124	198	84	—	632
Operating income (loss)	$ 129	$ 45	$ 126	$ 15	$ (89)	$ 226
Nine Months Ended September 30, 2020						
Total revenues	$ 2,867	$ 386	$ 661	$ 251	$ —	$ 4,165
Transaction-based expenses	(2,050)	—	—	—	—	(2,050)
Revenues less transaction-based expenses	817	386	661	251	—	2,115
Operating income (loss)	$ 509	$ 145	$ 420	$ 32	$ (190)	$ 916
Nine Months Ended September 30, 2019						
Total revenues	$ 1,995	$ 368	$ 585	$ 239	$ 10	$ 3,197
Transaction-based expenses	(1,308)	—	—	—	—	(1,308)
Revenues less transaction-based expenses	687	368	585	239	10	1,889
Operating income (loss)	$ 392	$ 134	$ 372	$ 29	$ (170)	$ 757

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

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

Merger and strategic initiatives expense: We have pursued various strategic initiatives and completed acquisitions and divestitures in recent years that have resulted in expenses which would not have otherwise been incurred. These expenses generally include integration costs, as well as legal, due diligence and other third party transaction costs. The frequency and the amount of such expenses vary significantly based on the size, timing and complexity of the transaction. Management does not consider merger and strategic initiatives 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 merger and strategic initiatives expense provide management with a useful representation of our segments' ongoing activity in each period.

Restructuring charges: We initiated the transition of certain technology platforms to advance our strategic opportunities as a technology and analytics provider and continue the re-alignment of certain business areas. See Note 19, “Restructuring Charges,” for further discussion of our 2019 restructuring plan. We believe performance measures excluding restructuring charges provide management with a useful representation of our segments' ongoing activity in each period.

2019 divestiture: We have included in corporate items the revenues and expenses of BWise which were part of the Corporate Solutions business within our Corporate Services segment as BWise was sold in March 2019. See “2019 Divestiture,” of Note 4, “Acquisitions and Divestiture,” for further discussion.

Other significant items: We have included certain other charges or gains in corporate items, to the extent we believe they should be excluded when evaluating the ongoing operating performance of each individual segment. Other significant items included:

- for the three and nine months ended September 30, 2020 and 2019, a provision for notes receivable associated with the funding of technology development for a market-wide consolidated audit trail established by Nasdaq and other exchanges under an SEC approved plan, or CAT;
- for the nine months ended September 30, 2020 and 2019, a loss on extinguishment of debt; and
- for the nine months ended September 30, 2020, charitable donations made to the Nasdaq Foundation, COVID-19 response and relief efforts, and social justice charities.

The above charges are recorded in general, administrative and other expense in our Condensed Consolidated Statements of Income.

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

* * * * * *

A summary of our corporate items is as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(in millions)			
Revenues - divested business	$ —	$ —	$ —	$ 10
Expenses:				
Amortization expense of acquired intangible assets	26	25	76	76
Merger and strategic initiatives expense	1	10	12	25
Restructuring charges	11	30	36	30
Provision for notes receivable	6	20	6	20
Extinguishment of debt	—	—	36	11
Charitable donations	—	—	17	—
Expenses - divested business	—	—	—	8
Other	(1)	4	7	10
Total expenses	43	89	190	180
Operating loss	$ (43)	$ (89)	$ (190)	$ (170)

For further discussion of our segments’ results, see “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations-Segment Operating Results.”

19. Restructuring Charges

In September 2019, we initiated the transition of certain technology platforms to advance the company's strategic opportunities as a technology and analytics provider and continue the re-alignment of certain business areas. In connection with these restructuring efforts, we are retiring certain elements of our marketplace infrastructure and technology product offerings as we implement NFF and other technologies internally and externally. This represents a fundamental shift in our strategy and technology as well as executive re-alignment. As a result of these actions, we expect to incur approximately $100 million in pre-tax charges over a two year period related primarily to non-cash items such as asset impairments, accelerated depreciation as well as third-party consulting costs. Severance and employee-related charges also will be incurred. Restructuring charges are recorded on restructuring plans that have been committed to by management and are, in part, based upon management’s best estimates of future events.

The following table presents a summary of the 2019 restructuring plan charges in the Condensed Consolidated Statements of Income for the three and nine months ended September 30, 2020 and 2019 which primarily consisted of consulting services, asset impairment charges primarily related to capitalized software that was retired, and accelerated depreciation expense on certain assets as a result of a decrease in their useful life.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(in millions)			
Asset impairment charges and accelerated depreciation expense	$ 2	$ 25	$ 10	$ 25
Consulting services	6	—	15	—
Contract terminations	—	—	3	—
Severance and employee-related costs	2	3	3	3
Other	1	2	5	2
Total restructuring charges	$ 11	$ 30	$ 36	$ 30

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.

Impact of COVID-19 on Our Business

We continue to closely monitor developments related to COVID-19 and to assess its impact on our business. COVID-19 has caused significant economic and financial turmoil both in the U.S. and around the world. We have implemented risk management and contingency plans and have taken preventive measures and other precautions to maintain normal business operations. As COVID-19 spread across the world, we moved quickly to transition our global workforce to a remote operating environment, through a combination of work-from-home and split teams for critical on-site employees.

As of September 30, 2020, the vast majority of our global team remain working from home. For the limited staff around the world who are performing critical on-site functions in our offices, we have deployed extra precautions to protect their safety. We are working to reopen certain offices in a deliberate manner, and expect to open additional offices during the remainder of the year, following local health guidance and after receiving employee feedback regarding their intent to return to the workplace. The majority of our re-opened offices are located in countries or, in certain cases, cities with favorable health data. We will monitor conditions, guidance from health officials, and local regulations in these locations and, if circumstances change, we may close these offices again if necessary in order to safeguard our employees and stakeholders. We have reiterated to our global workforce that, through June 2021, an employee's return to the office from remote work is entirely voluntary.

During the third quarter of 2020, our operations have continued with minimal disruption. As of September 30, 2020, COVID-19 has not had a significant negative impact on our business operations, employee availability, financial condition, liquidity or cash flows.

As further discussed in Note 8, “Debt Obligations,” to the condensed consolidated financial statements and Item 2. “Management’s Discussion and Analysis of Financial Condition and Results of Operations-Liquidity and Capital Resources,” given the market uncertainties posed by COVID-19 and related economic impacts, in March 2020, we took actions to strengthen our liquidity and cash position and address refinancing risks and borrowed $799 million under the revolving credit commitment of the 2017 Credit Facility. In April 2020, we further enhanced the strength of our balance sheet and issued the 2050 Notes. We used the net proceeds from this offering to repay a portion of amounts previously borrowed under the 2017 Credit Facility, and in June 2020 the remaining outstanding amount under the 2017 Credit Facility was repaid using cash on hand. Additionally, during June 2020, we repaid all of our outstanding commercial paper borrowings.

Although we have not experienced significant negative impacts to our operations as a result of COVID-19, our Market Technology segment continues to be affected. Due to the continuing effect of the pandemic, particularly in the United States, it is possible that the outbreak may impact our results of operations for the remainder of the year and possibly beyond as an economic downturn could adversely impact the demand for our services.

Our general outlook, and the current and potential impact to each of our segments as a result of COVID-19, is discussed below.

Market Services

We believe that it is difficult to predict trading volumes from quarter to quarter. Trading volumes, particularly in equity and equity-linked derivatives, were again elevated during the third quarter of 2020. We believe that these elevated volumes were due to the implications of the pandemic and significant sector rotations in the market, such as increased demand for technology and healthcare. We continue to believe that the combination of continued global economic uncertainty, and the upcoming U.S. election, may lead to increased volumes for our markets in the remainder of 2020. However, there is no assurance that volumes will continue at this level during the fourth quarter of 2020.

Corporate Services

In Listing Services, despite the impact of COVID-19 on the overall economy, we experienced increased demand for IPOs in the third quarter of 2020. We remain positive regarding our listed issuer base due to the increase in IPOs and the pipeline for new offerings, but we cannot predict investor demand for new IPOs for the remainder of the year.

Information Services

In our Information Services segment, we continue to experience varied implications of the current environment on each of our businesses.

Our Market Data business has demonstrated resilience and a stable performance, but is not completely immune when economic downturns are more protracted.

Our Index business continues to demonstrate strong resilience and growth. This business has benefited from inflows into Nasdaq-licensed ETPs, continued growth in the volumes of Nasdaq-listed futures, and from the market rebound. In particular, we have observed strong net inflows to our flagship index, the Nasdaq-100. Additionally, we recently announced the launch of two new licensed index futures contracts, the Nasdaq-100 Volatility Index (VOLQ) and the Nasdaq Veles California Water Index (NQH20).

Market Technology

In our Market Technology segment, our large, diverse, and well-established customer base across market infrastructure operators and banks and brokers, with long-term contracts, has helped support this business during the current environment.

During the third quarter of 2020, our technical support teams have continued to adapt to a remote work environment to support our customers. We have developed new methods of improving execution of critical project phases while in a virtual environment, and we have increased hiring of our technology support staff.

While we continue to see growth and demand for our SaaS offerings, implementation projects, change requests and new order intake levels have been affected and we continue to face short-term, logistical growth challenges for this business that will moderate the revenue growth of the Market Technology business in 2020.

Our Community Initiatives

The third quarter continued to be marked not only by the widespread impact of the global COVID-19 health crisis, but also by the increased focus on inequality and social injustice in communities throughout the United States. In September 2020, we launched the "Purpose Initiative," which is designed to advance inclusive growth and prosperity. The Purpose Initiative comprises our philanthropic, community outreach, corporate sustainability, and employee volunteerism programs, all designed to leverage our unique place at the center of capital creation, markets, and technology and drive stronger economies, more equitable opportunities and contribute to a more sustainable world. We also relaunched the Nasdaq Foundation in September 2020, with a renewed mission focused on two primary goals:

- reimagine investor engagement to equip under-represented communities with the financial knowledge to share in the wealth that markets create; and
- leverage our investment in the Nasdaq Entrepreneurial Center alongside new strategic partnerships with organizations that can help build a deeper, data-led understanding of where the challenges are greatest, what existing efforts could be amplified, and how the Nasdaq Foundation can make new and distinctive contributions.

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 September 30, 2020	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Market Services				
Equity Derivative Trading and Clearing				
U.S. equity options				
Total industry average daily volume (in millions)	28.1	17.8	26.7	17.5
Nasdaq PHLX matched market share	12.8 %	15.5 %	12.4 %	15.8 %
The Nasdaq Options Market matched market share	9.6 %	8.8 %	10.2 %	9.0 %
Nasdaq BX Options matched market share	0.2 %	0.2 %	0.2 %	0.3 %
Nasdaq ISE Options matched market share	6.9 %	9.0 %	7.8 %	9.0 %
Nasdaq GEMX Options matched market share	6.3 %	4.4 %	5.3 %	4.1 %
Nasdaq MRX Options matched market share	0.9 %	0.3 %	0.6 %	0.2 %
Total matched market share executed on Nasdaq's exchanges	36.7 %	38.2 %	36.5 %	38.4 %
Nasdaq Nordic and Nasdaq Baltic options and futures				
Total average daily volume of options and futures contracts[1]	256,478	329,409	335,043	355,206
Cash Equity Trading				
Total U.S.-listed securities				
Total industry average daily share volume (in billions)	9.9	6.9	11.1	7.1
Matched share volume (in billions)	123.7	90.3	393.2	268.6
The Nasdaq Stock Market matched market share	18.0 %	18.0 %	17.2 %	17.5 %
Nasdaq BX matched market share	0.8 %	1.6 %	1.0 %	1.9 %
Nasdaq PSX matched market share	0.6 %	0.7 %	0.6 %	0.7 %
Total matched market share executed on Nasdaq's exchanges	19.4 %	20.3 %	18.8 %	20.1 %
Market share reported to the FINRA/Nasdaq Trade Reporting Facility	32.0 %	29.1 %	31.2 %	29.6 %
Total market share[2]	51.4 %	49.4 %	50.0 %	49.7 %
Nasdaq Nordic and Nasdaq Baltic securities				
Average daily number of equity trades executed on Nasdaq's exchanges	819,751	581,260	924,455	579,120
Total average daily value of shares traded (in billions)	$ 4.8	$ 4.1	$ 5.6	$ 4.6
Total market share executed on Nasdaq's exchanges	77.5 %	74.5 %	77.8 %	71.5 %
FICC				
Fixed Income				
U.S. fixed income volume ($ billions traded)	$ 1,206	$ 3,033	$ 4,519	$ 8,669
Total average daily volume of Nasdaq Nordic and Nasdaq Baltic fixed income contracts	87,668	104,092	105,837	115,147
Commodities				
Power contracts cleared (TWh)[3]	195	194	670	614
Corporate Services				
IPOs				
The Nasdaq Stock Market	105	41	174	138
Exchanges that comprise Nasdaq Nordic and Nasdaq Baltic	5	4	21	22
Total new listings				
The Nasdaq Stock Market[4]	144	66	255	206
Exchanges that comprise Nasdaq Nordic and Nasdaq Baltic[5]	11	8	33	36
Number of listed companies				
The Nasdaq Stock Market[6]	3,249	3,091	3,249	3,091
Exchanges that comprise Nasdaq Nordic and Nasdaq Baltic[7]	1,049	1,028	1,049	1,028
Information Services				
Number of licensed ETPs	335	325	335	325
ETP AUM tracking Nasdaq indexes (in billions)	$ 313	$ 207	$ 313	$ 207
Market Technology				
Order intake (in millions)[8]	$ 84	$ 62	$ 200	$ 162
Annualized recurring revenue, or ARR (in millions)[9]	$ 278	$ 255	N/M	N/M

(1) Includes Finnish option contracts traded on Eurex for which Nasdaq and Eurex have a revenue sharing arrangement.
(2) Includes transactions executed on The Nasdaq Stock Market's, Nasdaq BX's and Nasdaq PSX's systems plus trades reported through the FINRA/Nasdaq Trade Reporting Facility.
(3) Transactions executed on Nasdaq Commodities or OTC and reported for clearing to Nasdaq Commodities measured by Terawatt hours (TWh).
(4) New listings include IPOs, including issuers that switched from other listing venues, closed-end funds and separately listed ETPs.
(5) New listings include IPOs and represent companies listed on the Nasdaq Nordic and Nasdaq Baltic exchanges and companies on the alternative markets of Nasdaq First North.
(6) Number of total listings on The Nasdaq Stock Market at period end, including 409 ETPs as of September 30, 2020 and 382 as of September 30, 2019.
(7) Represents companies listed on the Nasdaq Nordic and Nasdaq Baltic exchanges and companies on the alternative markets of Nasdaq First North.
(8) Total contract value of orders signed during the period.
(9) ARR for a given period is the annualized revenue of active Market Technology support and SaaS subscription contracts. ARR is currently one of our key performance metrics to assess the health and trajectory of our business. ARR does not have any standardized definition and is therefore unlikely to be comparable to similarly titled measures presented by other companies. ARR should be viewed independently of revenue and deferred revenue and is not intended to be combined with or to replace either of those items. ARR is not a forecast and the active contracts at the end of a reporting period used in calculating ARR may or may not be extended or renewed by our customers.
N/M Not meaningful.

* * * * * *

Financial Summary

The following table summarizes our financial performance for the three and nine months ended September 30, 2020 as compared to the same periods in 2019. For a detailed discussion of our results of operations, see "Segment Operating Results" below.

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2020	2019	Percentage Change	2020	2019	Percentage Change
	(in millions, except per share amounts)			(in millions, except per share amounts)		
Revenues less transaction-based expenses	$ 715	$ 632	13.1 %	$ 2,115	$ 1,889	12.0 %
Operating expenses	389	406	(4.2)%	1,199	1,132	5.9 %
Operating income	326	226	44.2 %	916	757	21.0 %
Interest expense	(24)	(29)	(17.2)%	(77)	(97)	(20.6)%
Net gain on divestiture of business	—	—	— %	—	27	(100.0)%
Net income from unconsolidated investees	54	15	260.0 %	97	71	36.6 %
Income before income taxes	357	215	66.0 %	945	767	23.2 %
Income tax provision	93	65	43.1 %	237	196	20.9 %
Net income attributable to Nasdaq	$ 264	$ 150	76.0 %	$ 708	$ 571	24.0 %
Diluted earnings per share	$ 1.58	$ 0.90	75.6 %	$ 4.25	$ 3.42	24.3 %
Cash dividends declared per common share	$ 0.49	$ 0.47	4.3 %	$ 1.45	$ 1.38	5.1 %

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

Segment Operating Results

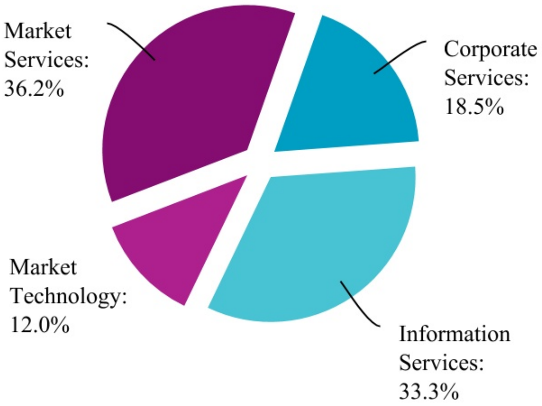
The following table shows our revenues by segment, transaction-based expenses for our Market Services segment and total revenues less transaction-based expenses:

	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Percentage Change	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019	Percentage Change
	(in millions)			(in millions)		
Market Services	$ 958	$ 690	38.8 %	$ 2,867	$ 1,995	43.7 %
Transaction-based expenses	(699)	(464)	50.6 %	(2,050)	(1,308)	56.7 %
Market Services revenues less transaction-based expenses	259	226	14.6 %	817	687	18.9 %
Corporate Services	132	124	6.5 %	386	368	4.9 %
Information Services	238	198	20.2 %	661	585	13.0 %
Market Technology	86	84	2.4 %	251	239	5.0 %
Other revenues[1]	—	—	— %	—	10	(100.0)%
Total revenues less transaction-based expenses	$ 715	$ 632	13.1 %	$ 2,115	$ 1,889	12.0 %

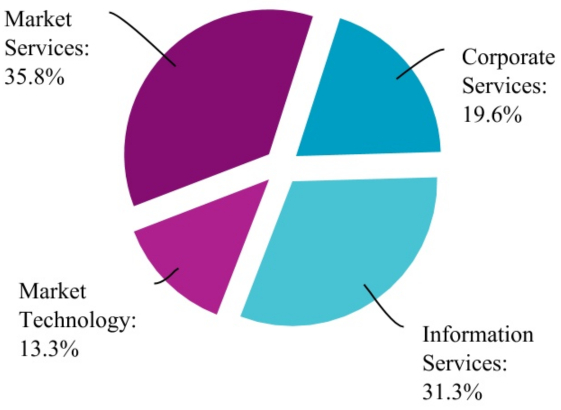
[1] Includes the revenues from the BWise enterprise governance, risk and compliance software platform which was sold in March 2019. Prior to the sale date, these revenues were included in our Corporate Solutions business within our Corporate Services segment. See "2019 Divestiture," of Note 4, "Acquisitions and Divestiture," to the condensed consolidated financial statements for further discussion.

The following charts show our Market Services, Corporate Services, Information Services, and Market Technology segments as a percentage of our total revenues less transaction-based expenses of $715 million for the three months ended September 30, 2020, $632 million for the three months ended September 30, 2019, $2,115 million for the nine months ended September 30, 2020, and $1,889 million for the nine months ended September 30, 2019:

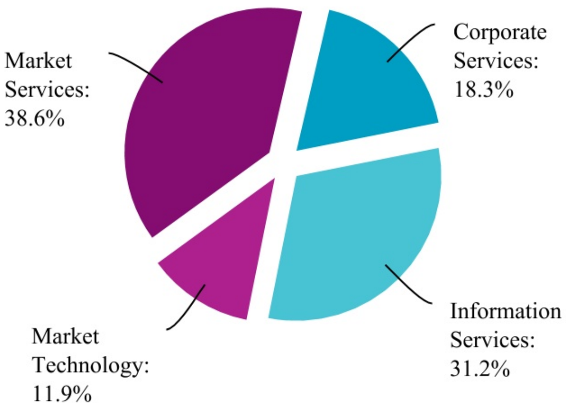
Percentage of Revenues Less Transaction-based Expenses by Segment for the Three Months Ended September 30, 2020



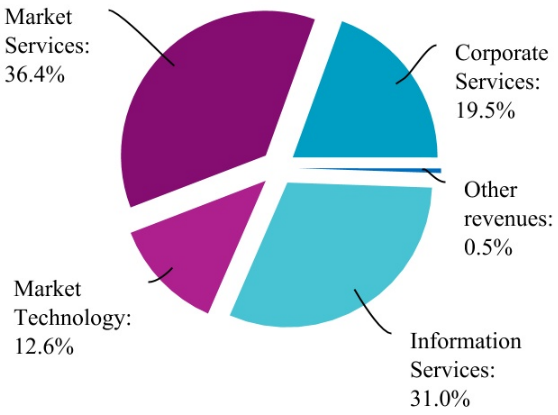
Percentage of Revenues Less Transaction-based Expenses by Segment for the Three Months Ended September 30, 2019



Percentage of Revenues Less Transaction-based Expenses by Segment for the Nine Months Ended September 30, 2020



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



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 September 30, 2020	Three Months Ended September 30, 2019	Percentage Change	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019	Percentage Change
	(in millions)			(in millions)		
Market Services Revenues:						
Equity Derivative Trading and Clearing Revenues[1]	$ 317	$ 209	51.7 %	$ 901	$ 605	48.9 %
Transaction-based expenses:						
Transaction rebates	(214)	(121)	76.9 %	(585)	(353)	65.7 %
Brokerage, clearance and exchange fees[1]	(19)	(13)	46.2 %	(55)	(33)	66.7 %
Equity derivative trading and clearing revenues less transaction-based expenses	**84**	**75**	**12.0 %**	**261**	**219**	**19.2 %**
Cash Equity Trading Revenues[2]	550	392	40.3 %	1,697	1,117	51.9 %
Transaction-based expenses:						
Transaction rebates	(303)	(227)	33.5 %	(940)	(657)	43.1 %
Brokerage, clearance and exchange fees[2]	(162)	(102)	58.8 %	(468)	(262)	78.6 %
Cash equity trading revenues less transaction-based expenses	**85**	**63**	**34.9 %**	**289**	**198**	**46.0 %**
FICC Revenues	15	17	(11.8) %	48	54	(11.1) %
Transaction-based expenses:						
Transaction rebates	(1)	(1)	— %	(1)	(2)	(50.0) %
Brokerage, clearance and exchange fees	—	—	— %	(1)	(1)	— %
FICC revenues less transaction-based expenses	**14**	**16**	**(12.5)%**	**46**	**51**	**(9.8)%**
Trade Management Services Revenues	**76**	**72**	**5.6 %**	**221**	**219**	**0.9 %**
Total Market Services revenues less transaction-based expenses	**$ 259**	**$ 226**	**14.6 %**	**$ 817**	**$ 687**	**18.9 %**

(1) Includes Section 31 fees of $18 million in the third quarter of 2020, $49 million in the first nine months of 2020, $11 million in the third quarter of 2019, and $30 million in the first nine months of 2019. 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 $154 million in the third quarter of 2020, $444 million in the first nine months of 2020, $98 million in the third quarter of 2019, and $251 million in in the first nine months of 2019. 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 third quarter and first nine months of 2020 compared with the same periods in 2019. The increase in equity derivative trading and clearing revenues was primarily due to higher U.S. industry trading volumes, a higher U.S. gross capture rate, and higher Section 31 pass-through fee revenue, partially offset by lower overall U.S. matched market share executed on Nasdaq's exchanges.

The increase in equity derivative trading and clearing revenues less transaction-based expenses was primarily due to higher U.S. industry trading volumes, partially offset by a lower U.S. net capture rate and lower overall U.S. matched market share executed on Nasdaq's exchanges.

Section 31 fees are recorded as equity derivative trading and clearing revenues with a corresponding amount recorded as transaction-based expenses. In the U.S., we are assessed these fees from the SEC and pass them through to our customers in the form of incremental fees. Pass-through fees can increase or decrease due to rate changes by the SEC, our percentage of the overall industry volumes processed on our systems, and differences in actual dollar value of shares traded. Since the amount recorded in revenues is equal to the amount recorded as transaction-based expenses, there is no impact on our revenues less transaction-based expenses. Section 31 fees increased in the third quarter of 2020 compared with the same period in 2019 primarily due to higher dollar value traded on Nasdaq's exchanges and increased in the first nine months of 2020 due to higher dollar value traded on Nasdaq's exchanges and higher average SEC fee rates.

Transaction rebates, in which we credit a portion of the per share execution charge to the market participant, increased in the third quarter and first nine months of 2020 compared with the same periods in 2019 due to higher U.S. industry trading volumes and an increase in the U.S. rebate capture rate, partially offset by a decrease in our overall U.S. matched market share executed on Nasdaq's exchanges.

Brokerage, clearance and exchange fees increased in the third quarter and first nine months of 2020 compared with the same periods in 2019 primarily due to higher Section 31 pass-through fees, as discussed above.

Cash Equity Trading Revenues

Cash equity trading revenues and cash equity trading revenues less transaction-based expenses increased in the third quarter and first nine months of 2020 compared with the same periods in 2019 primarily due to higher U.S. and European industry trading volumes, partially offset by lower overall U.S. matched market share executed on Nasdaq's exchanges. Also contributing to the increase in cash equity trading revenues were higher Section 31 pass-through fee revenue and, for the first nine months of 2020, a higher U.S. gross capture rate, while a higher net U.S. capture rate also contributed to the increase in cash equity trading revenues less transaction-based expenses for the third quarter and first nine months of 2020.

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. Section 31 fees increased in the third quarter and first nine months of 2020 compared with the same periods in 2019 due to higher dollar value traded on Nasdaq's exchanges and higher average SEC fee rates.

Transaction rebates increased in the third quarter and first nine months of 2020 compared with the same periods in 2019. 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 and Nasdaq CX2, we credit a portion of the per share execution charge to the market participant that takes the liquidity. The increase in the third quarter and first nine months of 2020 was primarily due to higher U.S. industry trading volumes, partially offset by lower overall U.S. matched market share executed on Nasdaq's exchanges and a lower rebate capture rate.

Brokerage, clearance and exchange fees increased in the third quarter and first nine months of 2020 compared with the same periods in 2019 primarily due to higher Section 31 pass-through fees, as discussed above.

FICC Revenues

FICC revenues and FICC revenues less transaction-based expenses decreased in the third quarter and first nine months of 2020 compared with the same periods in 2019 driven by lower U.S. fixed income volumes and the sale of the core assets of our NFX business. The decrease in FICC revenues and FICC revenues less transaction-based expenses in the first nine months of 2020 was partially offset by higher European products revenues.

Trade Management Services Revenues

Trade management services revenues increased in the third quarter and the first nine months of 2020 compared with the same periods in 2019 primarily due to higher connectivity revenues.

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CORPORATE SERVICES

The following table shows revenues from our Corporate Services segment:

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2020	2019	Percentage Change	2020	2019	Percentage Change
	(in millions)			(in millions)		
Corporate Services:						
Listing Services	$ 79	$ 74	6.8 %	$ 228	$ 219	4.1 %
Corporate Solutions	53	50	6.0 %	158	149	6.0 %
Total Corporate Services	$ 132	$ 124	6.5 %	$ 386	$ 368	4.9 %

__Listing Services Revenues__

Listing services revenues increased in the third quarter and first nine months of 2020 compared with the same periods in 2019. In both periods, revenues increased due to higher U.S. listings revenues due to an increase in the overall number of listed companies and in the third quarter of 2020, a strong IPO market.

__Corporate Solutions Revenues__

Corporate solutions revenues increased in the third quarter and first nine months of 2020 compared with the same periods in 2019 due to increases in both governance solutions revenues and investor relations intelligence revenues.

INFORMATION SERVICES

The following table shows revenues from our Information Services segment:

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2020	2019	Percentage Change	2020	2019	Percentage Change
	(in millions)			(in millions)		
Information Services:						
Market Data	$ 107	$ 102	4.9 %	$ 305	$ 302	1.0 %
Index	86	56	53.6 %	227	166	36.7 %
Investment Data & Analytics	45	40	12.5 %	129	117	10.3 %
Total Information Services	$ 238	$ 198	20.2 %	$ 661	$ 585	13.0 %

__Market Data Revenues__

Market data revenues increased in the third quarter and first nine months of 2020 compared with the same periods in 2019 primarily due to organic growth in proprietary products from new sales, including continued expansion geographically, and an increase in shared tape plan revenues.

__Index Revenues__

Index revenues increased in the third quarter and first nine months of 2020 compared with the same periods in 2019 primarily due to higher licensing revenues from higher average AUM in ETPs linked to Nasdaq indexes and higher licensing revenues from futures trading linked to the Nasdaq-100 Index.

__Investment Data & Analytics Revenues__

Investment data & analytics revenues increased in the third quarter and first nine months of 2020 compared with the same periods in 2019 primarily due to the acquisition of Solovis and growth in eVestment.

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MARKET TECHNOLOGY

The following table shows revenues from our Market Technology segment:

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2020	2019	Percentage Change	2020	2019	Percentage Change
	(in millions)			(in millions)		
Market Technology	$ 86	$ 84	2.4 %	$ 251	$ 239	5.0 %

__Market Technology Revenues__

Market technology revenues increased in the third quarter and first nine months of 2020 compared with the same periods in 2019. The increase in the third quarter was primarily due to higher SaaS surveillance revenues and a favorable impact from foreign exchange of $3 million, partially offset by lower software delivery and support revenues and lower change request and advisory revenues. The increase for the first nine months was due to higher SaaS surveillance revenues and higher software delivery and support revenues, partially offset by a decrease in change request revenues.

OTHER REVENUES

Other revenues include the revenues from the BWise enterprise governance, risk and compliance software platform, which was sold in March 2019. Prior to the sale date, these revenues were included in our Corporate Solutions business. See “2019 Divestiture,” of Note 4, “Acquisitions and Divestiture,” to the condensed consolidated financial statements for further discussion of this divestiture.

Expenses

Operating Expenses

The following table shows our operating expenses:

	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Percentage Change	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019	Percentage Change
	(in millions)			(in millions)		
Compensation and benefits	$ 198	$ 175	13.1 %	$ 582	$ 518	12.4 %
Professional and contract services	38	31	22.6 %	96	99	(3.0)%
Computer operations and data communications	39	33	18.2 %	109	98	11.2 %
Occupancy	29	24	20.8 %	80	72	11.1 %
General, administrative and other	13	40	(67.5)%	99	95	4.2 %
Marketing and advertising	7	8	(12.5)%	20	29	(31.0)%
Depreciation and amortization	51	47	8.5 %	149	143	4.2 %
Regulatory	2	8	(75.0)%	16	23	(30.4)%
Merger and strategic initiatives	1	10	(90.0)%	12	25	(52.0)%
Restructuring charges	11	30	(63.3)%	36	30	20.0 %
Total operating expenses	$ 389	$ 406	(4.2)%	$ 1,199	$ 1,132	5.9 %

The increase in compensation and benefits expense in the third quarter and first nine months of 2020 was primarily due to higher performance incentives and higher compensation costs resulting from our recent acquisitions. Partially offsetting the higher compensation and benefits expense in the first nine months of 2020 was lower compensation costs resulting from our 2019 divestiture.

Headcount increased to 4,776 employees as of September 30, 2020 from 4,339 as of September 30, 2019 primarily due to our recent acquisitions and growth in our Market Technology business.

Professional and contract services expense increased in the third quarter of 2020 compared with the same period in 2019 primarily due to higher consulting costs and higher legal costs. The decrease in the first nine months of 2020 was primarily due to lower consulting costs and our 2019 divestiture, partially offset by higher legal costs.

Computer operations and data communications expense increased in the third quarter and first nine months of 2020 primarily due to higher software and hardware maintenance costs, higher market data feed costs, and our recent acquisitions.

Occupancy expense increased in the third quarter and first nine months of 2020 mainly due to higher costs associated with additional facility and rent costs resulting from the expansion of our new U.S. headquarters in New York.

General, administrative and other expense decreased in the third quarter of 2020 primarily due to a higher provision for notes receivable recorded in September 2019 associated with the funding of technology development for the CAT and lower corporate travel costs. The increase in the first nine months of 2020 was primarily due to a loss on the early extinguishment of our 2021 Notes and charitable donations made to the Nasdaq Foundation, COVID-19 response and relief efforts, and social justice charities. These increases were partially offset by a loss on the early extinguishment of our 2020 Notes in the second quarter of 2019, a higher provision for notes receivable discussed above, and lower corporate travel costs.

Marketing and advertising expense decreased in the third quarter and first nine months of 2020 primarily due to lower event spending.

Depreciation and amortization expense increased in the third quarter and first nine months of 2020 primarily due to an increase in capitalized software placed in service.

Regulatory expense decreased in the third quarter and first nine months of 2020 primarily due to a favorable decision on a regulatory matter. In December 2016, we were issued a $6 million fine by the SFSA as a result of findings following its investigations of cybersecurity processes at our Nordic exchanges and clearinghouse. We appealed the SFSA's decision, including the amount of the fine and received a favorable decision in the third quarter of 2020 where the court set aside the SFSA's decision including the fine. The SFSA decided not to appeal the decision and the decision is therefore now final. As a result, the $6 million fine was reversed to regulatory expense in the condensed consolidated statements of income for the three and nine months ended September 30, 2020.

Merger and strategic initiatives expense decreased in the third quarter and first nine months of 2020. We have pursued various strategic initiatives and completed acquisitions and divestitures in recent years which have resulted in expenses which would not have otherwise been incurred. These expenses generally include integration costs, as well as legal, due diligence and other third party transaction costs and will vary based on the size and frequency of the activities described above.

See Note 19, “Restructuring Charges,” to the condensed consolidated financial statements for further discussion of our 2019 restructuring plan and charges associated with this plan.

Non-operating Income and Expenses

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

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2020	2019	Percentage Change	2020	2019	Percentage Change
	(in millions)			(in millions)		
Interest income	$ —	$ 3	(100.0)%	$ 4	$ 8	(50.0)%
Interest expense	(24)	(29)	(17.2)%	(77)	(97)	(20.6)%
Net interest expense	(24)	(26)	(7.7)%	(73)	(89)	(18.0)%
Net gain on divestiture of business	—	—	— %	—	27	(100.0)%
Other income	1	—	N/M	5	1	400.0 %
Net income from unconsolidated investees	54	15	260.0 %	97	71	36.6 %
Total non-operating income (expenses)	$ 31	$ (11)	(381.8)%	$ 29	$ 10	190.0 %

N/M Not meaningful.

Interest Expense

Interest expense decreased in the third quarter and first nine months of 2020 compared with the same periods in 2019 primarily due to the refinancing of our 3.875% senior notes in March 2020 with the 2030 Notes at a lower interest rate, the refinancing of our 5.55% senior notes in May 2019 with the 2029 Notes at a lower interest rate and the repayment of our senior unsecured floating rate notes in March 2019 with commercial paper issuances and cash on hand. See Note 8, “Debt Obligations,” to the condensed consolidated financial statements for further discussion of our debt obligations.

The following table shows our interest expense:

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2020	2019	Percentage Change	2020	2019	Percentage Change
	(in millions)			(in millions)		
Interest expense on debt	$ 22	$ 27	(18.5)%	$ 71	$ 91	(22.0)%
Accretion of debt issuance costs and debt discount	1	1	— %	4	4	— %
Other fees	1	1	— %	2	2	— %
Interest expense	$ 24	$ 29	(17.2)%	$ 77	$ 97	(20.6)%

Net Gain on Divestiture of Business

The net gain on divestiture of business in the first nine months of 2019 primarily related to our divestiture of BWise. See “2019 Divestiture,” of Note 4, “Acquisitions and Divestiture,” to the condensed consolidated financial statements for further discussion.

Net Income from Unconsolidated Investees

Net income from unconsolidated investees increased in the third quarter and first nine months of 2020 compared with the same periods in 2019 primarily due 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.

Tax Matters

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

	Three Months Ended September 30,			Nine Months Ended September 30,		
	2020	2019	Percentage Change	2020	2019	Percentage Change
	($ in millions)			($ in millions)		
Income tax provision	$ 93	$ 65	43.1 %	$ 237	$ 196	20.9 %
Effective tax rate	26.1 %	30.2 %		25.1 %	25.6 %	

For further discussion of our tax matters, see Note 16, “Income Taxes,” to the condensed consolidated financial statements.

Non-GAAP Financial Measures

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

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

Merger and strategic initiatives expense: We have pursued various strategic initiatives and completed acquisitions and divestitures in recent years that have resulted in expenses which would not have otherwise been incurred. These expenses generally include integration costs, as well as legal, due diligence and other third party transaction costs. The frequency and the amount of such expenses vary significantly based on the size, timing and complexity of the transaction. Accordingly, we exclude these costs for purposes of calculating non-GAAP measures which provide a more meaningful analysis of Nasdaq's ongoing operating performance or comparisons in Nasdaq's performance between periods.

Restructuring charges: We initiated the transition of certain technology platforms to advance our strategic opportunities as a technology and analytics provider and continue the re-alignment of certain business areas. See Note 19, "Restructuring Charges," to the condensed consolidated financial statements for further discussion of our 2019 restructuring plan. Charges associated with this plan represent a fundamental shift in our strategy and technology as well as executive re-alignment and will be excluded for purposes of calculating non-GAAP measures as they are not reflective of ongoing operating performance or comparisons in Nasdaq's performance between periods.

Net income from unconsolidated investee: See Note 6, "Investments," to the condensed consolidated financial statements for further discussion. Our income on our investment in OCC may vary significantly compared to prior years due to the disapproval of the OCC's capital plan. Accordingly, we will exclude this income from current and prior periods for purposes of calculating non-GAAP measures which provide a more meaningful analysis of Nasdaq's ongoing operating performance or comparisons in Nasdaq's performance between periods.

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

- for the three and nine months ended September 30, 2020, the reversal of a $6 million regulatory fine issued by the SFSA;
- for the three and nine months ended September 30, 2020 and 2019, a provision for notes receivable associated with the funding of technology development for the CAT;
- for the nine months ended September 30, 2020 and 2019, a loss on extinguishment of debt; and

- for the nine months ended September 30, 2020, charitable donations made to the Nasdaq Foundation, COVID-19 response and relief efforts, and social justice charities.

The above charges are recorded in general, administrative and other expense in our Condensed Consolidated Statements of Income.

For the nine months ended September 30 2019, other significant items also included a net gain on divestiture of business which represents our pre-tax net gain of $27 million on the sale of BWise.

Significant tax items:

The non-GAAP adjustment to the income tax provision included the tax impact of each non-GAAP adjustment and:

- for the nine months ended September 30, 2020, a tax benefit on compensation related deductions determined to be allowable;
- for the nine months ended September 30, 2020 and 2019, excess tax benefits related to employee share-based compensation to reflect the recognition of the income tax effects of share-based awards when awards vest or are settled. This item is subject to volatility and will vary based on the timing of the vesting of employee share-based compensation arrangements and fluctuation in our stock price; and
- for the nine months ended September 30, 2019, a tax benefit related to capital distributions from the OCC.

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The following table shows 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 September 30,	
	2020	2019
	(in millions, except share and per share amounts)	
U.S. GAAP net income attributable to Nasdaq	$ 264	$ 150
Non-GAAP adjustments:		
Amortization expense of acquired intangible assets	26	25
Merger and strategic initiatives expense	1	10
Restructuring charges	11	30
Net income from unconsolidated investee	(55)	(15)
Provision for notes receivable	6	20
Other	(1)	4
Total non-GAAP adjustments	(12)	74
Total non-GAAP tax adjustments	4	(12)
Total non-GAAP adjustments, net of tax	(8)	62
Non-GAAP net income attributable to Nasdaq	$ 256	$ 212
Weighted-average common shares outstanding for diluted earnings per share	167,491,854	167,029,744
U.S. GAAP diluted earnings per share	$ 1.58	$ 0.90
Total adjustments from non-GAAP net income	(0.05)	0.37
Non-GAAP diluted earnings per share	$ 1.53	$ 1.27

	Nine Months Ended September 30,	
	2020	2019
	(in millions, except share and per share amounts)	
U.S. GAAP net income attributable to Nasdaq	$ 708	$ 571
Non-GAAP adjustments:		
Amortization expense of acquired intangible assets	76	76
Merger and strategic initiatives expense	12	25
Restructuring charges	36	30
Net income from unconsolidated investees	(97)	(69)
Provision for notes receivable	6	20
Extinguishment of debt	36	11
Net gain on divestiture of business	—	(27)
Charitable donations	17	—
Other	3	10
Total non-GAAP adjustments	89	76
Adjustment to the income tax provision to reflect non-GAAP adjustments and other tax items	(31)	(23)
Excess tax benefits related to employee share-based compensation	(3)	(4)
Total non-GAAP tax adjustments	(34)	(27)
Total non-GAAP adjustments, net of tax	55	49
Non-GAAP net income attributable to Nasdaq	$ 763	$ 620
Weighted-average common shares outstanding for diluted earnings per share	166,779,650	167,028,932
U.S. GAAP diluted earnings per share	$ 4.25	$ 3.42
Total adjustments from non-GAAP net income	0.32	0.29
Non-GAAP diluted earnings per share	$ 4.57	$ 3.71

Liquidity and Capital Resources

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

In response to the uncertainties posed by COVID-19 and related economic impacts, we took actions to strengthen our liquidity and cash position and to reduce our refinancing risk.

In March 2020, we observed that conditions in the market for Tier 2 commercial paper issuers were deteriorating, impacting both costs and actionable duration of commercial paper issues. To mitigate funding uncertainties and as a precautionary measure to maximize our liquidity and increase our available cash on hand, Nasdaq borrowed $799 million under the revolving credit commitment of the 2017 Credit Facility. See “2017 Credit Facility,” of Note 8, “Debt Obligations,” to the condensed consolidated financial statements for further discussion of our 2017 Credit Facility.

In April 2020, we issued the 2050 Notes and used the net proceeds from the 2050 Notes to repay a portion of amounts previously borrowed under the 2017 Credit Facility. For further discussion of the 2050 Notes, see “3.25% Senior Unsecured Notes Due 2050,” of Note 8, “Debt Obligations,” to the condensed consolidated financial statements. In June 2020, the remaining outstanding amount under the 2017 Credit Facility was repaid using cash on hand. As of September 30, 2020, the total remaining amount available under the 2017 Credit Facility was $1 billion.

Also in June 2020, we repaid all outstanding borrowings under our commercial paper program.

In February 2020, we issued the 2030 Notes. We primarily used the net proceeds from the 2030 Notes to redeem the 2021 Notes and for other general corporate purposes. See “0.875% Senior Unsecured Notes Due 2030,” and “Early Extinguishment of 3.875% Senior Unsecured Notes Due 2021,” of Note 8, “Debt Obligations,” to the condensed consolidated financial statements for further discussion. This offering reduced our borrowing costs and also eliminated near-term bond maturities until May 2023.

As of September 30, 2020, our sources and uses of cash were not materially impacted by COVID-19 and we have not identified any material liquidity deficiencies as a result of the COVID-19 pandemic. We will continue to closely monitor and manage our liquidity and capital resources. In addition, we continue to prudently assess our capital deployment strategy through balancing acquisitions, internal investments, debt repayments, and shareholder return activity including share repurchases and dividends.

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

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 through 2027. See "Non-Cash Contingent Consideration," of Note 17, "Commitments, Contingencies and Guarantees," to the condensed consolidated financial statements for further discussion.

The value of various assets and liabilities, including cash and cash equivalents, receivables, accounts payable and accrued expenses, the current portion of long-term debt, and commercial paper, can fluctuate from month to month. Working capital (calculated as current assets less current liabilities) was $649 million as of September 30, 2020, compared with $63 million as of December 31, 2019, an increase of $586 million. Current asset balance changes increased working capital by $520 million, with increases in default funds and margin deposits, cash and cash equivalents, receivables, net, and restricted cash and cash equivalents, partially offset by decreases in financial investments and other current assets. Current liability balance changes increased working capital by $66 million, due to decreases in short-term debt, Section 31 fees payable to the SEC, other current liabilities, accrued personnel costs, and accounts payable and accrued expenses, partially offset by increases in default funds and margin deposits and deferred revenue.

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

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

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

- operating covenants contained in our credit facilities that limit our total borrowing capacity;
- increases in interest rates under our credit facilities;
- credit rating downgrades, which could limit our access to additional debt;
- a decrease in the market price of our common stock;
- volatility or disruption in the public debt and equity markets; and
- the impact of the COVID-19 pandemic on our business.

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

Financial Assets

The following table summarizes our financial assets:

	September 30, 2020	December 31, 2019
	(in millions)	
Cash and cash equivalents	$ 584	$ 332
Restricted cash and cash equivalents	33	30
Financial investments	177	291
Total financial assets	$ 794	$ 653

Cash and Cash Equivalents and Restricted Cash and Cash Equivalents

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 September 30, 2020, our cash and cash equivalents of $584 million were primarily invested in bank deposits and money market funds. 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 September 30, 2020 increased $252 million from December 31, 2019, primarily due to:

- proceeds from issuances of long-term debt, net of issuance costs and utilization of credit commitment;
- net cash provided by operating activities; and
- proceeds from the net sales of securities. These increases were partially offset by:
  - repayments of borrowings under our credit commitment and debt obligations;
  - repayments of commercial paper, net;
  - cash dividends paid on our common stock;
  - repurchases of our common stock;
  - cash paid for acquisitions, net of cash and cash equivalents acquired;
  - purchases of property and equipment; and
  - payment of debt extinguishment cost.

See "Cash Flow Analysis" below for further discussion.

Restricted cash and cash equivalents are restricted from withdrawal due to contractual or regulatory requirements or is not available for general use. Restricted cash and cash equivalents were $33 million as of September 30, 2020 and $30 million as of December 31, 2019, an increase of $3 million. Restricted cash and cash equivalents are classified as restricted cash and cash equivalents 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 $145 million as of September 30, 2020 and $160 million as of December 31, 2019. The remaining balance held in the U.S. totaled $439 million as of September 30, 2020 and $172 million as of December 31, 2019.

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

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 paid per common share on our outstanding common stock:

	2020	2019
First quarter	$ 0.47	$ 0.44
Second quarter	0.49	0.47
Third quarter	0.49	0.47
Total	$ 1.45	$ 1.38

See "Cash Dividends on Common Stock," of Note 11, "Nasdaq Stockholders' Equity," to the condensed consolidated financial statements for further discussion of the dividends.

Financial Investments

Our financial investments totaled $177 million as of September 30, 2020 and were trading securities primarily comprised of highly rated European government debt securities, Swedish mortgage bonds and highly rated corporate debt. As of December 31, 2019, financial investments totaled $291 million and were trading securities primarily comprised of highly rated European government debt securities, time deposits and highly rated corporate debt. Of these securities, $157 million as of September 30, 2020 and $169 million as of December 31, 2019 are assets primarily utilized to meet regulatory capital requirements, mainly for our clearing operations at Nasdaq Clearing. See Note 6, "Investments," to the condensed consolidated financial statements for further discussion.

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Debt Obligations

The following table summarizes our debt obligations by contractual maturity:

	Maturity Date	September 30, 2020	December 31, 2019
		(in millions)	
Short-term debt - commercial paper		$ —	$ 391
Long-term debt:			
3.875% senior unsecured notes	Repaid March 2020	—	671
1.75% senior unsecured notes	May 2023	700	668
$1 billion senior unsecured revolving credit facility	April 2022	(2)	(2)
4.25% senior unsecured notes	June 2024	498	497
3.85% senior unsecured notes	June 2026	497	497
1.75% senior unsecured notes	March 2029	697	665
0.875% senior unsecured notes	February 2030	696	—
3.25% senior unsecured notes	April 2050	485	—
Total long-term debt		3,571	2,996
Total debt obligations		$ 3,571	$ 3,387

In addition to the $1 billion senior unsecured revolving credit facility, we also have other credit facilities primarily related to our Nasdaq Clearing operations in order to provide further liquidity. Other credit facilities, which are available in multiple currencies, totaled $214 million as of September 30, 2020 and $203 million as of December 31, 2019 in available liquidity, none of which was utilized as of September 30, 2020, and of which $15 million was utilized as of December 31, 2019.

As of September 30, 2020, 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.

Regulatory Capital Requirements

Clearing Operations Regulatory Capital Requirements

We are required to maintain minimum levels of regulatory capital for the clearing operations of Nasdaq Clearing. The level of regulatory capital required to be maintained is dependent upon many factors, including market conditions and creditworthiness of the counterparty. As of September 30, 2020, our required regulatory capital of $131 million was comprised of highly rated European government debt securities that are included in financial investments in the Condensed Consolidated Balance Sheets.

Broker-Dealer Net Capital Requirements

Our broker-dealer subsidiaries, Nasdaq Execution Services, Execution Access, NPM Securities, SMTX, and Nasdaq Capital Markets Advisory, are subject to regulatory requirements intended to ensure their general financial soundness and liquidity. These requirements obligate these subsidiaries to comply with minimum net capital requirements. As of September 30, 2020, the combined required minimum net capital totaled $1 million and the combined excess capital totaled $58 million, substantially all of which is held in cash and cash equivalents in the Condensed Consolidated Balance Sheets. The required minimum net capital is included in restricted cash and cash equivalents in the Condensed Consolidated Balance Sheets.

Nordic and Baltic Exchange Regulatory Capital Requirements

The entities that operate trading venues in the Nordic and Baltic countries are each subject to local regulations and are required to maintain regulatory capital intended to ensure their general financial soundness and liquidity. As of September 30, 2020, our required regulatory capital of $36 million was primarily invested in European debt securities that are included in financial investments in the Condensed Consolidated Balance Sheets and cash which is included in restricted cash and cash equivalents in the Condensed Consolidated Balance Sheets.

Other Capital Requirements

We operate several other businesses which are subject to local regulation and are required to maintain certain levels of regulatory capital. As of September 30, 2020, other required regulatory capital was $11 million and was primarily included in restricted cash and cash equivalents and financial investments in the Condensed Consolidated Balance Sheets.

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Cash Flow Analysis

The following table summarizes the changes in cash flows:

	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019	Percentage Change
Net cash provided by (used in):	(in millions)		
Operating activities	$ 817	$ 624	30.9 %
Investing activities	(157)	(131)	19.8 %
Financing activities	(408)	(729)	(44.0)%
Effect of exchange rate changes on cash and cash equivalents and restricted cash and cash equivalents	3	(17)	(117.6)%
Net increase (decrease) in cash and cash equivalents and restricted cash	255	(253)	(200.8)%
Cash and cash equivalents and restricted cash and cash equivalents at beginning of period	362	586	(38.2)%
Cash and cash equivalents and restricted cash and cash equivalents at end of period	$ 617	$ 333	85.3 %

Net Cash Provided by Operating Activities

Net cash provided by operating activities primarily consists of net income adjusted for certain non-cash items such as: depreciation and amortization expense of property and equipment; amortization expense of acquired finite-lived intangible assets; expense associated with share-based compensation; and net income from unconsolidated investees.

Net cash provided by operating activities is also impacted by the effects of changes in operating assets and liabilities such as: accounts receivable which is impacted by the timing of customer billings and related collections from our customers; accounts payable and accrued expenses due to timing of payments; accrued personnel costs which are impacted by employee performance targets and the timing of payments related to employee bonus incentives; and Section 31 fees payable to the SEC, which is impacted by the timing of collections from customers and payments to the SEC.

Net cash provided by operating activities increased $193 million for the nine months ended September 30, 2020 compared with the same period in 2019. The increase was primarily driven by higher net income, lower performance incentive payments made in the first nine months of 2020 compared with the same period in 2019 primarily due to prior year performance and lower interest paid due to a decline in average interest rates on our debt obligations, partially offset by an increase in receivables, net due to unusually high U.S. industry trading volumes and higher income taxes paid.

Net Cash Used in Investing Activities

Net cash used in investing activities for the nine months ended September 30, 2020 primarily related to $157 million of cash used for acquisitions, net of cash and cash equivalents acquired and $128 million of purchases of property and equipment, partially offset by $120 million of proceeds from the net sales of securities.

Net cash used in investing activities for the nine months ended September 30, 2019 primarily related to $193 million of cash used for the acquisition of Cinnober, net of cash and cash equivalents acquired, $88 million of purchases of property and equipment, partially offset by receipt of cash of $108 million related to the sale of the BWise enterprise governance, risk and compliance software platform and $45 million of proceeds from the net sales of securities.

Net Cash Used in Financing Activities

Net cash used in financing activities for the nine months ended September 30, 2020 primarily related to $1,470 million in repayments of borrowings under our credit commitment and debt obligations, $391 million of net repayments of commercial paper, $239 million of dividend payments to our shareholders, $186 million in repurchases of common stock, and a $36 million payment for debt extinguishment costs, partially offset by $1,928 million of proceeds from issuances of long-term debt and the utilization of our credit commitment.

Net cash used in financing activities for the nine months ended September 30, 2019 primarily related to $1,215 million in repayments of borrowings under our credit commitment and debt obligations, $228 million of dividend payments to our shareholders, and $200 million in repurchases of common stock, partially offset by $680 million from the utilization of our credit commitment and issuances of long-term debt and $264 million in net borrowings of commercial paper.

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

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 debt obligations by contract maturity, operating lease payments, and other obligations. The following table shows these contractual obligations as of September 30, 2020.

Contractual Obligations	Payments Due by Period				
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
			(in millions)		
Debt obligations by contract maturity[1]	$ 4,507	$ 88	$ 878	$ 629	$ 2,912
Operating lease obligations[2]	565	63	105	90	307
Purchase obligations[3]	45	30	15	—	—
Total	$ 5,117	$ 181	$ 998	$ 719	$ 3,219

(1) Our debt obligations include both principal and interest obligations. As of September 30, 2020, an interest rate of 1.31% was used to compute the amount of the contractual obligations for interest on the 2017 Credit Facility. All other debt obligations were primarily calculated on a 365-day basis at the contractual fixed rate multiplied by the aggregate principal amount as of September 30, 2020. See Note 8, “Debt Obligations,” to the condensed consolidated financial statements for further discussion.

(2) Operating lease obligations represent our undiscounted operating lease liabilities as of September 30, 2020. See Note 15, “Leases,” to the condensed consolidated financial statements for further discussion of our leases.

(3) Purchase obligations primarily represent minimum outstanding obligations due under software license agreements.

Non-Cash Contingent Consideration

See “Non-Cash Contingent Consideration,” of Note 17, “Commitments, Contingencies and Guarantees,” to the condensed consolidated financial statements for further discussion.

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 17, “Commitments, Contingencies and Guarantees,” to the condensed consolidated financial statements for further discussion of:
  - Guarantees issued and credit facilities available;
  - Other guarantees;
  - Non-cash contingent consideration;
  - Routing brokerage activities;
  - Legal and regulatory matters; and
  - Tax audits.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

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

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

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

Interest Rate Risk

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

Financial Investments

As of September 30, 2020, our investment portfolio was primarily comprised of highly rated European government debt securities, which pay a fixed rate of interest. These securities are subject to interest rate risk and the fair value of these securities will decrease if market interest rates increase. If market interest rates were to increase immediately and uniformly by 100 basis points from levels as of September 30, 2020, the fair value of this portfolio would have declined by $5 million.

Debt Obligations

As of September 30, 2020, the majority of our debt obligations were fixed-rate obligations, provided that the interest rates on certain tranches of notes were subject to adjustment to the extent our debt rating is downgraded below investment grade, as further discussed in Note 8, “Debt Obligations,” to the condensed consolidated financial statements. 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 Credit Facility, as the interest rate on this facility has a variable interest rate. We are also exposed to changes in interest rates as a result of the amounts outstanding from the sale of commercial paper under our commercial paper program, which have variable interest rates. As of September 30, 2020, there were no outstanding borrowings under our 2017 Credit Facility or commercial paper program.

We may utilize interest rate swap agreements to achieve a desired mix of variable and fixed rate debt.

Foreign Currency Exchange Rate Risk

We are subject to foreign currency exchange rate risk. Our primary transactional exposure to foreign currency denominated revenues less transaction-based expenses and operating income for the three and nine months ended September 30, 2020 is presented in the following table:

	Euro	Swedish Krona	Other Foreign Currencies	U.S. Dollar	Total
	(in millions, except currency rate)				
Three Months Ended September 30, 2020					
Average foreign currency rate to the U.S. dollar	1.1693	0.1128	#	N/A	N/A
Percentage of revenues less transaction-based expenses	7.6 %	6.2 %	4.6 %	81.6 %	100.0 %
Percentage of operating income	12.6 %	0.7 %	(4.7)%	91.4 %	100.0 %
Impact of a 10% adverse currency fluctuation on revenues less transaction-based expenses	$ (5)	$ (5)	$ (3)	$ —	$ (13)
Impact of a 10% adverse currency fluctuation on operating income	$ (4)	$ —	$ (2)	$ —	$ (6)

	Euro	Swedish Krona	Other Foreign Currencies	U.S. Dollar	Total
	(in millions, except currency rate)				
Nine Months Ended September 30, 2020					
Average foreign currency rate to the U.S. dollar	1.1233	0.1063	#	N/A	N/A
Percentage of revenues less transaction-based expenses	7.7 %	6.4 %	4.7 %	81.2 %	100.0 %
Percentage of operating income	9.3 %	(2.3)%	(4.7)%	97.7 %	100.0 %
Impact of a 10% adverse currency fluctuation on revenues less transaction-based expenses	$ (16)	$ (14)	$ (10)	$ —	$ (40)
Impact of a 10% adverse currency fluctuation on operating income	$ (9)	$ (2)	$ (4)	$ —	$ (15)

\# Represents multiple foreign currency rates.
N/A Not applicable.

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

Our primary exposure to net assets in foreign currencies as of September 30, 2020 is presented in the following table:

	Net Assets	Impact of a 10% Adverse Currency Fluctuation
	(in millions)	
Swedish Krona[1]	$ 3,328	$ 333
British Pound	199	20
Norwegian Krone	162	16
Canadian Dollar	116	12
Australian Dollar	115	11
Euro	42	4

[1] Includes goodwill of $2,506 million and intangible assets, net of $615 million.

Credit Risk

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

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

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

Execution Access is an introducing broker which operates the trading platform for our Fixed Income business to trade in U.S. Treasury securities. Execution Access has a clearing arrangement with Industrial and Commercial Bank of China Financial Services LLC, or ICBC. As of September 30, 2020, we have contributed $10 million of clearing deposits to ICBC in connection with this clearing arrangement. These deposits are recorded in other current assets in our Condensed Consolidated Balance Sheets. Some of the trading activity in Execution Access is cleared by ICBC through the Fixed Income Clearing Corporation, with ICBC acting as agent. Execution Access assumes the counterparty risk of clients that do not clear through the Fixed Income Clearing Corporation. Counterparty risk of clients exists for Execution Access between the trade date and settlement date of the individual transactions, which is at least one business day (or more, if specified by the U.S. Treasury issuance calendar). Counterparties that do not clear through the Fixed Income Clearing Corporation are subject to a credit due diligence process and may be required to post collateral, provide principal letters, or provide other forms of credit enhancement to Execution Access for the purpose of mitigating counterparty risk. Daily position trading limits are also enforced for such counterparties.

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

On January 1, 2020, we adopted ASU 2016-13, "Measurement of Credit Losses on Financial Instruments." See "Recently Adopted Accounting Standard," of Note 2, "Basis of Presentation and Principles of Consolidation," to the condensed consolidated financial statements for further discussion. This ASU changes the impairment model for certain financial instruments. The new model is a forward looking expected loss model and applies 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 trade receivables.

We also 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. Our clearinghouse holds material amounts of clearing member cash deposits which are held or invested primarily to provide security of capital while minimizing credit, market and liquidity risks. While we seek to achieve a reasonable rate of return, we are primarily concerned with preservation of capital and managing the risks associated with these deposits. As the clearinghouse may pass on interest revenues (minus costs) to the members, this could include negative or reduced yield due to market conditions. The following is a summary of the risks associated with these deposits and how these risks are mitigated.

- *Credit Risk.* When the clearinghouse has the ability to hold cash collateral at a central bank, the clearinghouse utilizes its access to the central bank system to minimize credit risk exposures. When funds are not held at a central bank, we seek to substantially mitigate credit risk by ensuring that investments are primarily placed in highly rated government and supranational debt instruments.

- *Liquidity Risk.* Liquidity risk is the risk a clearinghouse may not be able to meet its payment obligations in the right currency, in the right place and the right time. To mitigate this risk, the clearinghouse monitors liquidity requirements closely and maintains funds and assets in a manner which minimizes the risk of loss or delay in the access by the clearinghouse to such funds and assets. For example, holding funds with a central bank where possible or investing in highly liquid government or supranational debt instruments serves to reduce liquidity risks.
- *Interest Rate Risk.* Interest rate risk is the risk that interest rates rise causing the value of purchased securities to decline. If we were required to sell securities prior to maturity, and interest rates had risen, the sale of the securities might be made at a loss relative to the latest market price. Our clearinghouse seeks to manage this risk by making short term investments of members' cash deposits. In addition, the clearinghouse investment guidelines allow for direct purchases or repurchase agreements with short dated maturities of high quality sovereign debt (for example, European government and U.S. Treasury securities), central bank certificates and supranational debt instruments.
- *Security Issuer Risk.* Security issuer risk is the risk that an issuer of a security defaults on its payment when the security matures. This risk is mitigated by limiting allowable investments and collateral under reverse repurchase agreements to high quality sovereign, government agency or supranational debt instruments.

Item 4. Controls and Procedures

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.

Changes in 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 September 30, 2020 that have materially affected, or are reasonably likely to materially affect, Nasdaq’s internal control over financial reporting.

PART II - OTHER INFORMATION

Item 1. Legal Proceedings

See “Legal and Regulatory Matters - Litigation,” of Note 17, “Commitments, Contingencies and Guarantees,” to the condensed consolidated financial statements, which is incorporated herein by reference.

Item 1A. Risk Factors

In addition to the other information set forth in this Quarterly Report on Form 10-Q, you should carefully consider the factors discussed under “Risk Factors” in our most recent Form 10-K. These risks could materially and adversely affect our business, financial condition and results of operations. The risks and uncertainties in our most recent 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.

Risks Relating to our Business

The COVID-19 pandemic could have an adverse effect on our business, financial condition, liquidity or results of operations.

We are continuing to closely monitor the evolving impact of the COVID-19 pandemic on our industry and business in the United States and worldwide, including its effect on our customers, employees, vendors and other stakeholders. The COVID-19 pandemic has created significant volatility, uncertainty and economic disruption, which may adversely affect our business, financial condition, liquidity or results of operations.

While results in our Market Services business were strong in the third quarter reflecting elevated trading volumes amidst the COVID-19 pandemic, there is no assurance that such trading levels will continue. In our Corporate Services segment, while we have experienced strong demand for IPOs in the third quarter, we cannot predict whether investor demand for IPOs and new listings will continue for the remainder of the year. We continue to observe that certain Market Technology customers are delaying purchasing decisions or extending implementation schedules. In our Information Services segment, some customers are scrutinizing their discretionary spending, and consequently extending our sales cycle. While our licensed ETPs, and in particular our Nasdaq-100 index, have grown due to the increases in the market and net inflows, there is no assurance that such growth or volume trends will continue for the remainder of year.

As the COVID-19 pandemic and its resultant economic effects continue, existing customers in our each of our segments may reduce or cancel spending for our products and services. Additionally, our sales pipeline with new client prospects may be further affected as new clients may delay or cancel purchase decisions while they evaluate the continuing impact of COVID-19.

In response to COVID-19, we have shifted to having a majority of our staff work from home and have added additional network capacity and monitoring. However, such remote work may cause heightened cybersecurity and operational risks. Certain of our global offices have re-opened on a limited basis, or expect to re-open subject to limitations during the fourth quarter. We could face disruption to our business or operations if a significant number of our employees or any of our key employees becomes ill due to the virus. Any disruption to our ability to deliver services to our clients could result in liability to our customers, regulatory fines, penalties or other sanctions, increased operational costs or harm to our reputation and brand. This, in turn, may have an adverse effect on our business, financial condition, liquidity or results of operations.

Due to the pandemic, we may be exposed to increased credit risk from third parties, including our customers, who may be unable to pay our invoices when they become due. We also may be exposed to increased counterparty default risk, including at Nasdaq Clearing and in our FICC business, which could pose a risk to our liquidity. In addition, we may be exposed to liquidity and credit risk with respect to our investments; if the value of those investments becomes impaired, we may be required to incur charges relating to such impairments. If any of these risks materialize, we may experience adverse consequences to our operating results or ability to conduct our business.

The extent to which the COVID-19 pandemic impacts our business, financial condition, liquidity or results of operations will depend on future developments, which are uncertain and cannot be predicted, including the scope and duration of the COVID-19 pandemic, the length of time government, commercial and travel limitations are in place, the continued effectiveness of our remote work arrangements, actions taken by governmental authorities, regulators and other third parties in response to the pandemic, as well as other direct and indirect impacts on us, our exchanges, our customers, our vendors and other stakeholders. To the extent the COVID-19 pandemic adversely affects our business, financial condition, liquidity or results of operations, it may also have the effect of heightening risks described in the section entitled "Risk Factors" in our most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q.

* * * * * *

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

Issuer Purchases of Equity Securities

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 September 30, 2020:

Period[(1)(2)]	(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)
July 2020				
Share repurchase program	—	$ —	—	$ 480
Employee transactions	637	$ 126.02	N/A	N/A
August 2020				
Share repurchase program	149,897	$ 130.83	149,897	$ 460
Employee transactions	304	$ 132.49	N/A	N/A
September 2020				
Share repurchase program	109,756	$ 130.67	109,756	$ 446
Employee transactions	3,078	$ 132.94	N/A	N/A
Total Quarter Ended September 30, 2020				
Share repurchase program	259,653	$ 130.76	259,653	$ 446
Employee transactions	4,019	$ 131.80	N/A	N/A

N/A Not applicable.

(1) See “Share Repurchase Program,” of Note 11, “Nasdaq Stockholders’ Equity,” to the condensed consolidated financial statements for further discussion of our share repurchase program.

(2) Represents shares surrendered to us to satisfy tax withholding obligations arising from the vesting of restricted stock and PSUs issued to employees.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

Item 6. Exhibits

Exhibit Number	
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	The following materials from the Nasdaq, Inc. Quarterly Report on Form 10-Q for the quarter ended September 30, 2020, formatted in iXBRL (Inline eXtensible Business Reporting Language): (i) Condensed Consolidated Balance Sheets as of September 30, 2020 and December 31, 2019; (ii) Condensed Consolidated Statements of Income for the three and nine months ended September 30, 2020 and 2019; (iii) Condensed Consolidated Statements of Comprehensive Income for the three and nine months ended September 30, 2020 and 2019; (iv) Condensed Consolidated Statements of Changes in Stockholders' Equity for the three and nine months ended September 30, 2020 and 2019; (v) Condensed Consolidated Statements of Cash Flows for the nine months ended September 30, 2020 and 2019; and (vi) notes to condensed consolidated financial statements.
104	Cover Page Interactive Data File, formatted in iXBRL and contained in Exhibit 101.

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:	November 4, 2020	**By:**	/s/ Adena T. Friedman
		Name:	**Adena T. Friedman**
		Title:	**President and Chief Executive Officer**
Date:	November 4, 2020	**By:**	/s/ Michael Ptasznik
		Name:	**Michael Ptasznik**
		Title:	**Executive Vice President, Corporate Strategy and Chief Financial Officer**

Exhibit 31.1

CERTIFICATION

I, Adena T. Friedman, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Nasdaq, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

	/s/ Adena T. Friedman
Name:	Adena T. Friedman
Title:	President and Chief Executive Officer

Date: November 4, 2020

Exhibit 31.2

CERTIFICATION

I, Michael Ptasznik, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Nasdaq, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

	/s/ Michael Ptasznik
Name:	Michael Ptasznik
Title:	Executive Vice President, Corporate Strategy and Chief Financial Officer

Date: November 4, 2020

Exhibit 32.1

Certification of CEO and CFO Pursuant to
18 U.S.C. Section 1350
as Adopted Pursuant to
Section 906 of the Sarbanes-Oxley Act of 2002

In connection with the Quarterly Report on Form 10-Q of Nasdaq, Inc. (the "Company") for the period ended September 30, 2020 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Adena T. Friedman, as President and Chief Executive Officer of the Company, and Michael Ptasznik, as Executive Vice President, Corporate Strategy and Chief Financial Officer of the Company, each hereby certifies, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to the best of her or his knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of the operations of the Company.

	/s/ Adena T. Friedman
Name:	Adena T. Friedman
Title:	President and Chief Executive Officer
Date:	November 4, 2020

	/s/ Michael Ptasznik
Name:	Michael Ptasznik
Title:	Executive Vice President, Corporate Strategy and Chief Financial Officer
Date:	November 4, 2020

This certification accompanies the Report pursuant to § 906 of the Sarbanes-Oxley Act of 2002 and shall not, except to the extent required by the Sarbanes-Oxley Act of 2002, be deemed filed by the Company for purposes of § 18 of the Securities Exchange Act of 1934, as amended.