

Cboe Global Markets, Inc.
Form 10-Q
May 03, 2019
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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 March 31, 2019

OR

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

For the transition period from to

Commission file number: 001 34774

Cboe Global Markets, Inc.

(Exact Name of Registrant as Specified in Its Charter)

Delaware	20 5446972
(State or Other Jurisdiction of	(I.R.S. Employer
Incorporation or Organization)	Identification No.)

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400 South LaSalle Street Chicago, Illinois 60605
(Address of Principal Executive Offices) (Zip Code)

(312) 786 5600

(Registrant's telephone number, including area code)

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, or 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

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

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Title of each class:	Trading Symbol	Name of each exchange on which registered:
Common Stock, par value \$0.01 per share	CBOE	Cboe BZX

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

Class	April 26, 2019
Common Stock, par value \$0.01	111,633,040 shares

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CERTAIN DEFINED TERMS

Throughout this document, unless otherwise specified or the context so requires:

- "Cboe," "we," "us," "our" or "the Company" refers to Cboe Global Markets, Inc. and its subsidiaries.
- "ADV" means average daily volume.
- "ADNV" means average daily notional value.
- "Bats Global Markets" and "Bats" refer to our wholly-owned subsidiary Bats Global Markets, Inc., now known as Cboe Bats, LLC, and its subsidiaries.
- "BYX" refers to Cboe BYX Exchange, Inc., a wholly-owned subsidiary of Cboe Global Markets, Inc.
- "BZX" refers to Cboe BZX Exchange, Inc., a wholly-owned subsidiary of Cboe Global Markets, Inc.
- "C2" refers to Cboe C2 Exchange, Inc. a wholly-owned subsidiary of Cboe Global Markets, Inc.
- "Cboe Chi-X Europe" refers to our broker-dealer entity, Cboe Chi-X Europe Limited, a wholly-owned subsidiary of Cboe Global Markets, Inc., operated in the United Kingdom.
- "Cboe Europe Limited" refers to Cboe Europe Limited, a wholly-owned subsidiary of Cboe Global Markets, Inc., the U.K. operator of our Multilateral Trading Facility ("MTF"), and our Regulated Market ("RM"), under its Recognized Investment Exchange ("RIE") status, an Approved Publication Arrangement ("APA") and a Benchmark Administrator ("BA").
- "Cboe Europe B.V." refers to Cboe Europe B.V., a wholly-owned subsidiary of Cboe Europe Limited, the Dutch operator of our European Union ("EU") MTF, RM, and APA.
- "Cboe FX" refers to Cboe FX Holdings, LLC, a wholly-owned subsidiary of Cboe Global Markets, Inc.
- "Cboe Options" refers to Cboe Exchange, Inc., a wholly-owned subsidiary of Cboe Global Markets, Inc.
- "Cboe SEF" refers to Cboe SEF, LLC, our swap execution facility that is a wholly-owned subsidiary of Cboe Global Markets, Inc.
- "Cboe Trading" refers to our broker-dealer entity, Cboe Trading, Inc., a wholly-owned subsidiary of Cboe Global Markets, Inc., operated in the United States.
- "CFE" refers to Cboe Futures Exchange, LLC, a wholly-owned subsidiary of Cboe Global Markets, Inc.
- "CFTC" refers to the U.S. Commodity Futures Trading Commission.
- "EDGA" refers to Cboe EDGA Exchange, Inc., a wholly-owned subsidiary of Cboe Global Markets, Inc.
- "EDGX" refers to Cboe EDGX Exchange, Inc., a wholly-owned subsidiary of Cboe Global Markets, Inc.
- "Exchange Act" refers to the Securities Exchange Act of 1934.
 - "Exchanges" refers to Cboe Options, C2, BZX, BYX, EDGX, and EDGA.
- "FASB" refers to the Financial Accounting Standards Board.
- "FCA" refers to the U.K. Financial Conduct Authority.
- "FINRA" refers to the Financial Industry Regulatory Authority.
- "GAAP" refers to Generally Accepted Accounting Principles in the United States.
- "Merger" refers to our acquisition of Bats Global Markets, completed on February 28, 2017.

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- "OCC" refers to a service provider for central counterparty clearing for options and futures also known as The Options Clearing Corporation.
- "OPRA" refers to Options Price Reporting Authority, LLC.
- "SEC" refers to the U.S. Securities and Exchange Commission.
- "SPX" refers to our S&P 500 Index exchange-traded options products.
- "TPH" refers to either a Trading Permit Holder or a Trading Privilege Holder.
- "VIX" refers to the Cboe Volatility Index methodology.

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TRADEMARK AND OTHER INFORMATION

Cboe®, Bats®, BYX®, BZX®, Cboe Options Institute®, Cboe Vest®, Cboe Volatility Index®, CFE®, EDGA®, EDGX®, LiveVol®, Silexx® and VIX® are registered trademarks, and Cboe Global MarketsSM, Cboe Futures ExchangeSM, C2SM, SilexxSM and SPXSM and are service marks of Cboe Global Markets, Inc. and its subsidiaries. Standard & Poor's®, S&P®, S&P 100® and S&P 500® are registered trademarks of Standard & Poor's Financial Services LLC and have been licensed for use by Cboe Exchange, Inc. Dow Jones®, Dow Jones Industrial Average®, DJIA® and Dow Jones Indexes are registered trademarks or service marks of Dow Jones Trademark Holdings, LLC, used under license. MSCI, and the MSCI index names are service marks of MSCI Inc., used under license. Russell® and the Russell index names are registered trademarks of Frank Russell Company, used under license. FTSE® and the FTSE indexes are trademarks and service marks of FTSE International Limited, used under license. All other trademarks and service marks are the property of their respective owners.

This Quarterly Report on Form 10-Q includes market share and industry data that we obtained from industry publications and surveys, reports of governmental agencies and internal company surveys. Industry publications and surveys generally state that the information they contain has been obtained from sources believed to be reliable, but we cannot assure you that this information is accurate or complete. We have not independently verified any of the data from third-party sources nor have we ascertained the underlying economic assumptions relied upon therein. Statements as to our market position are based on the most currently available market data. 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” in Part II, Item 1A of this Quarterly Report on Form 10-Q and our other filings with the SEC.

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FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 that involve a number of risks and uncertainties. You can identify these statements by forward-looking words such as "may," "might," "should," "expect," "plan," "anticipate," "believe," "estimate," "predict," "potential" or "continue," and the negative of these terms and other comparable terminology. All statements that reflect our expectations, assumptions or projections about the future other than statements of historical fact are forward-looking statements, including statements in the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this Report. These forward-looking statements, which are subject to known and unknown risks, uncertainties and assumptions about us, may include projections of our future financial performance based on our growth strategies and anticipated trends in our business. These statements are only predictions based on our current expectations and projections about future events. There are important factors that could cause our actual results, level of activity, performance or achievements to differ materially from those expressed or implied by the forward-looking statements. In particular, you should consider the risks and uncertainties described under "Risk Factors" in Part II, Item 1A of this Quarterly Report on Form 10-Q and our other filings with the SEC.

While we believe we have identified material risks, these risks and uncertainties are not exhaustive. Moreover, we operate in a very competitive and rapidly changing environment. New risks and uncertainties emerge from time to time, and it is not possible to predict all risks and uncertainties, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements.

Some factors that could cause actual results to differ include:

- the loss of our right to exclusively list and trade certain index options and futures products;
- economic, political and market conditions;
- compliance with legal and regulatory obligations;
- price competition and consolidation in our industry;
- decreases in trading volumes, market data fees or a shift in the mix of products traded on our exchanges;
- legislative or regulatory changes;
- potential difficulties in our migration of trading platforms and our ability to retain employees as a result of the Merger;
- our ability to protect our systems and communication networks from security risks, cybersecurity risks, insider threats and unauthorized disclosure of confidential information;
- increasing competition by foreign and domestic entities;
- our dependence on and exposure to risk from third parties;
- fluctuations to currency exchange rates;
- our index providers' ability to maintain the quality and integrity of their indexes and to perform under our agreements;
- our ability to operate our business without violating the intellectual property rights of others and the costs associated with protecting our intellectual property rights;
- our ability to attract and retain skilled management and other personnel, including those experienced with post acquisition integration;
- our ability to accommodate trading volume and transaction traffic, including significant increases, without failure or degradation of performance of our systems;
- misconduct by those who use our markets or our products;
- challenges to our use of open source software code;
- our ability to meet our compliance obligations, including managing potential conflicts between our regulatory responsibilities and our for-profit status;

- damage to our reputation;
 - the ability of our compliance and risk management methods to effectively monitor and manage our risks;
- our ability to manage our growth and strategic acquisitions or alliances effectively;
- restrictions imposed by our debt obligations;
- our ability to maintain an investment grade credit rating;

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- impairment of our goodwill, investments or intangible assets; and
- the accuracy of our estimates and expectations.

For a detailed discussion of these and other factors that might affect our performance, see Part II, Item 1A of this Report. We do not undertake, and expressly disclaim, any duty to update any forward-looking statement whether as a result of new information, future events or otherwise, except as required by law. We caution you not to place undue reliance on the forward-looking statements, which speak only as of the date of this filing.

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PART I—FINANCIAL INFORMATION

Item 1. Financial Statements.

Cboe Global Markets, Inc. and Subsidiaries

Condensed Consolidated Balance Sheets

(unaudited)

(in millions, except par value data and share amounts)

	March 31, 2019	December 31, 2018
Assets		
Current Assets:		
Cash and cash equivalents	\$ 346.2	\$ 275.1
Financial investments	30.2	35.7
Accounts receivables, net	251.0	287.3
Income taxes receivable	40.3	70.4
Other current assets	15.5	15.2
Total Current Assets	683.2	683.7
Investments	63.4	86.2
Land	4.9	4.9
Property and equipment, net	68.5	71.7
Operating lease right of use assets	56.5	—
Goodwill	2,697.5	2,691.4
Intangible assets, net	1,690.3	1,720.2
Other assets, net	66.1	62.9
Total Assets	\$ 5,330.4	\$ 5,321.0
Liabilities, Redeemable Noncontrolling Interest and Stockholders' Equity		
Current Liabilities:		
Accounts payable and accrued liabilities	\$ 135.8	\$ 198.5
Section 31 fees payable	48.7	81.1
Deferred revenue	18.2	8.5
Income taxes payable	4.1	4.1
Current portion of long-term debt	299.9	299.8
Contingent consideration liability	4.7	3.9
Total Current Liabilities	511.4	595.9
Long-term debt	916.1	915.6
Income tax liability	121.2	114.9
Deferred income taxes	433.4	436.8
Non-current operating lease liabilities	50.1	—
Other non-current liabilities	3.4	7.4
Commitments and Contingencies		
Redeemable Noncontrolling Interest	9.4	9.4

Stockholders' Equity:

Preferred stock, \$0.01 par value: 20,000,000 shares authorized, no shares issued and outstanding at March 31, 2019 and December 31, 2018	—	—
Common stock, \$0.01 par value: 325,000,000 shares authorized, 125,596,292 and 111,630,805 shares issued and outstanding, respectively at March 31, 2019 and 125,080,496 and 111,601,976 shares issued and outstanding, respectively at December 31, 2018	1.2	1.2
Common stock in treasury, at cost, 13,965,487 shares at March 31, 2019 and 13,478,520 shares at December 31, 2018	(764.3)	(720.1)
Additional paid-in capital	2,673.7	2,660.2
Retained earnings	1,348.6	1,288.2
Accumulated other comprehensive income, net	26.2	11.5
Total Stockholders' Equity	3,285.4	3,241.0
Total Liabilities, Redeemable Noncontrolling Interest and Stockholders' Equity	\$ 5,330.4	\$ 5,321.0

See accompanying notes to condensed consolidated financial statements.

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Cboe Global Markets, Inc. and Subsidiaries

Condensed Consolidated Statements of Income

(unaudited)

(in millions, except per share data)

	Three Months Ended March 31,	
	2019	2018
Revenues:		
Transaction fees	\$ 430.4	\$ 547.1
Access and capacity fees	54.4	50.6
Market data fees	51.6	54.2
Regulatory fees	58.7	116.3
Other revenue	7.5	9.5
Total revenues	602.6	777.7
Cost of revenues:		
Liquidity payments	243.7	302.9
Routing and clearing	9.2	10.3
Section 31 fees	48.2	108.8
Royalty fees	21.0	27.2
Total cost of revenues	322.1	449.2
Revenues less cost of revenues	280.5	328.5
Operating expenses:		
Compensation and benefits	48.1	58.9
Depreciation and amortization	47.2	54.2
Technology support services	11.9	12.1
Professional fees and outside services	16.2	18.0
Travel and promotional expenses	2.6	3.7
Facilities costs	2.1	2.4
Acquisition-related costs	2.3	8.8
Other expenses	3.6	2.7
Total operating expenses	134.0	160.8
Operating income	146.5	167.7
Non-operating (expenses) income:		
Interest expense, net	(9.9)	(9.6)
Other (expense) income	(8.8)	1.3
Income before income tax provision	127.8	159.4
Income tax provision	32.6	41.3
Net income	95.2	118.1
Net loss attributable to redeemable noncontrolling interest	0.2	0.3
Net income excluding redeemable noncontrolling interest	95.4	118.4
Change in redemption value of redeemable noncontrolling interest	(0.2)	(0.3)
Net income allocated to participating securities	(0.6)	(0.8)
Net income allocated to common stockholders	\$ 94.6	\$ 117.3
Basic earnings per share	\$ 0.85	\$ 1.04

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Diluted earnings per share	\$ 0.85	\$ 1.04
Basic weighted average shares outstanding	111.5	112.4
Diluted weighted average shares outstanding	111.7	112.7

See accompanying notes to condensed consolidated financial statements.

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Cboe Global Markets, Inc. and Subsidiaries

Condensed Consolidated Statements of Comprehensive Income

(unaudited)

(in millions)

	Three Months Ended March 31,	
	2019	2018
Net income	\$ 95.2	\$ 118.1
Other comprehensive income, net of tax:		
Foreign currency translation adjustments	14.7	24.9
Unrealized holding gains on financial investments	—	(0.1)
Comprehensive income	109.9	142.9
Comprehensive loss attributable to redeemable noncontrolling interest	0.2	0.3
Comprehensive income excluding redeemable noncontrolling interest	110.1	143.2
Change in redemption value of redeemable noncontrolling interest	(0.2)	(0.3)
Comprehensive income allocated to participating securities	(0.6)	(0.8)
Comprehensive income allocated to common stockholders, net of tax	\$ 109.3	\$ 142.1

See accompanying notes to condensed consolidated financial statements.

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Cboe Global Markets, Inc. and Subsidiaries

Condensed Consolidated Statement of Changes in Stockholders' Equity

Three months ended March 31, 2019 and March 31, 2018

(unaudited)

(in millions, except per share amount)

	Preferred Stock	Common Stock	Treasury Stock	Additional paid-in capital	Retained earnings	Accumulated other comprehensive income, net	Total stockholders' equity	Redeemable Noncontrolling Interest
Balance at December 31, 2018	\$ —	\$ 1.2	\$ (720.1)	\$ 2,660.2	\$ 1,288.2	\$ 11.5	\$ 3,241.0	\$ 9.4
Cash dividends on common stock of \$0.31 per share	—	—	—	—	(34.8)	—	(34.8)	—
Stock-based compensation	—	—	—	5.4	—	—	5.4	—
Exercise of common stock options	—	—	—	8.1	—	—	8.1	—
Common stock repurchased from employee stock plans	—	—	(10.0)	—	—	—	(10.0)	—
Purchase of common stock	—	—	(35.0)	—	—	—	(35.0)	—
Shares issued under employee stock purchase plan	—	—	0.8	—	—	—	0.8	—
Net income excluding noncontrolling interest	—	—	—	—	95.4	—	95.4	—
Other comprehensive income	—	—	—	—	—	14.7	14.7	—
Net loss attributable to redeemable noncontrolling interest	—	—	—	—	—	—	—	(0.2)

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Redemption value adjustment of redeemable noncontrolling interest	—	—	—	—	(0.2)	—	(0.2)	0.2
Balance at March 31, 2019	\$ —	\$ 1.2	\$ (764.3)	\$ 2,673.7	\$ 1,348.6	\$ 26.2	\$ 3,285.4	\$ 9.4
	Preferred Stock	Common Stock	Treasury Stock	Additional paid-in capital	Retained earnings	Accumulated other comprehensive income, net	Total stockholders' equity	Redeemable Noncontrolling Interest
Balance at December 31, 2017	\$ —	\$ 1.2	\$ (558.3)	\$ 2,623.7	\$ 993.3	\$ 50.7	\$ 3,110.6	\$ 9.4
Cash dividends on common stock of \$0.27 per share	—	—	—	—	(30.6)	—	(30.6)	—
Stock-based compensation	—	—	—	11.0	—	—	11.0	—
Common stock repurchased from employee stock plans	—	—	(59.3)	0.6	—	—	(58.7)	—
Net income excluding noncontrolling interest	—	—	—	—	118.4	—	118.4	—
Other comprehensive income	—	—	—	—	—	24.8	24.8	—
Net loss attributable to redeemable noncontrolling interest	—	—	—	—	—	—	—	(0.3)
Redemption value adjustment of redeemable noncontrolling interest	—	—	—	—	(0.3)	—	(0.3)	0.3
Balance at March 31, 2018	\$ —	\$ 1.2	\$ (617.6)	\$ 2,635.3	\$ 1,080.8	\$ 75.5	\$ 3,175.2	\$ 9.4

See accompanying notes to condensed consolidated financial statements.

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Cboe Global Markets, Inc. and Subsidiaries

Condensed Consolidated Statements of Cash Flows

(unaudited)

(in millions)

	Three Months Ended March 31,	
	2019	2018
Cash Flows from Operating Activities:		
Net income	\$ 95.2	\$ 118.1
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	47.2	54.2
Amortization of debt issuance cost and debt discount	0.6	0.6
Change in fair value of contingent consideration	0.8	1.3
Realized (gain) loss on available-for-sale securities	(0.2)	0.4
Provision for uncollectible convertible notes receivable	0.3	—
Provision for deferred income taxes	(5.4)	(29.8)
Stock-based compensation expense	5.4	11.0
Loss on disposition of property	0.4	—
Equity in investments	(0.5)	(0.5)
Changes in assets and liabilities:		
Accounts receivable	37.5	(50.3)
Income taxes receivable	30.1	17.2
Other prepaid expenses	(4.3)	(6.3)
Accounts payable and accrued liabilities	(67.0)	(8.8)
Section 31 fees payable	(32.4)	4.3
Deferred revenue	9.7	4.1
Income taxes payable	(1.6)	49.2
Income tax liability	6.3	(0.9)
Other liabilities	(4.1)	(0.3)
Net Cash Flows provided by Operating Activities	118.0	163.5
Cash Flows from Investing Activities:		
Acquisitions, net of cash acquired	—	0.2
Purchases of available-for-sale financial investments	(29.5)	(63.4)
Proceeds from maturities of available-for-sale financial investments	35.3	46.3
Return of capital from investments	22.0	—
Purchases of investments	—	(1.0)
Purchases of property and equipment	(5.8)	(7.3)
Net Cash Flows provided by (used in) Investing Activities	22.0	(25.2)
Cash Flows from Financing Activities:		
Proceeds from long-term debt	—	300.0
Principal payments of long term debt	—	(325.0)
Debt issuance costs	—	(0.1)

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Dividends paid	(34.8)	(30.6)
Purchase of unrestricted stock from employees	(10.0)	(15.7)
Proceeds from exercise of stock-based compensation	8.1	0.8
Purchase of common stock under announced program	(35.0)	(43.6)
Net Cash Flows used in Financing Activities	(71.7)	(114.2)
Effect of Foreign Currency Exchange Rate Changes on Cash and Cash equivalents	2.8	(1.3)
Increase in Cash and Cash Equivalents	71.1	22.8
Cash and Cash Equivalents:		
Beginning of Period	275.1	143.5
End of Period	\$ 346.2	\$ 166.3
Supplemental disclosure of cash transactions:		
Cash paid for income taxes	\$ 2.2	\$ 6.8
Interest paid	14.3	13.8

See accompanying notes to condensed consolidated financial statements.

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Cboe Global Markets, Inc. and Subsidiaries

Notes to Condensed Consolidated Financial Statements (unaudited)

1. ORGANIZATION AND BASIS OF PRESENTATION

Cboe Global Markets, Inc. is one of the world's largest exchange holding companies, offering cutting-edge trading and investment solutions to investors around the world. The Company is committed to relentless innovation, connecting global markets with world-class technology, and providing seamless solutions that enhance the customer experience.

Cboe offers trading across a diverse range of products in multiple asset classes and geographies, including options, futures, U.S. and European equities, exchange-traded products ("ETPs"), global foreign exchange ("FX") and multi-asset volatility products based on the VIX Index, the world's barometer for equity market volatility.

Cboe's trading venues include the largest options exchange in the U.S. by volume and the largest stock exchange by value traded in Europe. In addition, the Company is one of the largest stock exchange operators by volume in the U.S. and a leading market globally for ETP trading.

The Company is headquartered in Chicago with offices in Kansas City, New York, London, San Francisco, Amsterdam, Singapore, Hong Kong, and Ecuador.

Basis of Presentation

These interim unaudited condensed consolidated financial statements have been prepared in accordance with GAAP for interim financial information and with the instructions to Form 10 Q and should be read in conjunction with the consolidated financial statements and notes thereto contained in the Company's Annual Report on Form 10 K for the year ended December 31, 2018.

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosures of contingent assets and liabilities, valuation of redeemable noncontrolling interest and reported amounts of revenues and expenses. On an ongoing basis, management evaluates its estimates based upon historical experience, observance of trends, information available from outside sources and various other assumptions that management believes to be reasonable under the circumstances. Actual results may differ from these estimates under different conditions or assumptions.

In the opinion of management, all adjustments (consisting of normal recurring adjustments) considered necessary for a fair presentation of financial position, results of operations and cash flows at the dates and for the periods presented have been included.

The results of operations for interim periods are not necessarily indicative of the results of operations for the full year.

For those consolidated subsidiaries in which the Company's ownership is less than 100% and for which the Company has control over the assets and liabilities and the management of the entity, the outside stockholders' interest is shown as noncontrolling interest.

Segment information

The Company reports five business segments: Options, U.S. Equities, Futures, European Equities, and Global FX, which is reflective of how the Company's chief operating decision-maker reviews and operates the business (Note 15).

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Significant Accounting Policies

With the exception of the change for the accounting of leases as a result of the adoption of Topic 842 (as discussed below in “Recent Accounting Pronouncements Adopted”), there have been no new or material changes to the significant accounting policies discussed in the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2018, that are of significance, or potential significance, to the Company.

Leases

The Company determines if an arrangement contains a lease at inception. For arrangements where the Company is the lessee, operating leases are included in right of use assets, accrued liabilities, and non-current operating lease liabilities on the Condensed Consolidated Balance Sheet as of March 31, 2019. The Company currently does not have any finance leases.

Operating lease right-of-use (“ROU”) assets and operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at commencement date. ROU assets also include any initial direct costs incurred and any lease payments made at or before the lease commencement date, less lease incentives received. The Company uses its incremental borrowing rate based on the information available at the commencement date in determining the lease liabilities, as the Company’s leases generally do not provide an implicit rate. Lease terms may include options to extend or terminate when the Company is reasonably certain that the option will be exercised. Lease expense is recognized on a straight-line basis over the lease term.

The Company also has lease arrangements with lease and non-lease components. The Company elected the practical expedient not to separate non-lease components from lease components for the Company’s leases. The Company elected to apply the short-term lease measurement and recognition exemption in which ROU assets and lease liabilities are not recognized for short-term leases.

Recent Accounting Pronouncements - Adopted

In February 2016, the FASB issued ASU 2016-02, Leases. This update requires a lessee to recognize on the balance sheet a liability to make lease payments and a corresponding ROU asset. The guidance also requires certain qualitative and quantitative disclosures about the amount, timing and uncertainty of cash flows arising from leases. In July 2018, the FASB issued ASU 2018-10, Codification Improvements to Topic 842, Leases ASU 2018-11, Leases (Topic 842) Targeted Improvements, ASU 2018-20, Leases (Topic 842) Narrow-Scope Improvements for Lessors, and ASU 2019-01, Leases (Topic 842) Codification Improvements, to clarify the implementation guidance. This updated guidance provides an optional transition method, which allows for the initial application of the new accounting standard at the adoption date and the recognition of a cumulative-effect adjustment to the opening balance of retained earnings as of the beginning of the period of adoption. These updates are effective for annual and interim periods beginning after December 15, 2018. The Company adopted the new ASUs on January 1, 2019, using the alternative transition approach and will not restate comparative periods. The Company elected the package of practical expedients permitted under the transition guidance within the new standard, which among other things, allowed us to not reassess contracts to determine if they contain leases, lease classification and initial direct costs. The Company’s application of the new standard resulted in changes to the balance sheet but did not have an impact on our consolidated income statements and statements of cash flows. See Note 22 “Leases” for more information.

Recent Accounting Pronouncements - Issued, not yet Adopted

In June 2016, the FASB issued ASU 2016-13, Credit Losses. This update replaces the incurred loss impairment methodology in current GAAP with a methodology that requires management to estimate an expected lifetime credit loss on financial assets. For public entities, the update is effective for fiscal years and interim periods within those fiscal years, beginning after December 15, 2019, with early adoption permitted. The Company is in the process of evaluating this guidance and assessing the impact the ASU could have on the consolidated financial statements.

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In August 2018, the FASB issued ASU 2018-13, Fair Value Measurement (Topic 820) - Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement. This ASU removes certain disclosure requirements related to the fair value hierarchy, modifies existing disclosure requirements related to measurement uncertainty and adds new disclosure requirements. The new disclosure requirements include disclosing the changes in unrealized gains and losses for the period included in other comprehensive income for recurring Level 3 fair value measurements held at the end of the reporting period and the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements. For public entities, the update is effective for fiscal years and interim periods within those fiscal years, beginning after December 15, 2019. Certain disclosures in the new guidance will need to be applied on a retrospective basis and others on a prospective basis. The Company is in the process of evaluating this guidance and assessing the impact the ASU could have on the consolidated financial statements.

2. REVENUE RECOGNITION

The Company's main types of revenue contracts are:

- Transaction fees - Transaction fees represent fees charged by the Company for the performance obligation of executing a trade on its markets. These fees can be variable based on trade volume tiered discounts, however, as all tiered discounts are calculated monthly, the actual discount is recorded on a monthly basis. Transaction fees, as well as any tiered volume discounts, are calculated and billed monthly in accordance with the Company's published fee schedules. Transaction fees are recognized across all segments. The Company also pays liquidity payments to customers based on its published fee schedules. The Company uses these payments to improve the liquidity on its markets and therefore recognizes those payments as a cost of revenue.
- Access and capacity fees - Access and capacity fees represent fees assessed for the opportunity to trade, including fees for trading-related functionality across all segments, terminal and other equipment rights, maintenance services, trading floor space and telecommunications services. These fees are billed monthly in accordance with the Company's published fee schedules and recognized on a monthly basis when the performance obligation is met. Facilities, systems services and other fees are generally monthly fee-based, although certain services are influenced by trading volume or other defined metrics, while others are based solely on demand. All fees associated with the trading floor are recognized in the Options segment. There is no remaining performance obligation after revenue is recognized. This caption is a combination of the previous captions "access fees" and "exchange services and other fees" as the Company continues to integrate the Bats technology into the operations of the exchanges. The prior period presented has been updated to conform to the current period presentation.
- Market data fees - Market data fees represent the fees received by the Company from the U.S. tape plans and fees charged to customers for proprietary market data. Fees from the U.S. tape plans are collected monthly based on published fee schedules and distributed quarterly to the U.S. exchanges based on a known formula. A contract for proprietary market data is entered into and charged on a monthly basis in accordance with the Company's published fee schedules as the service is provided. Both types of market data are satisfied over time, and revenue is recognized on a monthly basis as the customer receives and consumes the benefit as the Company provides the data. U.S. tape plan market data is recognized in the U.S. Equities and Options segments. Proprietary market data fees are recognized across all segments.
- Regulatory fees - There are two types of regulatory fees that the Company recognizes. The first type represents fees collected by the Company to cover the Section 31 fees charged to the Exchanges by the SEC. The fees charged to customers are based on the fee set by the SEC per notional value of the transaction executed on the Company's U.S. securities markets. These fees are calculated and billed monthly and are recognized in the U.S. Equities and Options segments. As the Exchanges are responsible for the ultimate payment to the SEC, the Exchanges are considered the principal in these transactions. Regulatory fees also include the options regulatory fee ("ORF") which supports the

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Company's regulatory oversight function in the Options segment and other miscellaneous regulatory fees and cannot be used for non-regulatory purposes.

- Other revenue - Other revenue primarily includes revenue from various licensing agreements, all fees related to the trade reporting facility operated in the European Equities segment, and revenue associated with advertisements through the Company's website.

All revenue recognized in the income statement is considered to be revenue from contracts with customers. The following table depicts the disaggregation of revenue according to product line and segment (in millions):

	Options	U.S. Equities	Futures	European Equities	Global FX	Corporate items and eliminations	Total
Three Months Ended							
March 31, 2019							
Transaction fees	\$ 173.8	\$ 198.9	\$ 24.6	\$ 21.1	\$ 12.0	\$ —	\$ 430.4
Access and capacity fees	26.0	19.0	3.7	4.0	1.7	—	54.4
Market data fees	13.7	32.9	1.7	3.2	0.1	—	51.6
Regulatory fees	14.5	43.7	0.5	—	—	—	58.7
Other revenue	4.1	1.3	—	2.0	0.1	—	7.5
	\$ 232.1	\$ 295.8	\$ 30.5	\$ 30.3	\$ 13.9	\$ —	\$ 602.6
Timing of revenue recognition							
Services transferred at a point in time	\$ 192.4	\$ 243.9	\$ 25.1	\$ 23.1	\$ 12.1	\$ —	\$ 496.6
Services transferred over time	39.7	51.9	5.4	7.2	1.8	—	106.0
	\$ 232.1	\$ 295.8	\$ 30.5	\$ 30.3	\$ 13.9	\$ —	\$ 602.6
Three Months Ended							
March 31, 2018							
Transaction fees	\$ 235.8	\$ 233.8	\$ 38.8	\$ 25.7	\$ 13.0	\$ —	\$ 547.1
Access and capacity fees	23.6	18.1	3.7	3.7	1.5	—	50.6
Market data fees	10.8	38.5	1.4	3.4	0.1	—	54.2
Regulatory fees	17.8	98.5	—	—	—	—	116.3
Other revenue	6.1	1.6	—	1.6	—	0.2	9.5
	\$ 294.1	\$ 390.5	\$ 43.9	\$ 34.4	\$ 14.6	\$ 0.2	\$ 777.7
Timing of revenue recognition							
Services transferred at a point in time	\$ 259.7	\$ 333.9	\$ 38.8	\$ 27.3	\$ 13.0	\$ 0.2	\$ 672.9
Services transferred over time	34.4	56.6	5.1	7.1	1.6	—	104.8
	\$ 294.1	\$ 390.5	\$ 43.9	\$ 34.4	\$ 14.6	\$ 0.2	\$ 777.7

Contract liabilities as of March 31, 2019 primarily represent prepayments of transaction fees and certain access and market data fees to the Exchanges. The revenue recognized from contract liabilities and the remaining balance is shown below (in millions):

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	Balance at January 1, 2019	Cash Additions	Revenue Recognition	Balance at March 31, 2019
Liquidity provider sliding scale (1)	\$ —	\$ 9.6	\$ (2.4)	\$ 7.2
Other, net	8.5	6.4	(3.8)	11.1
Total deferred revenue	\$ 8.5	\$ 16.0	\$ (6.2)	\$ 18.3

- (1) Liquidity providers are eligible to participate in the sliding scale program, which involves prepayment of transaction fees, and to receive reduced fees based on the achievement of certain volume thresholds within a calendar month. These transaction fees are amortized and recorded ratably as the transactions occur over the period.

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3. ACQUISITIONS

Bats Global Markets, Inc.

On February 28, 2017, pursuant to the Agreement and Plan of Merger, dated as of September 25, 2016 (the “Merger Agreement”), by and among Cboe, Bats, CBOE Corporation, a Delaware corporation and a wholly-owned subsidiary of Cboe (“Merger Sub”), and Cboe Bats, LLC (formerly CBOE V, LLC), a Delaware limited liability company and a wholly-owned subsidiary of Cboe (“Merger LLC”), Cboe completed the merger of Merger Sub with and into Bats and the subsequent merger of Bats with and into Merger LLC. As a result of the Merger, Bats became a wholly-owned subsidiary of Cboe.

The Company expensed \$2.3 million of acquisition-related costs during the three months ended March 31, 2019 that included \$1.3 million of compensation-related costs and \$1.0 million of professional fees. These expenses are included in acquisition-related costs in the condensed consolidated statements of income.

The Company expensed \$8.8 million of acquisition-related costs during the three months ended March 31, 2018 that included \$5.4 million of compensation-related costs and \$2.7 million of professional fees. These costs are included in acquisition-related costs in the condensed consolidated statements of income.

4. SEVERANCE

Subsequent to the Bats acquisition, the Company determined that certain employees’ positions were redundant. As such, the Company communicated employee termination benefits to these employees.

The following is a summary of the employee termination benefits recognized within acquisition costs in the condensed consolidated statements of income (in millions):

	Employee Termination Benefits
Balance at December 31, 2018	\$ 6.1
Termination benefits accrual adjustment	(2.3)
Termination payments made	(2.1)
Balance at March 31, 2019	\$ 1.7

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5. INVESTMENTS

As of March 31, 2019 and December 31, 2018, the Company's investments were comprised of the following (in millions):

	March 31, 2019	December 31, 2018
Equity Method Investments:		
Investment in Signal Trading Systems, LLC	\$ 13.3	\$ 12.4
Investment in EuroCCP	9.6	9.3
Total equity method investments	22.9	21.7
Cost Method Investments:		
Investment in OCC	8.3	30.3
Investment in Eris Exchange Holdings, LLC	20.0	20.0
Investment in American Financial Exchange, LLC	5.9	5.9
Other cost method investments	6.3	8.3
Total cost method investments	40.5	64.5
Total investments	\$ 63.4	\$ 86.2

Equity Method Investments

Equity method investments include investments in Signal Trading Systems, LLC, a 50% joint venture with FlexTrade System, Inc. to develop and market a multi-asset front-end order entry system, and EuroCCP, a Dutch domiciled clearing house. EuroCCP is one of three interoperable central counterparties, or CCPs, used to clear trades conducted on Cboe Europe Limited's markets. Cboe Europe Limited owns 20% of EuroCCP and can exercise significant influence over the entity as an equal shareholder with four other investors.

Cost Method Investments

The carrying amount of cost method investments totaled \$40.5 million as of March 31, 2019 and \$64.5 million as of December 31, 2018, and is included in investments in the condensed consolidated balance sheets. The Company accounts for these investments using the measurement alternative primarily as a result of the Company's inability to exercise significant influence as the Company is a smaller shareholder of these investments and the lack of readily determinable fair values. As of March 31, 2019, other equity investments primarily reflect a 20% investment in OCC and minority investments in American Financial Exchange, CurveGlobal and Eris Exchange Holdings, LLC.

In December 2014, OCC announced a newly-formed capital plan. The OCC capital plan was designed to strengthen OCC's capital base and facilitate its compliance with proposed SEC regulations for Systemically Important Financial Market Utilities ("SIFMUs") as well as international standards applicable to financial market infrastructures. On February 26, 2015, the SEC issued a notice of no objection to OCC's advance notice filing regarding the capital plan, and OCC and OCC's existing exchange stockholders, which include Cboe Options, subsequently executed agreements effecting the capital plan. Under the plan, each of OCC's existing exchange stockholders agreed to contribute its pro-rata share, based on ownership percentage, of \$150 million in equity capital, which would increase OCC's shareholders' equity, and to provide its pro rata share in replenishment capital, up to a maximum of \$40 million per exchange stockholder, if certain capital thresholds are breached. OCC also adopted policies under the plan with

respect to fees, customer refunds, and stockholder dividends, which envision an annual dividend payment to the exchange stockholders equal to the portion of OCC's after-tax income that exceeded OCC's capital requirements after payment of refunds to OCC's clearing members (with such customer refunds generally to constitute 50% of the portion of OCC's pre-tax income that exceeded OCC's capital requirements). On March 3, 2015, in accordance with the plan, Cboe Options contributed \$30.3 million to OCC. That contribution was recorded under investments in the consolidated balance sheets as of December 31, 2018.

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On March 6, 2015, OCC informed Cboe Options that the SEC, acting through delegated authority, had approved OCC's proposed rule filing for the capital plan. Following petitions to review the approval based on delegated authority, the SEC conducted its own review and then approved the proposed rule change implementing OCC's capital plan. Certain petitioners subsequently appealed the SEC approval order for the OCC capital plan to the U.S. Court of Appeals for the D.C. Circuit and moved to stay the SEC approval order. On February 23, 2016, the Court denied the petitioners' motion to stay. On August 8, 2017, the Court held that the SEC's approval order lacked reasoned decision-making sufficient to support the SEC's conclusion that the OCC capital plan complied with applicable statutory requirements. The Court declined to vacate the SEC's approval order or to require the unwinding of actions taken under the OCC capital plan, but instead remanded the matter to the SEC for further proceedings concerning whether that capital plan complied with those statutory requirements. Petitioners requested a stay of dividend payments to the exchange stockholders until the SEC made a final decision about the OCC capital plan, but the SEC denied that request on September 14, 2017. The SEC allowed for and received information from interested parties for the SEC's consideration in connection with its review of the OCC capital plan on remand from the Court.

On February 13, 2019, the SEC issued an order disapproving the proposed rule change implementing OCC's capital plan following the SEC's review of the OCC capital plan on remand from the Court. The SEC concluded, upon further review, that the information before the SEC was insufficient to support a finding that the OCC capital plan was consistent with the Exchange Act and Exchange Act rules and regulations. Among other items, the SEC noted in its order that while OCC represented to the Court that it is possible to unwind the OCC capital plan, the petitioners argued and the Court recognized that unwinding and replacing the OCC capital plan may pose considerable logistical challenges for OCC. The SEC also stated in its order, among other items, that the SEC would consider any requests for exemptive relief that OCC might seek while OCC establishes a new capital plan and seeks to come into compliance with the SEC requirement that OCC maintain a capital plan to cover potential general business losses. In an effort to achieve compliance with its target capital requirements in the absence of an approved capital plan, OCC has (i) retained funds that otherwise would have been paid to stockholders as dividends and to clearing members as refunds with respect to 2018, and (ii) raised its clearing fees, subject to regulatory approval. In addition, OCC's shareholders, including Cboe Options, agreed to permit OCC to retain a portion of their previously contributed capital (equal to \$8.3 million for Cboe Options) until such time as OCC has accumulated sufficient capital to satisfy certain target capital thresholds. OCC returned the rest of the shareholders' previously contributed capital (equal to \$22.0 million for Cboe Options) to the respective shareholders on February 28, 2019. OCC will not pay its shareholders any dividend or other return on the retained portion of their capital contributions. As such, the Company reversed the \$8.8 million OCC dividend declared in 2018, which was to be paid in 2019, in the other income caption in the condensed consolidated statement of income for the three months ended March 31, 2019. The remaining contribution has been recorded under investments in the condensed consolidated balance sheet as of March 31, 2019.

6. FINANCIAL INVESTMENTS

The Company's financial investments with original or acquired maturities longer than three months, but that mature in less than one year from the condensed consolidated balance sheet date and any money market funds that are considered cash and cash equivalents are classified as current assets and are summarized as follows (in millions):

	March 31, 2019			
	Cost basis	Unrealized gains	Unrealized losses	Fair value
U.S. Treasury securities	\$ 30.2	\$ —	\$ —	\$ 30.2
Total financial investments	\$ 30.2	\$ —	\$ —	\$ 30.2

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	December 31, 2018			
	Cost basis	Unrealized gains	Unrealized losses	Fair value
U.S. Treasury securities	\$ 35.7	\$ —	\$ —	\$ 35.7
Total financial investments	\$ 35.7	\$ —	\$ —	\$ 35.7

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7. PROPERTY AND EQUIPMENT, NET

Property and equipment, net consisted of the following as of March 31, 2019 and December 31, 2018 (in millions):

	March 31, 2019	December 31, 2018
Construction in progress	\$ —	\$ 0.1
Building	81.7	81.7
Furniture and Equipment	162.1	161.6
Total property and equipment	243.8	243.4
Less accumulated depreciation	(175.3)	(171.7)
Property and equipment, net	\$ 68.5	\$ 71.7

Depreciation expense using the straight-line method was \$6.2 million and \$6.9 million for the three months ended March 31, 2019 and 2018, respectively.

8. OTHER ASSETS, NET

Other assets, net consisted of the following as of March 31, 2019 and December 31, 2018 (in millions):

	March 31, 2019	December 31, 2018
Software development work in progress	\$ 6.4	\$ 8.7
Data processing software	224.2	219.0
Less accumulated depreciation and amortization	(196.9)	(193.2)
Data processing software, net	33.7	34.5
Other assets (1)	32.4	28.4
Data processing software and other assets, net	\$ 66.1	\$ 62.9

(1) At March 31, 2019 and December 31, 2018, the majority of the balance included long-term prepaid assets and notes receivable.

Amortization expense related to data processing software was \$3.5 million and \$5.2 million for the three months ended March 31, 2019 and 2018, respectively.

9. GOODWILL AND INTANGIBLE ASSETS, NET

The following table presents the details of goodwill by segment (in millions):

	Options	U.S. Equities	European Equities	Global FX	Corporate and Other	Total
Balance as of December 31, 2018	\$ 239.4	\$ 1,740.4	\$ 425.6	\$ 267.2	\$ 18.8	\$ 2,691.4
Additions	—	—	—	—	—	—
Dispositions	—	—	—	—	—	—

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Changes in foreign currency
exchange rates

	—	—	6.1	—	—	6.1
Balance as of March 31, 2019	\$ 239.4	\$ 1,740.4	\$ 431.7	\$ 267.2	\$ 18.8	\$ 2,697.5

Goodwill has been allocated to specific reporting units for purposes of impairment testing - Options, U.S. Equities, European Equities and Global FX. No goodwill has been allocated to Futures. Goodwill impairment testing is performed annually in the fiscal fourth quarter or more frequently if conditions exist that indicate that the asset may be impaired.

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The following table presents the details of the intangible assets (in millions):

	Options	U.S. Equities	European Equities	Global FX	Corporate and Other	Total
Balance as of December 31, 2018	\$ 181.9	\$ 990.3	\$ 376.9	\$ 166.9	\$ 4.2	\$ 1,720.2
Additions	—	—	—	—	—	—
Dispositions	—	—	—	—	—	—
Amortization	(4.0)	(18.9)	(6.6)	(7.7)	(0.3)	(37.5)
Changes in foreign currency exchange rates	—	—	7.6	—	—	7.6
Balance as of March 31, 2019	\$ 177.9	\$ 971.4	\$ 377.9	\$ 159.2	\$ 3.9	\$ 1,690.3

For the three months ended March 31, 2019 and 2018, amortization expense was \$37.5 million and \$42.1 million, respectively. The estimated future amortization expense is \$101.4 million for the remainder of 2019, \$122.5 million for 2020, \$107.0 million for 2021, \$94.5 million for 2022, \$83.6 million for 2023 and \$63.1 million for 2024.

The following tables present the categories of intangible assets as of March 31, 2019 and December 31, 2018 (in millions):

	March 31, 2019					Weighted Average Amortization Period (in years)
	Options	U.S. Equities	European Equities	Global FX	Corporate and Other	
Trading registrations and licenses	\$ 95.5	\$ 572.7	\$ 180.0	\$ —	\$ —	Indefinite
Customer relationships	38.8	222.9	167.6	140.0	3.0	18
Market data customer relationships	53.6	322.0	62.9	64.4	—	13
Technology	24.8	22.5	23.6	22.5	4.0	5
Trademarks and tradenames	1.7	6.0	1.9	1.2	1.0	5
Accumulated amortization	(36.5)	(174.7)	(58.1)	(68.9)	(4.1)	
	\$ 177.9	\$ 971.4	\$ 377.9	\$ 159.2	\$ 3.9	

	December 31, 2018					Weighted Average Amortization Period (in years)
	Options	U.S. Equities	European Equities	Global FX	Corporate and Other	
Trading registrations and licenses	\$ 95.5	\$ 572.7	\$ 176.0	\$ —	\$ —	Indefinite
Customer relationships	38.8	222.9	163.9	140.0	3.0	18
Market data customer relationships	53.6	322.0	61.5	64.4	—	13
Technology	24.8	22.5	23.1	22.5	4.0	5
Trademarks and tradenames	1.7	6.0	1.8	1.2	1.0	2
Accumulated amortization	(32.5)	(155.8)	(49.4)	(61.2)	(3.8)	
	\$ 181.9	\$ 990.3	\$ 376.9	\$ 166.9	\$ 4.2	

10. ACCOUNTS PAYABLE AND ACCRUED LIABILITIES

Accounts payable and accrued liabilities consisted of the following as of March 31, 2019 and December 31, 2018 (in millions):

	March 31, 2019	December 31, 2018
Compensation and benefit-related liabilities	\$ 13.5	\$ 52.4
Termination benefits	1.7	6.1
Royalties	18.7	25.0
Accrued liabilities	87.4	91.8
Marketing fee payable	10.2	10.4
Accounts payable	4.3	12.8
Total accounts payable and accrued liabilities	\$ 135.8	\$ 198.5

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11. DEBT

The Company's debt consisted of the following as of March 31, 2019 and December 31, 2018 (in millions):

	March 31, 2019	December 31, 2018
\$300 million Term Loan Agreement due December 2021, floating rate	\$ 271.4	\$ 271.1
\$650 million fixed rate Senior Notes due January 2027, stated rate of 3.65%	644.7	644.5
\$300 million fixed rate Senior Notes due June 2019, stated rate of 1.95%	299.9	299.8
Revolving Credit Agreement	—	—
Total debt	\$ 1,216.0	\$ 1,215.4

Term Loan Agreement

On March 22, 2018, the Company, as borrower, entered into a new Term Loan Credit Agreement (the "Term Loan Agreement") with Bank of America, N.A. ("Bank of America"), as administrative agent and initial lender, and the several banks and other financial institutions from time to time party thereto as lenders. Bank of America also acted as sole lead arranger and sole bookrunner with respect to the Term Loan Agreement. The Term Loan Agreement provides for a senior unsecured term loan facility in an aggregate principal amount of \$300 million. The proceeds of the loan under the Term Loan Agreement were used to repay the \$300 million of outstanding indebtedness under the Prior Term Loan Agreement.

Loans under the Term Loan Agreement bear interest, at our option, at either (i) the London Interbank Offered Rate ("LIBOR") periodically fixed for an interest period (as selected by us) of one, two, three or six months plus a margin (based on our public debt ratings) ranging from 1.00 percent per annum to 1.50 percent per annum or (ii) a daily floating rate based on the agent's prime rate (subject to certain minimums based upon the federal funds effective rate or LIBOR) plus a margin (based on our public debt ratings) ranging from zero percent per annum to 0.50 percent per annum. The Company was required to pay an up-front fee of 0.05 percent to the agent for the entry into the Term Loan Agreement.

The Term Loan Agreement, which matures on December 15, 2021, contains customary representations, warranties and affirmative and negative covenants for facilities of its type, including financial covenants, events of default and indemnification provisions in favor of the lenders thereunder. The negative covenants include restrictions regarding the incurrence of liens, the incurrence of indebtedness by our subsidiaries and fundamental changes, subject to certain exceptions in each case. The financial covenants require us to meet a quarterly financial test with respect to a minimum consolidated interest coverage ratio of not less than 4.00 to 1.00 and a maximum consolidated leverage ratio of not greater than 3.50 to 1.00. At March 31, 2019, the Company was in compliance with these covenants.

Senior Notes

On January 12, 2017, the Company entered into an indenture (the "Indenture"), by and between the Company and Wells Fargo Bank, National Association, as trustee, in connection with the issuance of \$650 million aggregate principal amount of the Company's 3.650% Senior Notes due 2027 ("3.650% Senior Notes"). The form and terms of the 3.650% Senior Notes were established pursuant to an Officer's Certificate, dated as of January 12, 2017, supplementing the Indenture. The Company used a portion of the net proceeds from the 3.650% Senior Notes to fund, in part, the Merger, including the payment of related fees and expenses and the repayment of Bats' existing indebtedness, and the

remainder for general corporate purposes. The 3.650% Senior Notes mature on January 12, 2027 and bear interest at the rate of 3.650% per annum, payable semi-annually in arrears on January 12 and July 12 of each year, commencing July 12, 2017.

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On June 29, 2017, the Company issued \$300 million aggregate principal amount of 1.950% Senior Notes due 2019 ("1.950% Senior Notes" and, together with the 3.650% Senior Notes, the "Senior Notes"). The form and terms of the 1.950% Senior Notes were established pursuant to an Officer's Certificate, dated as of June 29, 2017, supplementing the Indenture. The Company used the net proceeds from the 1.950% Senior Notes to repay indebtedness under our prior term loan. The 1.950% Senior Notes mature on June 28, 2019 and bear interest at the rate of 1.950% per annum, payable semi-annually in arrears on June 28 and December 28 of each year, commencing December 28, 2017.

The Senior Notes are unsecured obligations of the Company and rank equally with all of the Company's other existing and future unsecured, senior indebtedness, but are effectively junior to the Company's secured indebtedness, to the extent of the value of the assets securing such indebtedness, and will be structurally subordinated to the secured and unsecured indebtedness of the Company's subsidiaries.

The Company has the option to redeem some or all of the Senior Notes, at any time in whole or from time to time in part, at the redemption prices set forth in the applicable Officer's Certificate. The Company may also be required to offer to repurchase the Senior Notes upon the occurrence of a Change of Control Triggering Event (as such term is defined in the applicable Officer's Certificate) at a repurchase price equal to 101% of the aggregate principal amount of Senior Notes to be repurchased.

Indenture

Under the Indenture, the Company may issue debt securities, which includes the Senior Notes, at any time and from time to time, in one or more series without limitation on the aggregate principal amount. The Indenture governing the Senior Notes contains customary restrictions, including a limitation that restricts our ability and the ability of certain of our subsidiaries to create or incur secured debt. Such Indenture also limits certain sale and leaseback transactions and contains customary events of default. At March 31, 2019, the Company was in compliance with these covenants.

Revolving Credit Agreement

On December 15, 2016, the Company, as borrower, entered into a Credit Agreement (the "Revolving Credit Agreement") with Bank of America, N.A., as administrative agent and as swing line lender, certain lenders named therein (the "Revolving Lenders").

The Revolving Credit Agreement provides for a senior unsecured \$150 million five-year revolving credit facility (the "Revolving Credit Facility") that includes a \$25 million swing line sub-facility. The Company may also, subject to the agreement of the applicable lenders, increase the commitments under the Revolving Credit Facility by up to \$100 million, for a total of \$250 million. Subject to specified conditions, the Company may designate one or more of its subsidiaries as additional borrowers under the Revolving Credit Agreement provided that the Company guarantees all borrowings and other obligations of any such subsidiaries. As of March 31, 2019, no subsidiaries were designated as additional borrowers.

Funds borrowed under the Revolving Credit Agreement may be used to fund working capital and for other general corporate purposes. As of March 31, 2019, no borrowings were outstanding under the Revolving Credit Agreement. Accordingly, at March 31, 2019, \$150 million of borrowing capacity was available for the purposes permitted by the Revolving Credit Agreement.

Loans under the Revolving Credit Agreement will bear interest, at our option, at either (i) LIBOR periodically fixed for an interest period (as selected by us) of one, two, three or six months plus a margin (based on our public debt ratings) ranging from 1.00 percent per annum to 1.75 percent per annum or (ii) a daily floating rate based on our prime rate (subject to certain minimums based upon the federal funds effective rate or LIBOR) plus a margin (based on our

public debt ratings) ranging from zero percent per annum to 0.75 percent per annum.

Subject to certain conditions stated in the Revolving Credit Agreement, the Company may borrow, prepay and reborrow amounts under the Revolving Credit Facility at any time during the term of the Revolving Credit Agreement. The Revolving Credit Agreement will terminate and all amounts owing thereunder will be due and payable on December

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15, 2021, unless the commitments are terminated earlier, either at our request or, if an event of default occurs, by the Revolving Lenders (or automatically in the case of certain bankruptcy-related events). The Revolving Credit Agreement contains customary representations, warranties and affirmative and negative covenants for facilities of its type, including financial covenants, events of default and indemnification provisions in favor of the Revolving Lenders. The negative covenants include restrictions regarding the incurrence of liens, the incurrence of indebtedness by our subsidiaries and fundamental changes, subject to certain exceptions in each case. The financial covenants require us to meet a quarterly financial test with respect to a minimum consolidated interest coverage ratio of not less than 4.00 to 1.00 and a maximum consolidated leverage ratio of not greater than 3.50 to 1.00. At March 31, 2019, the Company was in compliance with these covenants.

Loan and Notes Payments and Contractual Interest

The future expected loan repayments related to the Term Loan Agreement and the Notes as of March 31, 2019 are as follows (in millions):

2019	\$ 300.0
2020	—
2021	275.0
2022	—
2023	—
Thereafter	650.0
Principal amounts repayable	1,225.0
Debt issuance cost	(4.5)
Unamortized discounts on notes	(4.5)
Total debt outstanding	\$ 1,216.0

Interest expense recognized on the Term Loan Agreement and the Senior Notes is included in interest expense, net in the condensed consolidated statements of income, for the three months ended March 31, 2019 and 2018 is as follows (in millions):

	Three Months Ended March 31,	
	2019	2018
Components of interest expense:		
Contractual interest	\$ 9.8	\$ 9.4
Amortization of debt discount	0.2	0.2
Amortization of debt issuance costs	0.4	0.4
Interest expense	10.4	10.0
Interest income	(0.5)	(0.4)
Interest expense, net	\$ 9.9	\$ 9.6

12. ACCUMULATED OTHER COMPREHENSIVE INCOME, NET

The following represents the changes in accumulated other comprehensive income by component (in millions):

	Foreign Currency Translation Adjustment	Unrealized Investment Gain/Loss	Post-Retirement Benefits	Total Accumulated Other Comprehensive Income
Balance at December 31, 2018	\$ 12.1	\$ 0.2	\$ (0.8)	\$ 11.5
Other comprehensive income	14.7	—	—	14.7
Balance at March 31, 2019	\$ 26.8	\$ 0.2	\$ (0.8)	\$ 26.2

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13. FAIR VALUE MEASUREMENTS

Fair value is the price that would be received upon the sale of an asset or paid upon the transfer of a liability in an orderly transaction between market participants at the measurement date and in the principal or most advantageous market for that asset or liability. The fair value should be calculated based on assumptions that market participants would use in pricing the asset or liability, not on assumptions specific to the entity. In addition, the fair value of liabilities should include consideration of non-performance risk, including the Company's own credit risk.

The Company applied FASB ASC 820, Fair Value Measurement and Disclosure, which provides guidance for using fair value to measure assets and liabilities by defining fair value and establishing the framework for measuring fair value. ASC 820 applies to financial and nonfinancial instruments that are measured and reported on a fair value basis. The three-level hierarchy of fair value measurements is based on whether the inputs to those measurements are observable or unobservable. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect the Company's market assumptions. The fair-value hierarchy requires the use of observable market data when available and consists of the following levels:

- Level 1—Unadjusted inputs based on quoted markets for identical assets or liabilities.
- Level 2—Observable inputs, either direct or indirect, not including Level 1, corroborated by market data or based upon quoted prices in non-active markets.
- Level 3—Unobservable inputs that reflect management's best assumptions of what market participants would use in valuing the asset or liability.

The Company has included a tabular disclosure for financial assets and liabilities that are measured at fair value on a recurring basis in the condensed consolidated balance sheet as of March 31, 2019 and December 31, 2018.

Instruments Measured at Fair Value on a Recurring Basis

The following tables present the Company's fair value hierarchy for those assets measured at fair value on a recurring basis as of March 31, 2019 and December 31, 2018 (in millions):

	March 31, 2019			
	Total	Level 1	Level 2	Level 3
Assets:				
U.S. Treasury securities	\$ 30.2	\$ 30.2	\$ —	\$ —
Total assets	\$ 30.2	\$ 30.2	\$ —	\$ —
Liabilities:				
Contingent consideration liability to related party	\$ 4.7	\$ —	\$ —	\$ 4.7
Total Liabilities	\$ 4.7	\$ —	\$ —	\$ 4.7

	December 31, 2018			
	Total	Level 1	Level 2	Level 3
Assets:				
U.S. Treasury securities	\$ 35.7	\$ 35.7	\$ —	\$ —
Total assets	\$ 35.7	\$ 35.7	\$ —	\$ —
Liabilities:				

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Contingent consideration liability to related party	\$ 3.9	\$ —	\$ —	\$ 3.9
Total Liabilities	\$ 3.9	\$ —	\$ —	\$ 3.9

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The following is a description of the Company's valuation methodologies used for instruments measured at fair value on a recurring basis:

Financial Investments

Financial investments consist of highly liquid U.S. Treasury securities. These securities are valued by obtaining feeds from a number of live data sources, including active market makers and inter dealer brokers and therefore categorized as Level 1.

Contingent Consideration Liability

In connection with the acquisition of the assets of Silexx Financial Systems, LLC ("Silexx"), the Company acquired a contingent consideration arrangement with the former owners of Silexx. The total fair value of this liability at March 31, 2019 was \$4.7 million. The fair values are based on estimates of discounted future cash payments, a significant unobservable input, and are considered a Level 3 measurement.

Fair Value of Financial Instruments

The following table presents the Company's fair value hierarchy for those financial instruments held by the Company as of March 31, 2019 and December 31, 2018 (in millions):

	March 31, 2019			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash and cash equivalents	\$ 346.2	\$ 346.2	\$ —	\$ —
Financial investments	30.2	30.2	—	—
Accounts receivable	251.0	251.0	—	—
Income tax receivable	40.3	40.3	—	—
Total assets	\$ 667.7	\$ 667.7	\$ —	\$ —
Liabilities:				
Accounts payable	\$ 4.3	\$ —	\$ 4.3	\$ —
Section 31 fees payable	48.7	—	48.7	—
Contingent consideration liability to related party	4.7	—	—	4.7
Debt	1,216.0	—	1,216.0	—
Total liabilities	\$ 1,273.7	\$ —	\$ 1,269.0	\$ 4.7

	December 31, 2018			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash and cash equivalents	\$ 275.1	\$ 275.1	\$ —	\$ —
Financial investments	35.7	35.7	—	—
Accounts receivable	287.3	287.3	—	—
Income tax receivable	70.4	70.4	—	—
Total assets	\$ 668.5	\$ 668.5	\$ —	\$ —
Liabilities:				
Accounts payable	\$ 12.8	\$ —	\$ 12.8	\$ —

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Section 31 fees payable	81.1	—	81.1	—
Contingent consideration liability to related party	3.9	—	—	3.9
Debt	1,215.4	—	1,215.4	—
Total liabilities	\$ 1,313.2	\$ —	\$ 1,309.3	\$ 3.9

The carrying amounts of cash and cash equivalents, accounts receivable, income tax receivable, accounts payable and Section 31 fees payable approximate fair value due to their liquid or short-term nature.

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Debt

The carrying amount of debt approximates its fair value based on quoted LIBOR or using a fixed rate at March 31, 2019 and is considered a Level 2 measurement.

Information on Level 3 Financial Liabilities

The following table sets forth a summary of changes in the fair value of the Company's Level 3 financial liabilities during the three months ended March 31, 2019.

	Level 3 Financial Liabilities for the Three Months Ended March 31, 2019					Balance at End of Period
	Balance at Beginning of Period	Realized gains (losses) during period	Additions	Settlements		
Liabilities						
Contingent consideration liability to related party	\$ 3.9	\$ 0.8	\$ —	\$ —		\$ 4.7
Total Liabilities	\$ 3.9	\$ 0.8	\$ —	\$ —		\$ 4.7

14. REDEEMABLE NONCONTROLLING INTEREST

Redeemable noncontrolling interest is reported on the consolidated balance sheets in mezzanine equity in Redeemable Noncontrolling Interest. The Company recognizes changes to the redemption value of redeemable noncontrolling interest as they occur and adjusts the carrying value to equal the redemption value at the end of each reporting period. The resulting increases or decreases in the estimated redemption amount are affected by corresponding charges or credits against retained earnings, or in the absence of retained earnings, additional paid in capital. The redemption amounts have been estimated based on the fair value of the majority-owned subsidiary, determined based on a weighting of the discounted cash flow and other economic factors.

For the three months ended March 31, 2019, the following reflects changes in our redeemable noncontrolling interest (in millions):

	Redeemable Noncontrolling Interest
Balance as of December 31, 2018	\$ 9.4
Net loss attributable to redeemable noncontrolling interest	(0.2)
Redemption value adjustment of redeemable noncontrolling interest	0.2
Balance as of March 31, 2019	\$ 9.4

15. SEGMENT REPORTING

The Company reports five business segments: Options, U.S. Equities, Futures, European Equities, and Global FX, which is reflective of how the Company's chief operating decision-maker reviews and operates the business (Note 1). Segment performance is primarily based on operating income (loss). 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 Company has aggregated all of its corporate costs, as well as other business ventures, within the Corporate Items and Eliminations unit based on the decision that those activities should not be used to evaluate the segment's operating performance; however, operating expenses that relate to activities of a specific segment have been allocated to that segment.

The Options segment includes the options exchange business, which lists for trading options on market indexes (index options), mostly on an exclusive basis, as well as on non-exclusive "multiply-listed" options, such as options on the stocks of individual corporations (equity options) and options on other exchange-traded products (ETP options), such

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as exchange-traded funds (ETF options) and exchange-traded notes (ETN options) that occur on Cboe Options, C2, BZX and EDGX. It also includes the listed equity and ETP options routed transaction services that occur on Cboe Trading.

The U.S. Equities segment includes listed cash equities and ETP transaction services that occur on BZX, BYX, EDGX and EDGA. It also includes market data revenue generated from the U.S. tape plans as well as revenue generated from the sale of proprietary market data ETP listing, listed cash equities and ETPs routed transaction services, connectivity fees, and advertising activity from ETF.com.

The Futures segment includes the business of our futures exchange, CFE, which includes offering for trading futures on the VIX Index and bitcoin and other futures products.

The European Equities segment includes the pan European listed cash equities transaction services, ETPs, exchange traded commodities, and international depository receipts that occur on the RIE, operated by Cboe Europe Limited. It also includes the listings business where ETPs can be listed on Cboe Europe Limited.

The Global FX segment includes institutional FX trading services that occur on the Cboe FX platform, as well as non-deliverable forward FX transactions executed on Cboe SEF.

Summarized financial data of reportable segments was as follows (in millions):

	Options	U.S. Equities	Futures	European Equities	Global FX	Corporate items and eliminations	Total
Three Months Ended							
March 31, 2019							
Revenues	\$ 232.1	\$ 295.8	\$ 30.5	\$ 30.3	\$ 13.9	\$ —	\$ 602.6
Operating income (loss)	88.1	37.6	18.3	5.8	(0.4)	(2.9)	146.5
Three Months Ended							
March 31, 2018							
Revenues	\$ 294.1	\$ 390.5	\$ 43.9	\$ 34.4	\$ 14.6	\$ 0.2	\$ 777.7
Operating income (loss)	113.6	33.8	26.2	6.2	(3.0)	(9.1)	167.7

16. EMPLOYEE BENEFITS

Employees are eligible to participate in the Cboe Options SMART Plan (“SMART Plan”). The SMART Plan is a defined contribution plan, which is qualified under Internal Revenue Code Section 401(k). In addition, eligible employees may participate in the Supplemental Employee Retirement Plan, Executive Retirement Plan and Deferred Compensation Plan. Effective January 1, 2017, the Executive Retirement Plan is closed to new executive officers and

employees. Each plan is a defined contribution plan that is non-qualified under Internal Revenue Code. This expense is included in compensation and benefits in the condensed consolidated statements of income. The Company contributed \$1.6 million and \$1.9 million to the defined contribution plans for the three months ended March 31, 2019 and 2018, respectively.

For employees of Cboe Europe Limited, the Company contributes to an employee selected stakeholder contribution plan. The Company's contribution amounted to \$0.2 million and \$0.2 million for the three months ended March 31, 2019 and 2018, respectively. This expense is included in compensation and benefits in the condensed consolidated statements of income.

17. REGULATORY CAPITAL

As a broker-dealer registered with the SEC, Cboe Trading is subject to the SEC's Uniform Net Capital Rule (Rule 15c3-1), which requires the maintenance of minimum net capital, as defined therein. The SEC's requirement also provides that equity capital may not be withdrawn or a cash dividend paid if certain minimum net capital requirements are not met. Cboe Trading computes the net capital requirements under the basic method provided for in Rule 15c3-1.

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As of March 31, 2019, Cboe Trading is required to maintain net capital equal to the greater of 6.67% of aggregate indebtedness items, as defined, or \$0.1 million. At March 31, 2019, Cboe Trading had net capital of \$9.6 million, which was \$9.2 million in excess of its required net capital of \$0.4 million.

As entities regulated by the FCA, Cboe Europe Limited is subject to the Financial Resource Requirement ("FRR") and Cboe Chi-X Europe is subject to the Capital Resources Requirement ("CRR"). As a RIE, Cboe Europe Limited computes its FRR in accordance with its Financial Risk Assessment, as agreed by the FCA. This FRR was \$21.9 million at March 31, 2019. At March 31, 2019, Cboe Europe Limited had capital in excess of its required FRR of \$49.7 million.

As a Banks, Investment firms, PRUdential (BIPRU) 50k firm, as defined by the Markets in Financial Instruments Directive of the FCA, Cboe Chi X Europe computes its CRR as the greater of the base requirement of \$0.1 million at March 31, 2019, or the summation of the credit risk, market risk and fixed overheads requirements, as defined. At March 31, 2019, Cboe Chi X Europe had capital in excess of its required CRR of \$0.5 million. Cboe Chi-X Europe Limited is currently dormant having ceased offering its routing service in November 2018.

On March 8, 2019, Cboe Europe B.V. received approval from the Dutch Ministry of Finance to operate a RM, a MTF, and an approved publication arrangement (APA) in the Netherlands. As a RM, Cboe Europe B.V. is subject to minimum capital requirements, as established by the Dutch Ministry of Finance in the license of March 8, 2019. As of March 31, 2019, the minimum capital requirement calculated in accordance with the license was \$4.2 million. At March 31, 2019, Cboe Europe B.V. had capital in excess of its requirement of \$1.5 million.

As a designated contract market regulated by the CFTC, CFE is required to meet two capital adequacy tests: (i) its financial resources must be equal to at least twelve months of its projected operating costs and (ii) its unencumbered, liquid financial assets, which may include a line of credit, must be equal to at least six months of its projected operating costs. As of March 31, 2019, CFE had annual projected operating expenses of \$44.9 million and had financial resources that exceeded this amount. Additionally, as of March 31, 2019, CFE had projected operating expenses for six months of \$25.8 million and had unencumbered, liquid financial assets, including a line of credit from Cboe, that exceeded this amount.

As a swap execution facility regulated by the CFTC, Cboe SEF is required to meet two capital adequacy tests: (i) its financial resources must be equal to at least twelve months of its projected operating costs and (ii) its unencumbered, liquid financial assets must be equal to at least six months of its projected operating costs. As of March 31, 2019, Cboe SEF had annual operating expenses of \$1.1 million and had financial resources that exceeded this amount. Additionally, as of March 31, 2019, Cboe SEF had projected operating expenses for the upcoming six months of \$0.5 million and had unencumbered, liquid financial assets that exceeded this amount.

18. STOCK-BASED COMPENSATION

Stock-based compensation is based on the fair value of the award on the date of grant, which is recognized over the related service period, net of actual forfeitures. The service period is the period over which the related service is performed, which is generally the same as the vesting period. Vesting may be accelerated for certain officers and employees as a result of attaining certain age and service based requirements in our long-term incentive plan and award agreements.

The Company recognized stock-based compensation expense of \$5.4 million and \$11.0 million for the three months ended March 31, 2019 and 2018, respectively. Stock-based compensation expense is included in compensation and benefits and acquisition-related costs in the condensed consolidated statements of income.

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The activity in the Company's stock options, restricted stock and restricted stock units for the three months ended March 31, 2019 was as follows:

Stock Options

Summary stock option activity is presented below:

	Number of	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value (in millions)
	Shares			
Outstanding and exercisable, December 31, 2018	369,483	\$ 26.40		
Exercised	300,498	27.59		
Outstanding and exercisable, March 31, 2019	68,985	\$ 21.19	0.9	\$ 5.1

The total intrinsic value of stock options exercised was \$20.7 million and \$2.9 million for the three months ended March 31, 2019 and 2018, respectively. For the three months ended March 31, 2019, to satisfy employee's tax obligations and cash exercise payment due upon the election to exercise 300,498 stock options, the Company purchased 4,153 shares at a cost of \$0.4 million.

Restricted Stock and Restricted Stock Units

The following table summarizes restricted stock and restricted stock unit (RSU) activity during the three months ended March 31, 2019:

	Number of	Weighted Average Grant Date Fair Value
	Shares	
Nonvested stock at December 31, 2018	631,764	\$ 85.85
Granted	196,004	93.91
Vested	(240,678)	82.06
Forfeited	(76,610)	82.68
Nonvested stock at March 31, 2019	510,480	\$ 91.20

The RSUs entitle the holder to one share of common stock upon vesting, typically vest over a three year period, and vesting accelerates upon the occurrence of a change in control or a termination of employment following a change in control. Vesting will also accelerate upon a qualified retirement. Qualified retirement eligibility occurs once satisfying 65 years of age and 5 years of service for grants awarded before 2017 and once satisfying 55 years of age and 10 years

of service for grants awarded in and after 2017. Unvested RSUs will be forfeited if the officer or employee leaves the Company prior to the applicable vesting date, except in limited circumstances. The RSUs have no voting rights but entitle the holder to receive dividend equivalents.

Pursuant to the Merger Agreement, each award of restricted Bats common stock (“Bats restricted shares”) granted under any of the Bats Plans that was unvested immediately prior to the effective time of the Merger was assumed by the Company and converted into an award of restricted shares of Common Stock, subject to the same terms and conditions (including vesting schedule) that applied to the applicable Bats restricted shares immediately prior to the effective time of the Merger (but taking into account any changes, including any acceleration of vesting of such Bats restricted shares, occurring by reason provided for in the Merger Agreement).

In the three months ended March 31, 2019, to satisfy employees’ tax obligations upon the vesting of restricted stock, the Company purchased 88,544 shares totaling \$8.3 million as the result of the vesting of 240,678 shares of restricted stock.

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Performance-Based Restricted Stock Units

The following table summarizes restricted stock unit contingent upon achievement of performance conditions, or performance-based restricted stock unit (PSU), activity during the three months ended March 31, 2019:

	Number of	Weighted Average Grant Date Fair Value
	Shares	
Nonvested stock at December 31, 2018	151,842	\$ 100.81
Granted	86,134	86.27
Vested	(69,372)	74.56
Forfeited	(36,356)	97.78
Nonvested stock at March 31, 2019	132,248	\$ 105.94

PSUs include shares related to earnings per share during the performance period as well as shares related to total shareholder return during the performance period. The Company used the Monte Carlo valuation model method to estimate the fair value of the total shareholder return PSUs which incorporated the following assumptions: risk-free interest rate (2.54)%, three-year volatility (20.5)% and three year correlation with S&P 500 Index (0.29). Each of these performance shares has a performance condition under which the number of units ultimately awarded will vary from 0% to 200% of the original grant, with each unit representing the contingent right to receive one share of our common stock. The vesting period for the PSUs contingent on the achievement of performance conditions is three years. For each of the performance awards, the PSUs will be settled in shares of our common stock following vesting of the PSU assuming that the participant has been continuously employed during the vesting period, subject to acceleration in the event of a change in control of the Company, or a termination of employment following a change in control, or in the event of a participant's earlier death or disability. Participants have no voting rights with respect to the PSUs until the issuance of the shares of stock. Dividends are accrued by the Company and will be paid once the PSUs contingent on the achievement of performance conditions vest.

In the three months ended March 31, 2019, to satisfy employees' tax obligations upon the vesting of performance stock, the Company purchased 27,477 shares totaling \$2.6 million as the result of the vesting of 69,372 shares of performance stock.

As of March 31, 2019, there were \$38.3 million in total unrecognized compensation costs related to restricted stock, restricted stock units, and performance stock units. These costs are expected to be recognized over a weighted average period of 2.1 years.

Employee Stock Purchase Plan

In May 2018, our stockholders approved our Employee Stock Purchase Plan, ("ESPP"), under which a total of 750,000 shares of our common stock will be made available for purchase to employees. The ESPP is a broad-based plan that permits our employees to contribute up to 10% of wages and base salary to purchase shares of our common stock at a discount, subject to applicable annual Internal Revenue Service limitations. Under our ESPP, a participant may not purchase more than a maximum of 312 shares of our common stock during any single offering period. No participant may accrue options to purchase shares of our common stock at a rate that exceeds \$25,000 in fair market value of our stock (determined at the time such options are granted) for each calendar year in which such rights are outstanding at

any time. The exercise price per share of common stock shall be 90% (for eligible U.S. employees) or 85% (for eligible international employees) of the lesser of the fair market value of the stock on the first day of the applicable offering period or the applicable exercise date.

We record compensation expense over the offering period related to the discount that is given to our employees, which totaled \$0.1 million for the three months ended March 31, 2019. As of March 31, 2019, 736,907 shares were reserved for future issuance under the ESPP.

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19. INCOME TAXES

The Company records income tax expense during interim periods based on the best estimate of the full year's tax rate as adjusted for discrete items, if any, that are taken into account in the relevant interim period. Each quarter, the Company updates its estimate of the annual effective tax rate and any change in the estimated rate is recorded on a cumulative basis.

The effective tax rate from continuing operations was 25.5% and 25.9% for the three months ended March 31, 2019 and 2018, respectively. The lower effective tax rate for the three months ended March 31, 2019 was primarily due to excess tax benefits related to equity awards.

The Company petitioned the Tax Court on January 13, 2017, May 7, 2018 and November 29, 2018 for a redetermination of IRS notices of deficiency for Cboe and certain of its subsidiaries for tax years 2011 through 2015 related to its Section 199 claims. The Company also filed a complaint on October 5, 2018 with the Court of Federal Claims for a refund of Section 199 claims related to tax years 2008 through 2010. The Company believes the aggregate amount of any additional liabilities that may result from these examinations, if any, will not have a material adverse effect on the financial position, results of operations, or cash flows of the Company. As of March 31, 2019, we have not resolved these matters, and proceedings continue in Tax Court and the Court of Federal Claims.

20. NET INCOME PER COMMON SHARE

The computation of basic net income allocated to common stockholders is calculated by reducing net income for the period by dividends paid or declared and undistributed net income for the period that are allocated to participating securities to arrive at net income allocated to common stockholders. Net income allocated to common stockholders is divided by the weighted average number of common shares outstanding during the period to determine net income per share allocated to common stockholders.

The computation of diluted earnings per share is calculated by dividing net income allocated to common stockholders by the sum of the weighted average number of common shares outstanding plus all additional common shares that would have been outstanding if the potentially dilutive common shares had been issued. The dilutive effect is calculated using the more dilutive of the two-class or treasury stock method.

Additionally, the change in the redemption value for the noncontrolling interest reduces net income allocated to common stockholders.

The following table reconciles net income allocated to common stockholders and the number of shares used to calculate the basic and diluted net income per common share for the three months ended March 31, 2019 and 2018:

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(in millions, except per share amounts)	Three Months	
	Ended March 31, 2019	2018
Basic EPS Numerator:		
Net Income	\$ 95.2	\$ 118.1
Loss attributable to noncontrolling interest	0.2	0.3
Net Income excluding noncontrolling interest	95.4	118.4
Change in redemption value of noncontrolling interest	(0.2)	(0.3)
Earnings allocated to participating securities	(0.6)	(0.8)
Net Income allocated to common stockholders	\$ 94.6	\$ 117.3
Basic EPS Denominator:		
Weighted average shares outstanding	111.5	112.4
Basic Net Income Per Common Share	\$ 0.85	\$ 1.04
Diluted EPS Numerator:		
Net Income	\$ 95.2	\$ 118.1
Loss attributable to noncontrolling interest	0.2	0.3
Net Income excluding noncontrolling interest	95.4	118.4
Change in redemption value of noncontrolling interest	(0.2)	(0.3)
Earnings allocated to participating securities	(0.6)	(0.8)
Net Income allocated to common stockholders	\$ 94.6	\$ 117.3
Diluted EPS Denominator:		
Weighted average shares outstanding	111.5	112.4
Dilutive common shares issued under stock program	0.2	0.3
Total dilutive weighted average shares	111.7	112.7
Diluted Net Income Per Common Share	\$ 0.85	\$ 1.04

For the periods presented, the Company did not have shares of stock-based compensation that would have an anti-dilutive effect on the computation of diluted net income per common share.

21. COMMITMENTS AND CONTINGENCIES

Legal Proceedings

As of March 31, 2019, the Company was subject to the various legal proceedings and claims discussed below, as well as certain other legal proceedings and claims that have not been fully resolved and that have arisen in the ordinary course of business.

The Company reviews its legal proceedings and claims, regulatory reviews and inspections and other legal proceedings on an ongoing basis and follows appropriate accounting guidance when making accrual and disclosure decisions. The Company establishes accruals for those contingencies where the incurrence of a loss is probable and can be reasonably estimated, and the Company discloses the amount accrued and the amount of a reasonably possible loss in excess of the amount accrued, if such disclosure is necessary for our financial statements to not be misleading. The Company does not record liabilities when the likelihood that the liability has been incurred is probable, but the amount cannot be reasonably estimated, or when the liability is believed to be only reasonably possible or remote. The Company's assessment of whether a loss is reasonably possible or probable is based on its assessment of the ultimate

outcome of the matter following all appeals.

As of March 31, 2019, the Company does not believe that there is a reasonable possibility that any material loss exceeding the amounts already recognized for these reviews, inspections or other legal proceedings, if any, has been incurred. While the consequences of certain unresolved proceedings are not presently determinable, the outcome of any litigation is inherently uncertain and an adverse outcome from certain matters could have a material effect on our earnings in any given reporting period. However, in the opinion of management, the ultimate liability is not expected to have a material effect on our financial position, liquidity or capital resources.

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Except as set forth herein, there have been no material changes during the period covered by this Form 10 Q from the legal proceedings disclosures in our Annual Report on Form 10 K for the year ended December 31, 2018.

SIFMA

Securities Industry Financial Markets Association (“SIFMA”) has filed a number of denial of access applications with the SEC to set aside proposed rule changes to establish or modify fees for Cboe Options, C2, BZX, BYX, EDGX and EDGA (the “Exchanges”) market data products and related services (the “Challenged Fees”). The Challenged Fees were held in abeyance pending a decision, which was issued by the SEC on October 16, 2018, on a separate SIFMA denial of access application regarding fees proposed by Nasdaq and the NYSE for their respective market data products. In a second order entered on October 16, 2018, the SEC issued an order (the “Order”) that remanded the stayed Challenged Fees and ordered the Exchanges to: (i) within six months of the Order, provide notice to the SEC of developed or identified fair procedures for assessing the Challenged Fees (the “Procedures”) and (ii) within one year of the Order, apply the Procedures to the Challenged Fees and submit to the SEC a record explaining the Exchanges’ conclusions. On October 26, 2018, the Exchanges filed a motion to reconsider the Order with the SEC. On November 21, 2018, the Exchanges filed with the SEC a joinder motion to NYSE’s prior motion for stay of the Order. On December 3, 2018, SIFMA filed a response to NYSE’s motion for stay. Nasdaq withdrew its motion to reconsider the Order with the SEC on December 4, 2018, and on December 5, 2018, filed a Petition for Review with the Court of Appeals for the D.C. Circuit (the “D.C. Circuit”). On December 14, 2018, the SEC denied the motion for stay but tolled the compliance date set forth in the remand order until ruling is made on the motion to reconsider. The Exchanges and NYSE filed on January 4, 2019 a motion to intervene in the Nasdaq Petition for Review to ensure the ability to participate in the case; the motion to intervene was granted on January 25, 2019. On the same day, SIFMA filed a motion with the D.C. Circuit moving to dismiss or hold in abeyance the Petition for Review. The Exchanges and NYSE submitted on February 6, 2019 a statement of issues for consideration in connection with the Petition for Review pending before the D.C. Circuit. On March 29, 2019, the D.C. Circuit issued an order indicating that SIFMA’s motion to dismiss will be considered with the underlying merits of the Petition for Review. An adverse ruling in that matter or a subsequent appeal could adversely affect exchange market data fees. However, the Company believes that the claims are without merit and intends to litigate the matter vigorously.

Contractual Obligations

See Note 22 (“Leases”) for information on lease obligations.

22. LEASES

The Company currently leases office space, data centers and remote network operations centers under non-cancelable operating leases with third parties as of March 31, 2019. Leases with an initial term of 12 months or less are not recorded on the balance sheet and the Company recognizes lease expense for these leases on a straight-line basis over the lease term. Certain leases include one or more options to renew, with renewal terms that can extend the lease term from one to five years or more, and some of which include the Company’s option to terminate the leases within one year. As most of the leases do not provide an implicit rate, the Company applies an incremental borrowing rate based on the information available at the lease commencement date in determining the present value of lease payments. The Company applied an incremental borrowing rate as of January 1, 2019 for operating leases that commenced prior to that date. During the quarter ended March 31, 2019, an additional \$18.9 million of right of use assets and lease liabilities were added related to a new data center agreement which included modifications to existing and new operating lease right of use assets and operating lease liabilities.

The following table presents the supplemental balance sheet related to leases for the quarter ended March 31, 2019 (in millions):

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	March 31, 2019
Operating lease right of use assets	\$ 56.5
Total leased assets	\$ 56.5
Accrued liabilities	\$ 8.9
Non-current operating lease liabilities	50.1
Total leased liabilities	\$ 59.0

The Company has elected to not separate lease components from nonlease components for all office space, data center space and remote network operations centers operating leases. The Company does not have any financing leases as of March 31, 2019. Operating lease expense is recognized on a straight-line basis over the lease term and is reported in the technology support services and facilities cost line items on the condensed consolidated statements of income. The following table presents operating lease costs and other information as of and for the quarter ended March 31, 2019 (in millions, except as stated):

	Three Months Ended March 31, 2019	
Operating lease costs (1)	\$ 3.5	
Lease term and discount rate information:		
Weighted average remaining lease term (years)	9.5	
Weighted average discount rate	3.1	%
Supplemental cash flow information and non-cash activity:		
Cash paid for amounts included in the measurement of lease liabilities	\$ 2.1	
Right-of-use assets obtained in exchange for lease liabilities	18.9	

(1) Includes short-term leases and variable lease costs, which are immaterial.

The maturities of the lease liabilities are as follows as of March 31, 2019 (in millions):

	March 31, 2019
Remainder of 2019	\$ 8.3
2020	9.8
2021	9.4
2022	8.7
2023	7.4
After 2023 (1)	26.4
Total lease payments	\$ 70.0
Less: Interest	(11.0)

Present value of lease liabilities \$ 59.0

(1)

- (1) Total lease payments include \$20.4 million related to options to extend lease terms that are reasonably certain of being exercised and exclude \$2.3 million of legally binding lease payments for leases signed but will commence after March 31, 2019.

23. SUBSEQUENT EVENTS

There have been no subsequent events that would require disclosure in, or adjustment to, the condensed consolidated financial statements as of and for the three months ended March 31, 2019.

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

The following discussion should be read in conjunction with the accompanying unaudited condensed consolidated financial statements and the notes thereto, included in Item 1 in this Quarterly Report on Form 10-Q, and the audited consolidated financial statements in the Company's Annual Report on Form 10-K for the year ended December 31, 2018, and as contained in that report, the information under the heading "Management's Discussion and Analysis of Financial Condition and Results of Operations." This discussion contains forward-looking information. Please see "Forward-Looking Statements" for a discussion of the uncertainties, risks and assumptions associated with these statements.

Overview

Cboe Global Markets, Inc. is one of the world's largest exchange holding companies, offering cutting-edge trading and investment solutions to investors around the world. The Company is committed to relentless innovation, connecting global markets with world-class technology, and providing seamless solutions that enhance the customer experience.

Cboe offers trading across a diverse range of products in multiple asset classes and geographies, including options, futures, U.S. and European equities, exchange-traded products ("ETPs"), global foreign exchange ("FX") and multi-asset volatility products based on the VIX Index, the world's barometer for equity market volatility.

Cboe's trading venues include the largest options exchange in the U.S. by volume and the largest stock exchange by value traded in Europe. In addition, the Company is one of the largest stock exchange operators in the U.S. by volume and a leading market globally for ETP trading.

The Company is headquartered in Chicago with offices in Kansas City, New York, London, San Francisco, Amsterdam, Singapore, Hong Kong, and Ecuador.

Business Segments

The Company reports five business segments: Options, U.S. Equities, Futures, European Equities, and Global FX. Segment performance is primarily based on operating income (loss). The Company has aggregated all of its corporate costs and eliminations, as well as other business ventures, within Corporate Items and Eliminations; however, operating expenses that relate to activities of a specific segment have been allocated to that segment. Our management allocates resources, assesses performance and manages our business according to these segments:

Options. Our Options segment includes the options exchange business, which lists for trading options on market indexes (index options), mostly on an exclusive basis, as well as on non-exclusive "multiply-listed" options, such as options on the stocks of individual corporations (equity options) and options on other exchange-traded products (ETP options), such as exchange-traded funds (ETF options) and exchange-traded notes (ETN options) that occur on Cboe Options, C2, BZX and EDGX. It also includes the listed equity and ETP options routed transaction services that occur on Cboe Trading.

U.S. Equities. Our U.S. Equities segment includes listed cash equities and ETP transaction services that occur on BZX, BYX, EDGX and EDGA. It also includes market data revenue generated from the U.S. tape plans as well as revenues generated from the sale of proprietary market data, ETP listing, listed cash equities and ETPs routed transaction services, connectivity fees, and advertising activity from ETF.com.

Futures. Our Futures segment includes the business of our futures exchange, CFE, which includes offering for trading futures on the VIX Index and bitcoin and other futures products.

European Equities. Our European Equities segment includes pan European listed cash equities transaction services, ETPs, exchange traded commodities, and international depository receipts that occur on the RIE, operated by Cboe Europe Limited. It also includes the listings business where ETPs can be listed on Cboe Europe Limited.

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Global FX. Our Global FX segment includes institutional FX trading services that occur on the Cboe FX platform, as well as non-deliverable forward FX transactions executed on Cboe SEF.

General Factors Affecting Results of Operations

In broad terms, our business performance is impacted by a number of drivers, including macroeconomic events affecting the risk and return of financial assets, investor sentiment, the regulatory environment for capital markets, geopolitical events, central bank policies and changing technology, particularly in the financial services industry. Our future revenues and net income will continue to be influenced by a number of domestic and international economic trends, including:

- trading volumes on our proprietary products such as VIX options and futures and SPX options;
- trading volumes in listed cash equity securities and ETPs in both the U.S. and Europe, volumes in listed equity options, and volumes in institutional FX trading, all of which are driven primarily by overall macroeconomic conditions;
- the demand for the U.S. tape plan market data distributed by the Securities Information Processors (SIPs), which determines the pool size of the industry market data revenue we receive based on our market share;
- consolidation of our customers and competitors in the industry;
- the demand for information about, or access to, our markets, which is dependent on the products we trade, our importance as a liquidity center and the quality and pricing of our data and access and capacity services;
- continuing pressure in transaction fee pricing due to intense competition in the United States and Europe;
- significant fluctuations in foreign currency translation rates or weakened value of currencies resulting from Brexit; and
- regulatory changes relating to market structure and increased capital requirements, and those which affect certain types of instruments, transactions, pricing structures, capital market participants or reporting or compliance requirements, including any changes resulting from Brexit.

A number of significant structural, political and monetary issues continue to confront the global economy, and instability could return at any time, resulting in an increased level of market volatility, increased trading volumes and greater uncertainty. In contrast, many of the largest customers of our transactional businesses continue to adapt their business models as they address the implementation of regulatory changes initiated following the global financial crisis.

Components of Revenues

Transaction Fees

Transaction fees represent fees charged by the Company for the performance obligation of executing a trade on its markets. These fees can be variable based on trade volume tiered discounts, however as all tiered discounts are calculated monthly, the actual discount is recorded on a monthly basis. Transaction fees, as well as any tiered volume discounts, are calculated and billed monthly in accordance with the Company's published fee schedules. Transaction fees are recognized across all segments. The Company also pays liquidity payments to customers based on its published fee schedules. The Company uses these payments to improve the liquidity on its markets and therefore recognizes those payments as a cost of revenue.

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Access and Capacity Fees

Access and capacity fees represent fees assessed for the opportunity to trade, including fees for trading-related functionality across all segments, terminal and other equipment rights, maintenance services, trading floor space and telecommunications services. These fees are billed monthly in accordance with the Company's published fee schedules and recognized on a monthly basis when the performance obligation is met. Facilities, systems services and other fees are generally monthly fee-based, although certain services are influenced by trading volume or other defined metrics, while others are based solely on demand. All fees associated with the trading floor are recognized in the Options segment. There is no remaining performance obligation after revenue is recognized.

Market Data Fees

Market data fees represent the fees from the U.S. tape plans and fees from customers for proprietary market data. Fees from the U.S. tape plans are collected monthly based on published fee schedules and distributed quarterly to the U.S. exchanges based on a known formula using trading and/or quoting activity. A contract for proprietary market data is entered into and charged on a monthly basis in accordance with the Company's published fee schedules as the service is provided. Both types of market data are satisfied over time, and revenue is recognized on a monthly basis as the customer receives and consumes the benefit as the Company provides the data. U.S. tape plan market data is recognized in the U.S. Equities and Options segments. Proprietary market data fees are recognized across all segments.

Regulatory Fees

Regulatory fees primarily represent fees collected by the Company to cover the Section 31 fees charged to the Exchanges under the authority of the SEC (Cboe Options, C2, BZX, BYX, EDGX, and EDGA) and are charged by the SEC. Consistent with industry practice, the fees charged to customers are based on the fee set by the SEC per notional value of the transaction executed on the Company's markets. These fees are calculated and billed monthly and are recognized in the U.S. Equities and Options segments. As the Exchanges are responsible for the ultimate payment to the SEC, the Exchanges are considered the principals in these transactions. Regulatory fees also include the options regulatory fee ("ORF") charged to customers which supports the Company's regulatory oversight function in the Options segment and other miscellaneous regulatory fees and cannot be used for non-regulatory purposes.

Other Revenue

Other revenue primarily includes among other items, revenue from various licensing agreements, all fees related to the trade reporting facility operated in the European Equities segment, and revenue associated with advertisements through the Company's website.

Components of Cost of Revenues

Liquidity Payments

Liquidity payments are directly correlated to the volume of securities traded on our markets. As stated above, we record the liquidity rebates paid to market participants providing liquidity, in the case of C2, BZX, EDGX and Cboe Europe Limited, as cost of revenue. BYX and EDGA offer a pricing model pursuant to which we rebate liquidity takers for executing against an order resting on our book, which is also recorded as a cost of revenue.

Routing and Clearing

Various rules require that U.S. options and cash equities trade executions occur at the National Best Bid/Offer (“NBBO”) displayed by any exchange. Linkage order routing consists of the cost incurred to provide a service whereby Cboe equity and options exchanges deliver orders to other execution venues when there is a potential for obtaining a better execution price or when instructed to directly route an order to another venue by the order provider. The service affords exchange order flow providers an opportunity to obtain the best available execution price and may also result in cost benefits to those clients. Such an offering improves our competitive position and provides an opportunity to attract

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orders which would otherwise bypass our exchanges. We utilize third-party brokers or our broker-dealer, Cboe Trading, to facilitate such delivery.

Section 31 Fees

Exchanges under the authority of the SEC (Cboe Options, C2, BZX, BYX, EDGX and EDGA) are assessed fees pursuant to the Exchange Act designed to recover the costs to the U.S. government of supervision and regulation of securities markets and securities professionals. We treat these fees as a pass-through charge to customers executing eligible listed cash equities and listed equity options trades. Accordingly, we recognize the amount that we are charged under Section 31 as a cost of revenues and the corresponding amount that we charge our customers as regulatory transaction fees revenue. Since the regulatory transaction fees recorded in revenues are equal to the Section 31 fees recorded in cost of revenues, there is no impact on our operating income. CFE, Cboe Europe Limited and Cboe FX are not U.S. national securities exchanges, and accordingly are not charged Section 31 fees.

Royalty Fees

Royalty fees primarily consist of license fees paid by us for the use of underlying indexes in our proprietary products usually based on contracts traded. The Company has licenses with the owners of the S&P 500 Index, S&P 100 Index and certain other S&P indexes, FTSE Russell indexes, the DJIA, MSCI, and certain other index products. This category also includes fees related to the dissemination of market data related to S&P indexes.

Components of Operating Expenses

Compensation and Benefits

Compensation and benefits represent our largest expense category and tend to be driven by our staffing requirements, financial performance, and the general dynamics of the employment market. Stock-based compensation is a non-cash expense related to equity awards. Stock-based compensation can vary depending on the quantity and fair value of the award on the date of grant and the related service period.

Depreciation and Amortization

Depreciation and amortization expense results from the depreciation of long-lived assets purchased and the amortization of purchased and internally developed software, and the amortization of intangible assets.

Technology Support Services

Technology support services consists primarily of costs related to the maintenance of computer equipment supporting our system architecture, circuits supporting our wide area network, support for production software, fees paid to information vendors for displaying data and off-site system hosting fees.

Professional Fees and Outside Services

Professional fees and outside services consist primarily of consulting services, which include: supplemental staff activities primarily related to systems development and maintenance, legal, regulatory and audit, and tax advisory services.

Travel and Promotional Expenses

Travel and promotional expenses primarily consist of advertising, costs for special events, sponsorship of industry conferences, options education seminars and travel-related expenses.

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Facilities Costs

Facilities costs primarily consist of expenses related to owned and leased properties including rent, maintenance, utilities, real estate taxes and telecommunications costs.

Acquisition-Related Costs

Acquisition-related costs relate to acquisitions and other strategic opportunities, including the Merger. The acquisition-related costs include fees for investment banking advisors, lawyers, accountants, tax advisors, public relations firms, severance and retention costs, impairment of capitalized software and other external costs directly related to mergers and acquisitions, as well as compensation-related expenses.

Other Expenses

Other expenses represent costs necessary to support our operations that are not already included in the above categories.

Non-Operating Income (Expense)

Income and expenses incurred through activities outside of our core operations are considered non-operating and are classified as other income (expense). These activities primarily include interest earned on the investing of excess cash, interest expense related to outstanding debt facilities, dividend income and equity earnings or losses from our investments in other business ventures.

Financial Summary

The following summarizes changes in financial performance for the three months ended March 31, 2019 and 2018 and certain non-GAAP financial measures. These non-GAAP financials measures assist management in comparing our performance on a consistent basis for purposes of business decision making by removing the impact of certain items management believes do not reflect our underlying operations. Please see the footnotes below for additional information and reconciliations from our condensed consolidated financial statements.

	Three Months Ended				
	March 31,		Increase/	Percent	
	2019	2018	(Decrease)	Change	
	(in millions, except percentages, earnings per share, and as noted below)				
Total revenues	\$ 602.6	\$ 777.7	\$ (175.1)	(22.5)	%
Total cost of revenues	322.1	449.2	(127.1)	(28.3)	%
Revenues less cost of revenues	280.5	328.5	(48.0)	(14.6)	%
Total operating expenses	134.0	160.8	(26.8)	(16.7)	%
Operating income	146.5	167.7	(21.2)	(12.6)	%
Income before income tax provision	127.8	159.4	(31.6)	(19.8)	%
Income tax provision	32.6	41.3	(8.7)	(21.1)	%
Net income	\$ 95.2	\$ 118.1	\$ (22.9)	(19.4)	%
Basic earnings per share	\$ 0.85	\$ 1.04	\$ (0.19)	(18.3)	%
Diluted earnings per share	0.85	1.04	(0.19)	(18.2)	%
EBITDA(1)	184.3	222.4	(38.1)	(17.1)	%

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EBITDA margin(2)	65.7	%	67.7	%	(2.0)	%	*
Adjusted EBITDA(1)	\$ 186.6		\$ 231.2		\$ (44.6)	(19.3)	%
Adjusted EBITDA margin(3)	66.5	%	70.4	%	(3.9)	%	*
Adjusted earnings(4)	\$ 124.5		\$ 155.2		\$ (30.7)	(19.8)	%
Adjusted earnings margin(5)	44.4	%	47.2	%	(2.8)	%	*
Diluted weighted average shares outstanding	111.7		112.7		(1.0)	(0.9)	%
Diluted Adjusted earnings per share(5)	\$ 1.11		\$ 1.38		\$ (0.27)	(19.5)	%

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	Three Months Ended							
	March 31,				Increase/		Percent	
	2019		2018		(Decrease)		Change	

- (1) EBITDA is defined as income before interest, income taxes, depreciation and amortization. Adjusted EBITDA is defined as EBITDA before acquisition-related costs. EBITDA and adjusted EBITDA do not represent, and should not be considered as, alternatives to net income or cash flows from operations, each as determined in accordance with GAAP. We have presented EBITDA and adjusted EBITDA because we consider them important supplemental measures of our performance and believe that they are frequently used by analysts, investors and other interested parties in the evaluation of companies. In addition, we use adjusted EBITDA as a measure of operating performance for preparation of our forecasts and evaluating our leverage ratio for the debt to earnings covenant included in our outstanding credit facility. Other companies may calculate EBITDA and adjusted EBITDA differently than we do. EBITDA and adjusted EBITDA have limitations as analytical tools, and you should not consider them in isolation or as substitutes for analysis of our results as reported under GAAP.
- (2) EBITDA margin represents EBITDA divided by revenues less cost of revenues.
- (3) Adjusted EBITDA margin represents Adjusted EBITDA divided by revenues less cost of revenues.
- (4) Adjusted earnings is defined as net income adjusted for amortization of purchased intangibles, acquisition-related costs, change in redemption value of noncontrolling interest, and net income allocated to participating securities, net of the income tax effects of these adjustments. Adjusted earnings does not represent, and should not be considered as, an alternative to net income, as determined in accordance with GAAP. We have presented adjusted earnings because we consider it an important supplemental measure of our performance and we use it as the basis for monitoring our own core operating financial performance relative to other operators of exchanges. We also believe that it is frequently used by analysts, investors and other interested parties in the evaluation of companies. We believe that investors may find this non-GAAP measure useful in evaluating our performance compared to that of peer companies in our industry. Other companies may calculate adjusted earnings differently than we do. Adjusted earnings has limitations as an analytical tool, and you should not consider it in isolation or as a substitute for analysis of our results as reported under GAAP.

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- (5) Diluted Adjusted earnings per share represents Adjusted earnings divided by diluted weighted average shares outstanding.
- (6) Net capture per one hundred touched shares refers to transaction fees less liquidity payments and routing and clearing costs divided by the product of one-hundredth ADV of touched shares on BZX, BYX, EDGX and EDGA and the number of trading days for the period.
- (7) Net capture per matched notional value refers to transaction fees less liquidity payments in British pounds divided by the product of ADV in British pounds of shares matched on Cboe Europe Limited and the number of trading days for the period.
- (8) Net capture per one million dollars traded refers to net transaction fees, divided by the product of one-millionth of ADV traded on the Cboe FX market, the number of trading days, and two, which represents the buyer and seller that are both charged on the transaction for the period.

The following tables are reconciliations of net income allocated to common stockholders to EBITDA and adjusted EBITDA (in millions):

	Three Months Ended March 31, 2019						
	Options (in millions)	U.S. Equities	Futures	European Equities	Global FX	Corporate	Total
Net income (loss) allocated to common stockholders	\$ 79.2	\$ 37.0	\$ 18.2	\$ 3.0	\$ (0.4)	\$ (42.4)	\$ 94.6
Interest expense, net	—	—	—	(0.1)	—	10.0	9.9
Income tax provision	—	0.4	—	2.5	—	29.7	32.6
Depreciation and amortization	9.9	19.9	0.4	7.5	7.8	1.7	47.2
EBITDA	89.1	57.3	18.6	12.9	7.4	(1.0)	184.3
Acquisition-related costs	0.8	—	—	0.3	0.3	0.9	2.3
Adjusted EBITDA	\$ 89.9	\$ 57.3	\$ 18.6	\$ 13.2	\$ 7.7	\$ (0.1)	\$ 186.6

	Three Months Ended March 31, 2018						
	Options (in millions)	U.S. Equities	Futures	European Equities	Global FX	Corporate	Total
Net income (loss) allocated to common stockholders	\$ 113.2	\$ 33.1	\$ 26.0	\$ 3.6	\$ (3.0)	\$ (55.6)	\$ 117.3
Interest expense, net	—	—	—	—	—	9.6	9.6
Income tax provision	0.8	0.5	—	2.7	—	37.3	41.3
Depreciation and amortization	11.4	23.6	1.3	8.2	9.4	0.3	54.2
EBITDA	125.4	57.2	27.3	14.5	6.4	(8.4)	222.4
Acquisition-related costs	7.5	—	—	0.4	—	0.9	8.8
Adjusted EBITDA	\$ 132.9	\$ 57.2	\$ 27.3	\$ 14.9	\$ 6.4	\$ (7.5)	\$ 231.2

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The following is a reconciliation of net income allocated to common stockholders to adjusted earnings (in millions):

	Three Months Ended March 31,	
	2019	2018
	(in millions)	
Net income allocated to common stockholders	\$ 94.6	\$ 117.3
Amortization	37.6	42.1
Acquisition-related costs	2.3	8.8
Change in redemption value of noncontrolling interest	0.2	0.3
Tax effect of adjustments	(10.0)	(13.0)
Net income allocated to participating securities	(0.2)	(0.3)
Adjusted earnings	\$ 124.5	\$ 155.2

Revenues

Total revenues for the three months ended March 31, 2019 decreased \$175.1 million, or 22.5%, compared to the prior period primarily due to a \$116.7 million, or 21.3% decrease in transaction fees as a result of a decrease in overall market volumes over the prior period, coupled with a decrease in regulatory fees. The following summarizes changes in revenues for the three months ended March 31, 2019 compared to the three months ended March 31, 2018:

	Three Months Ended				
	March 31,		Increase/	Percent	
	2019	2018	(Decrease)	Change	
	(in millions, except percentages)				
Transaction fees	\$ 430.4	\$ 547.1	\$ (116.7)	(21.3)	%
Access and capacity fees	54.4	50.6	3.8	7.5	%
Market data fees	51.6	54.2	(2.6)	(4.8)	%
Regulatory fees	58.7	116.3	(57.6)	(49.5)	%
Other revenue	7.5	9.5	(2.0)	(21.1)	%
Total revenues	\$ 602.6	\$ 777.7	\$ (175.1)	(22.5)	%

Transaction Fees

Transaction fees decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a 14.3% decrease in overall options market ADV, including a 32.1% decrease in index options ADV, and a 37.1% decrease in Futures ADV when compared to the same period in 2018.

Access Fees and Capacity Fees

Access and capacity fees increased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to an increase in subscribers on Cboe Options and new technology offerings on C2 and CFE.

Market Data Fees

Market data fees decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a decrease of tape plan market data revenue within the U.S. Equities segment of \$5.9 million as a result of a decline in market share, offset by an increase of \$2.9 million within the Options segment due to pricing changes implemented in the latter half of the first quarter of 2018.

Regulatory Fees

Regulatory fees decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a decline in regulatory fees in the U.S. Equities segment, as the Section 31 fee rate decreased to \$13.00 per million dollars of covered sales from \$23.10 per million dollars of covered sales in May 2018. Lower volumes in the U.S Equities and Options segments compared to the same period in 2018 also contributed to the decline.

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Other Revenue

Other revenue decreased for the three months ended March 31, 2019 compared to the same period in 2018, primarily due to a decrease in licensing revenue, offset by additional trade reporting services revenue and listings fees.

Cost of Revenues

Cost of revenues decreased in the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a decrease in Section 31 fees within the U.S. Equities and Options segments, which decreased \$60.6 million, as well as lower liquidity payments driven by a decrease in volumes traded on the U.S. Equities and Options exchanges. The following summarizes changes in cost of revenues for the three months ended March 31, 2019 compared to the three months ended March 31, 2018:

	Three Months Ended March 31,		Increase/ (Decrease)	Percent Change	
	2019	2018			
	(in millions, except percentages)				
Liquidity payments	\$ 243.7	\$ 302.9	\$ (59.2)	(19.5)	%
Routing and clearing	9.2	10.3	(1.1)	(10.7)	%
Section 31 fees	48.2	108.8	(60.6)	(55.7)	%
Royalty fees	21.0	27.2	(6.2)	(22.8)	%
Total	\$ 322.1	\$ 449.2	\$ (127.1)	(28.3)	%

Liquidity Payments

Liquidity payments decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a decrease in volumes traded on the U.S. Equities and Options exchanges.

Routing and Clearing

The decrease in routing and clearing fees for the three months ended March 31, 2019 compared to the same period in 2018 was primarily due to a decrease in routed trades in U.S. Equities, coupled with a decrease in fees per 100 routed shares.

Section 31 Fees

Section 31 fees decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a decline in regulatory fees in the U.S. Equities segment, as the rate decreased to \$13.00 per million dollars of covered sales from \$23.10 per million dollars of covered sales in May 2018. Lower volumes in the U.S. Equities and Options segments compared to the same period in 2018 also contributed to the decline.

Royalty Fees

Royalty fees decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to lower trading volume in licensed products.

Revenues Less Cost of Revenues

Revenues less cost of revenues decreased \$48.0 million, or 14.6%, for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a \$56.4 million, or 24.1%, decrease in transaction fees less liquidity payments and routing and clearing costs. The following tables summarize the components of revenues less cost of revenues for the three months ended March 31, 2019 compared to the three months ended March 31, 2018:

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	Three Months Ended March 31,		Increase/ (Decrease)	Percent Change	
	2019	2018			
	(in millions, except percentages)				
Transaction fees less liquidity payments and routing and clearing costs	\$ 177.5	\$ 233.9	\$ (56.4)	(24.1)	%
Access and capacity fees	54.4	50.6	3.8	7.5	%
Market data fees	51.6	54.2	(2.6)	(4.8)	%
Regulatory fees, less Section 31 fees	10.5	7.5	3.0	40.0	%
Royalty fees	(21.0)	(27.2)	6.2	(22.8)	%
Other	7.5	9.5	(2.0)	(21.1)	%
Revenues less cost of revenues	\$ 280.5	\$ 328.5	\$ (48.0)	(14.6)	%

Transaction Fees Less Liquidity Payments and Routing and Clearing Costs

Transaction fees less liquidity payments and routing and clearing costs (“Net Transaction Fees”) decreased for the three months ended March 31, 2019 compared to the same period in 2018. The decrease was primarily due to a 14.3% decrease in overall options market ADV, including a 32.1% decrease in index options ADV, and a 37.1% decrease in Futures ADV when compared to the same period in 2018.

Access and Capacity Fees

Access and capacity fees increased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to an increase in subscribers on Cboe Options and new technology offerings on C2 and CFE.

Market Data Fees

Market data fees decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a lower allocation of tape plan market data revenue within the U.S. Equities segment of \$5.9 million as a result of a decline in market share, offset by an increase of \$2.9 million within the Options segment due to pricing changes implemented in the latter half of the first quarter of 2018.

Regulatory Fees, less Section 31 Fees

Regulatory fees, less Section 31 Fees, increased in the three months ended March 31, 2019 compared to the same period in 2018 primarily driven by increases in fines and assessment fees.

Royalty Fees

Royalty fees decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to lower trading volume in licensed products.

Other

Other revenue decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a decrease in licensing revenue, offset by additional trade reporting services revenue and listings fees.

Operating Expenses

Total operating expenses decreased \$26.8 million, or 16.7%, for the three months ended March 31, 2019 compared to the prior year period, primarily due to a decrease in compensation and benefits, depreciation and amortization, and acquisition-related costs. The following summarizes changes in operating expenses for the three months ended March 31, 2019 compared to the three months ended March 31, 2018:

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	Three Months Ended				
	March 31,	2018	Increase/ (Decrease)	Percent Change	
	2019				
	(in millions, except percentages)				
Operating Expenses:					
Compensation and benefits	\$ 48.1	\$ 58.9	\$ (10.8)	(18.3)	%
Depreciation and amortization	47.2	54.2	(7.0)	(12.9)	%
Technology support services	11.9	12.1	(0.2)	(1.7)	%
Professional fees and outside services	16.2	18.0	(1.8)	(10.0)	%
Travel and promotional expenses	2.6	3.7	(1.1)	(29.7)	%
Facilities costs	2.1	2.4	(0.3)	(12.5)	%
Acquisition-related costs	2.3	8.8	(6.5)	(73.9)	%
Other expenses	3.6	2.7	0.9	33.3	%
Total operating expenses	\$ 134.0	\$ 160.8	\$ (26.8)	(16.7)	%

Compensation and Benefits

Compensation and benefits decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a \$6.8 million decrease in accrued bonuses and a \$3.0 million decrease in equity compensation as a result of forfeitures of unvested equity awards in the first quarter of 2019.

Depreciation and Amortization

Depreciation and amortization decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a decline in amortization due to the accelerated cash flow method for the intangibles acquired in the Bats acquisition.

Technology Support Services

Technology support services costs were relatively flat for the three months ended March 31, 2019 compared to the same period in 2018.

Professional Fees and Outside Services

Professional fees and outside services decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a decline in regulatory expenses of \$1.8 million.

Travel and Promotional Expenses

Travel and promotional expenses decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a reduction in travel expenses of \$0.4 million and marketing expenses of \$0.4 million.

Facilities costs

Facilities costs decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a reversal of deferred rent expense of \$1.3 million in the first quarter, offset by increased utility costs and real

estate taxes of \$0.8 million.

Acquisition-Related Costs

Acquisition-related costs decreased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to a decline in compensation-related expenses attributed to the Bats acquisition. Acquisition-related costs include fees for investment banking advisors, lawyers, accountants, tax advisors, public relations firms, severance and retention costs, impairment of capitalized software and other external costs directly related to the mergers and acquisitions, as well as compensation-related expenses.

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Other Expenses

Other expenses increased for the three months ended March 31, 2019 compared to the same period in 2018 primarily due to bad debt expense of \$0.3 million and an increase in taxes and permit fees of \$0.3 million.

Operating Income

As a result of the items above, operating income for the three months ended March 31, 2019 was \$146.5 million compared to \$167.7 million for same period in 2018.

Interest Expense, Net

Net interest expense increased in the three months ended March 31, 2019 compared to the same period in 2018 due to the increase in the variable interest rate on the term loan agreement from March 31, 2018 to March 31, 2019.

Other (Expense) Income

Other (expense) income decreased for the three months ended March 31, 2019 compared to the same period in 2018 due to the reversal of the \$8.8 million OCC dividend declared in 2018, which was to be paid in 2019, as a result of the SEC's disapproval of the OCC capital plan during the first quarter of 2019.

Income Before Income Tax Provision

As a result of the above, income before income tax provision for the three months ended March 31, 2019 was \$127.8 million compared to \$159.4 million for the same period in 2018, a decrease of \$31.6 million.

Income Tax Provision

The effective tax rate from continuing operations was 25.5% and 25.9% for the three months ended March 31, 2019 and 2018, respectively. The lower effective tax rate for the three months ended March 31, 2019 was primarily due to excess tax benefits related to equity awards.

Net Income

As a result of the items above, net income for the three months ended March 31, 2019 was \$95.4 million compared to \$118.4 million for the three months ended March 31, 2018, a decrease of \$23.0 million.

Segment Operating Results

We report results from our five segments: Options, U.S. Equities, Futures, European Equities, and Global FX. Segment performance is primarily based on operating income (loss). We have aggregated all corporate costs, as well as other business ventures, within the Corporate Items and Eliminations as those activities should not be used to evaluate a segment's operating performance. All operating expenses that relate to activities of a specific segment have been allocated to that segment.

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The following summarizes our total revenues by segment:

	Three Months Ended		Percent Change		Percentage of Total Revenues Three Months Ended March 31,			
	March 31, 2019	2018			2019	2018		
	(in millions, except percentages)							
Options	\$ 232.1	\$ 294.1	(21.1)	%	38.5	%	37.8	%
U.S. Equities	295.8	390.5	(24.3)	%	49.1	%	50.2	%
Futures	30.5	43.9	(30.5)	%	5.1	%	5.7	%
European Equities	30.3	34.4	(11.9)	%	5.0	%	4.4	%
Global FX	13.9	14.6	(4.8)	%	2.3	%	1.9	%
Corporate	—	0.2	(100.0)	%	—	%	0.0	%
Total revenues	\$ 602.6	\$ 777.7	(22.5)	%	100.0	%	100.0	%

The following summarizes our revenues less cost of revenues by segment:

	Three Months Ended		Percent Change		Percentage of Total Revenues less Cost of Revenues Three Months Ended March 31,			
	2019	2018			2019	2018		
	(in millions, except percentages)							
Options	\$ 138.5	\$ 167.1	(17.1)	%	49.4	%	50.9	%
U.S. Equities	75.8	79.7	(4.9)	%	27.0	%	24.2	%
Futures	29.5	42.3	(30.3)	%	10.5	%	12.9	%
European Equities	22.8	24.6	(7.3)	%	8.1	%	7.5	%
Global FX	13.9	14.6	(4.8)	%	5.0	%	4.4	%
Corporate	—	0.2	(100.0)	%	—	%	0.1	%
Total revenues less cost of revenues	\$ 280.5	\$ 328.5	(14.6)	%	100.0	%	100.0	%

Options

The following summarizes revenues less cost of revenues, operating expenses, operating income, EBITDA, and EBITDA margin for our Options segment:

Percentage
of Total

	Three Months Ended March 31,			Percent Change	Revenues Three Months Ended March 31,		
	2019	2018			2019	2018	
	(in millions, except percentages)						
Revenues less cost of revenues	\$ 138.5	\$ 167.1	(17.1)	%	59.7	%	56.8 %
Operating expenses	50.4	53.5	(5.8)	%	21.7	%	18.2 %
Operating income	\$ 88.1	\$ 113.6	(22.4)	%	38.0	%	38.6 %
EBITDA(1)	\$ 89.1	\$ 125.4	(28.9)	%	38.4	%	42.6 %
EBITDA margin(2)	64.3	%	75.0	%	*	*	*

*Not meaningful

(1) See footnote (1) to the table under “Financial Summary” above for a reconciliation of net income to EBITDA, and management’s reasons for using such non-GAAP measures.

(2) EBITDA margin represents EBITDA divided by revenues less cost of revenues.

Revenues less cost of revenues decreased \$28.6 million for the three months ended March 31, 2019 compared to the three months ended March 31, 2018, primarily due to a 14.3% decrease in overall options market ADV, including a 32.1% decrease in index options ADV. For the three months ended March 31, 2019, the Options segment’s operating income decreased \$25.5 million compared to the three months ended March 31, 2018, due to lower revenue less cost of revenues. Operating expenses decreased \$3.1 million for the three months ended March 31, 2019 compared to the three months ended March 31, 2018, primarily due to decreases in acquisition-related costs and depreciation and amortization,

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offset by higher compensation and benefits as more cost was allocated to this segment due to the work of migrating Cboe Options to the Bats technology platform.

U.S. Equities

The following summarizes revenues less cost of revenues, operating expenses, operating income, EBITDA, and EBITDA margin for our U.S. Equities segment:

	Three Months Ended March 31,				Percentage of Total Revenues Three Months Ended March 31,			
	2019	2018	Percent Change		2019	2018		
	(in millions, except percentages)							
Revenues less cost of revenues	\$ 75.8	\$ 79.7	(4.9)	%	25.6	%	20.4	%
Operating expenses	38.2	45.9	(16.8)	%	12.9	%	11.8	%
Operating income	\$ 37.6	\$ 33.8	11.2	%	12.7	%	8.7	%
EBITDA(1)	\$ 57.3	\$ 57.2	0.2	%	19.4	%	14.6	%
EBITDA margin(2)	75.6	%	71.8	%	*		*	

*Not meaningful

(1) See footnote (1) to the table under “Financial Summary” above for a reconciliation of net income to EBITDA, and management’s reasons for using such non-GAAP measures.

(2) EBITDA margin represents EBITDA divided by revenues less cost of revenues.

Revenues less cost of revenues decreased \$3.9 million for the three months ended March 31, 2019 compared to the three months ended March 31, 2018, primarily due to a 20.0% decrease in volumes traded on our U.S Equities exchanges. For the three months ended March 31, 2019, the U.S. Equities segment’s operating income increased \$3.8 million compared to the three months ended March 31, 2018, due to lower operating expenses. Operating expenses decreased \$7.7 million for the three months ended March 31, 2019 compared to the three months ended March 31, 2018, primarily due to decreases in compensation and benefits, depreciation and amortization, and professional fees.

Futures

The following summarizes revenues less cost of revenues, operating expenses, operating income, EBITDA, and EBITDA margin for our Futures segment:

Three Months Ended			Percentage of Total Revenues Three Months Ended	
March 31, 2019	March 31, 2018	Percent Change	March 31, 2019	March 31, 2018
(in millions, except percentages)				

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Revenues less cost of revenues	\$ 29.5	\$ 42.3	(30.3)	%	96.7	%	96.4	%
Operating expenses	11.2	16.1	(30.4)	%	36.7	%	36.7	%
Operating income	\$ 18.3	\$ 26.2	(30.2)	%	60.0	%	59.7	%
EBITDA(1)	\$ 18.6	\$ 27.3	(31.9)	%	61.0	%	62.2	%
EBITDA margin(2)	63.1	%	64.5	%	*	*	*	*

*Not meaningful

(1) See footnote (1) to the table under “Financial Summary” above for a reconciliation of net income to EBITDA, and management’s reasons for using such non-GAAP measures.

(2) EBITDA margin represents EBITDA divided by revenues less cost of revenues.

Revenues less cost of revenues decreased \$12.8 million for the three months ended March 31, 2019 compared to the three months ended March 31, 2018, primarily due to a 37.1% decrease in Futures ADV. For the three months ended March 31, 2019, the Futures segment’s operating income decreased \$7.9 million compared to the three months ended March 31, 2018, due to lower revenue less cost of revenues. Operating expenses decreased \$4.9 million for the

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three months ended March 31, 2019 compared to the three months ended March 31, 2018, primarily due to decreases in compensation and benefits and depreciation and amortization.

European Equities

The following summarizes revenues less cost of revenues, operating expenses, operating income, EBITDA, and EBITDA margin for our European Equities segment:

	Three Months Ended March 31,				Percentage of Total Revenues Three months ended March 31,			
	2019	2018	Percent Change		2019	2018		
	(in millions, except percentages)							
Revenues less cost of revenues	\$ 22.8	\$ 24.6	(7.3)	%	75.2	%	71.5	
Operating expenses	17.0	18.4	(7.6)	%	56.1	%	53.5	
Operating income	\$ 5.8	\$ 6.2	(6.5)	%	19.1	%	18.0	
EBITDA(1)	\$ 12.9	\$ 14.5	(11.0)	%	42.6	%	42.2	
EBITDA margin(2)	56.6	%	58.9	%	*	*	*	

*Not meaningful

(1) See footnote (1) to the table under “Financial Summary” above for a reconciliation of net income to EBITDA, and management’s reasons for using such non-GAAP measures.

(2) EBITDA margin represents EBITDA divided by revenues less cost of revenues.

Revenues less cost of revenues decreased \$1.8 million for the three months ended March 31, 2019 compared to the three months ended March 31, 2018, primarily due to a 17.9% decrease in European Equities ADV. For the three months ended March 31, 2019, the European Equities segment’s operating income decreased \$0.4 million compared to the three months ended March 31, 2018, due to lower revenue less cost of revenues. Operating expenses decreased \$1.4 million for the three months ended March 31, 2019 compared to the three months ended March 31, 2018, primarily due to decreases in compensation and benefits and depreciation and amortization.

Global FX

The following summarizes revenues less cost of revenues, operating expenses, operating income, EBITDA, and EBITDA margin for our Global FX segment:

	Three Months Ended				Percentage of Total Revenues Three Months Ended			
	March 31, 2019	2018	Percent Change		March 31, 2019		2018	
	(in millions, except percentages)							
Revenues less cost of revenues	\$ 13.9	\$ 14.6	(4.8)	%	100.0	%	100.0	%

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Operating expenses	14.3	17.6	(18.8)	%	102.9	%	120.5	%
Operating loss	\$ (0.4)	\$ (3.0)	(86.7)	%	(2.9)	%	(20.5)	%
EBITDA(1)	\$ 7.4	\$ 6.4	15.6	%	53.2	%	43.8	%
EBITDA margin(2)	53.2	%	43.8	%	*		*	

*Not meaningful

(1) See footnote (1) to the table under “Financial Summary” above for a reconciliation of net income to EBITDA and adjusted EBITDA, and management’s reasons for using such non-GAAP measures.

(2) EBITDA margin represents EBITDA divided by revenues less cost of revenues.

Revenues less cost of revenues decreased \$0.7 million for the three months ended March 31, 2019 compared to the three months ended March 31, 2018, primarily due to a 12.3% decrease in ADNV. For the three months ended March 31, 2019, the Global FX segment’s operating loss decreased \$2.6 million compared to the three months ended March 31, 2018, due to lower operating expenses. Operating expenses decreased \$3.3 million for the three months ended

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March 31, 2019 compared to the three months ended March 31, 2018, primarily due to decreases in compensation and benefits and depreciation and amortization.

Liquidity and Capital Resources

We expect our cash on hand at March 31, 2019 and other available resources, including cash generated from operations, to be sufficient to continue to meet our cash requirements for the foreseeable future. In the near term, we expect that our cash from operations and availability under our revolving credit facility will meet our cash needs to fund our operations, capital expenditures, interest payments on debt, debt repayments, any dividends, potential strategic acquisitions, and opportunities for common stock repurchases under the previously announced program. We also plan to utilize excess cash on hand to pay down amounts outstanding under the Term Loan Agreement. See Note 11 “Debt” of the condensed consolidated financial statements for further information. Our long-term cash needs will depend on many factors including an introduction of new products, enhancements of current products, the geographic mix of our business and any potential acquisitions. We believe our cash from operations and the availability under our revolving credit facility will meet any long-term needs unless a significant acquisition is identified, in which case we expect that we would be able to borrow the necessary funds or issue debt to complete such an acquisition.

Cash and cash equivalents include cash in banks and all non-restricted, highly liquid investments with original maturities of three months or less at the time of purchase. Cash and cash equivalents as of March 31, 2019 increased \$71.1 million from December 31, 2018, primarily driven by our results from operations. See “—Cash Flow” below for further discussion.

Our cash and cash equivalents held outside of the United States in various foreign subsidiaries totaled \$74.3 million as of March 31, 2019. The remaining balance was held in the United States and totaled \$271.9 million as of March 31, 2019. Our cash and cash equivalents held outside of the United States as of December 31, 2018 totaled \$72.9 million, and are held in various foreign subsidiaries. The majority of cash held outside the United States is available for repatriation, but under current law, could subject us to additional United States income taxes, less applicable foreign tax credits.

Our financial investments include investments with original or acquired maturities longer than three months but that mature in less than one year from the balance sheet date and are recorded at fair value. As of March 31, 2019 and December 31, 2018, financial investments consisted of U.S. Treasury securities.

Cash Flow

The following table summarizes our cash flow data for the three months ended March 31, 2019 and 2018, respectively:

	Three Months Ended March 31,	
	2019	2018
	(in millions)	
Net cash provided by operating activities	\$ 118.0	\$ 163.5
Net cash provided by (used in) investing activities	22.0	(25.2)
Net cash used in financing activities	(71.7)	(114.2)
Effect of foreign currency exchange rate changes on cash and cash equivalents	2.8	(1.3)
Increase in cash and cash equivalents	\$ 71.1	\$ 22.8

Net Cash Flows Provided by Operating Activities

During the three months ended March 31, 2019, net cash provided by operating activities was \$22.8 million greater than net income. The variance is primarily attributed to the adjustment for depreciation expense of \$47.2 million and the change in the Section 31 fee payable of \$32.4 million for the three months ended March 31, 2019.

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Net Cash Flows Provided by (Used in) Investing Activities

Net cash flows provided by (used in) investing activities for the three months ended March 31, 2019 and 2018 were \$22.0 million and (\$25.2 million), respectively. The variance is primarily due to the return of capital from OCC in February 2019.

Net Cash Flows Used in Financing Activities

Net cash flows used in financing activities for the three months ended March 31, 2019 and 2018 were \$71.7 million and \$114.2 million, respectively. The variance is primarily attributed to the debt repayment in March 2018.

Financial Assets

The following summarizes our financial assets as of March 31, 2019 and December 31, 2018 (in millions):

	March 31, 2019	December 31, 2018
Cash and cash equivalents	\$ 346.2	\$ 275.1
Financial investments	30.2	35.7
Less cash collected for Section 31 Fees	(28.6)	(53.1)
Adjusted Cash (1)	\$ 347.8	\$ 257.7

(1) Adjusted cash is a non-GAAP measure and represents cash and cash equivalents plus financial investments minus cash collected for Section 31 fees. We have presented adjusted cash because we consider it an important supplemental measure of our liquidity and believe that it is frequently used by analysts, investors and other interested parties in the evaluation of companies.

Debt

The following summarizes our debt obligations as of March 31, 2019 and December 31, 2018 (in millions):

	March 31, 2019	December 31, 2018
Term Loan Agreement	\$ 275.0	\$ 275.0
3.650% Senior Notes	650.0	650.0
1.950% Senior Notes	300.0	300.0
Revolving Credit Agreement	—	—
Less unamortized discount and debt issuance costs	(9.0)	(9.6)
Total debt	\$ 1,216.0	\$ 1,215.4

As of March 31, 2019 and December 31, 2018, we were in compliance with the covenants of our debt agreements.

In addition to the debt outstanding, as of March 31, 2019, we had an additional \$150.0 million available through our revolving credit facility, with the ability to borrow another \$100.0 million by increasing the commitments under the facility. Together with adjusted cash, we had \$497.8 million available to fund our operations, capital expenditures, potential acquisitions, debt repayments and any dividends as of March 31, 2019.

As of March 31, 2019, the 1.950% Senior Notes are classified as a current portion of long-term debt, as the maturity date is less than one year, due on June 28, 2019.

Dividends

The Company's expectation is to continue to pay dividends. The decision to pay a dividend, however, remains within the discretion of the Company's board of directors and may be affected by various factors, including our earnings,

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financial condition, capital requirements, level of indebtedness and other considerations our board of directors deems relevant. Future debt obligations and statutory provisions, among other things, may limit, or in some cases prohibit, our ability to pay dividends.

Share Repurchase Program

In 2011, the board of directors approved an initial authorization for the Company to repurchase shares of its outstanding common stock of \$100 million and approved additional authorizations of \$100 million in each of 2012, 2013, 2014, 2015 and 2016, \$150 million in February 2018, and \$100 million in August 2018, for a total authorization of \$850 million. The program permits the Company to purchase shares through a variety of methods, including in the open market or through privately negotiated transactions, in accordance with applicable securities laws. It does not obligate the Company to make any repurchases at any specific time or situation.

Under the program, for the three months ended March 31, 2019, the Company repurchased 366,793 shares of common stock at an average cost per share of \$95.36, totaling \$35.0 million.

Since inception of the program through March 31, 2019, the Company has repurchased 12,662,148 shares of common stock at an average cost per share of \$53.62, totaling \$678.9 million.

As of March 31, 2019, the Company had \$171.1 million of availability remaining under its existing share repurchase authorizations.

Commercial Commitments and Contractual Obligations

As of March 31, 2019, our commercial commitments and contractual obligations included real property leases, operating leases, data and telecommunications agreements, equipment leases, our long-term debt outstanding, contingent consideration and other obligations. See Note 21, Commitments and Contingencies, to the condensed consolidated financial statements for a discussion of commitments and contingencies, Note 11, Debt, for a discussion of the outstanding long-term debt, and Note 22, Leases, for discussion on real property leases, operating leases and equipment leases.

Off Balance Sheet Arrangements

As of March 31, 2019, we did not have any off-balance sheet arrangements.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

As a result of our operating activities, we are exposed to market risks such as foreign currency exchange rate risk, equity risk, credit risk, and interest rate risk. We have implemented policies and procedures to measure, manage and monitor and report risk exposures, which are reviewed regularly by management and our board of directors.

Foreign Currency Exchange Rate Risk

Our operations in Europe and Asia are subject to increased currency translation risk as revenues and expenses are denominated in foreign currencies, primarily the British pound, Singapore dollar, Hong Kong dollar, and the Euro. We also have de minimis exposure to other foreign currencies, including the Swiss Franc, Norwegian Kroner, Swedish Krona and Danish Kroner.

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For the three months ended March 31, 2019, our exposure to foreign-denominated revenues and expenses is presented by primary foreign currency in the following table:

	Three Months Ended March 31, 2019			
	Euro (1)		British Pound (1)	
	(in millions, except percentages)			
Foreign denominated % of:				
Revenues	0.7	%	3.2	%
Cost of revenues	0.3	%	1.5	%
Operating expenses	0.2	%	6.2	%
Impact of 10% adverse currency fluctuation on:				
Revenues	0.5		2.7	
Cost of revenues	0.1		0.7	
Operating expenses	0.0		1.2	

(1) An average foreign exchange rate to the U.S. dollar for the period was used.

Equity Risk

Our investment in European operations is exposed to volatility in currency exchange rates through translation of our net assets or equity to U.S. dollars. The assets and liabilities of our European business are denominated in British pounds. Fluctuations in currency exchange rates may create volatility in our reported results as we are required to translate foreign currency reported statements of financial condition and income into U.S. dollars for consolidated reporting. The translation of these non-U.S. dollar statements of financial condition into U.S. dollars for consolidated reporting results in a cumulative translation adjustment, which is recorded in accumulated other comprehensive loss (income) within stockholders' equity on our consolidated statements of financial condition. Our primary exposure to this equity risk as of March 31, 2019 is presented by foreign currency in the following table:

	British Pound (1) (in millions)
Net equity investment in Cboe Europe Limited	\$ 707.3
Impact on consolidated equity of a 10% adverse currency fluctuation	\$ 70.7

(1) Converted to U.S. dollars using the foreign exchange rate of British pounds per U.S. dollar as of March 31, 2019.

Credit Risk

We are exposed to credit risk from third parties, including customers, counterparties and clearing agents. These parties may default on their obligations due to bankruptcy, lack of liquidity, operational failure or other reasons. We limit our exposure to credit risk by considering such risk when selecting the counterparties with which we make investments and execute agreements.

We do not have counterparty credit risk with respect to trades matched on our exchanges in the U.S. and Europe. With respect to listed cash equities, we deliver matched trades of our customers to the National Security Clearing

Corporation (“NSCC”) without taking on counterparty risk for those trades. NSCC acts as a central counterparty on all transactions occurring on BZX, BYX, EDGX and EDGA and, as such, guarantees clearance and settlement of all of our matched equity trades. Similarly, with respect to U.S. listed equity options and futures, we deliver matched trades of our customers to the OCC, which acts as a central counterparty on all transactions occurring on Cboe Options, C2, BZX, EDGX and CFE and, as such, guarantees clearance and settlement of all of our matched options and futures trades.

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With respect to orders Cboe Trading routes to other markets for execution on behalf of our customers, Cboe Trading is exposed to some counterparty credit risk in the case of failure to perform on the part of our clearing firms, Morgan Stanley & Co. LLC (“Morgan Stanley”) or Wedbush Securities, Inc. (“Wedbush Securities”). Morgan Stanley and Wedbush Securities guarantee trades until one day after the trade date, after which time NSCC provides a guarantee. Thus, Cboe Trading is potentially exposed to credit risk to the counterparty to a trade routed to another market center between the trade date and one day after the trade date in the event that Morgan Stanley or Wedbush Securities fails. We believe that any potential requirement for us to make payments under these guarantees is remote and accordingly, have not recorded any liability in the consolidated financial statements for these guarantees.

Historically, we have not incurred any 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 more visible market participants could also result in market-wide credit difficulties or other market disruptions.

We do not have counterparty credit risk with respect to institutional spot FX trades occurring on our platform because Cboe FX is not a counterparty to any FX transactions. All transactions occurring on our platform occur bilaterally between two banks or prime brokers as counterparties to the trade. While Cboe FX does not have direct counterparty risk, Cboe FX may suffer a decrease in transaction volume if a bank or prime broker experiences an event that causes other prime brokers to decrease or revoke the credit available to the prime broker experiencing the event. Therefore, Cboe FX may have risk that is related to the credit of the banks and prime brokers that trade FX on the Cboe FX platform.

We also have credit risk related to transaction fees that are billed in arrears to customers on a monthly basis. Our potential exposure to credit losses on these transactions is represented by the receivable balances in our balance sheet. Our customers are financial institutions whose ability to satisfy their contractual obligations may be impacted by volatile securities markets.

On a regular basis, we review and evaluate changes in the status of our counterparties’ creditworthiness. Credit losses such as those described above could adversely affect our consolidated financial position and results of operations. Any such effects to date have been minimal.

Interest Rate Risk

We have exposure to market risk for changes in interest rates relating to our cash and cash equivalents, short-term investments, short-term and long-term restricted cash and investments, and indebtedness. As of March 31, 2019 and 2018, our cash and cash equivalents and financial investments were \$346.6 million and \$230.3 million, respectively, of which \$74.3 million is held outside of the United States in various foreign subsidiaries in 2019. The remaining cash and cash equivalents and financial instruments are denominated in U.S. dollars. We do not use our investment portfolio for trading or other speculative purposes. Due to the nature of these investments, we have not been exposed to, nor do we anticipate being exposed to, material risks due to changes in interest rates, assuming no change in the amount or composition of our cash and cash equivalents and financial instruments.

As of March 31, 2019, we had \$1.225 billion in outstanding debt, of which \$950 million relates to our Senior Notes, which bear interest at fixed interest rates. Changes in interest rates will have no impact on the interest we pay on fixed-rate obligations. The remaining amount outstanding of \$275.0 million relates to the Term Loan Agreement, which bears interest at fluctuating rates and, therefore, subjects us to interest rate risk. A hypothetical 100 basis point increase in long-term interest rates relating to the amounts outstanding under the Term Loan Agreement as of March 31, 2019 would decrease annual pre-tax earnings by \$2.8 million, assuming no change in the composition of our outstanding indebtedness. We are also exposed to changes in interest rates as a result of borrowings under our

Revolving Credit Agreement, as this facility bears interest at fluctuating rates. As of March 31, 2019, there were no outstanding borrowings under our Revolving Credit Agreement. See Note 11, Debt, to the consolidated financial statements for a discussion of debt agreements.

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Item 4. Controls and Procedures

- a) Disclosure controls and procedures. The Company's management, with the participation of its Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company'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, the Company's Chief Executive Officer and Chief Financial Officer have concluded that, as of the end of such period, the Company's disclosure controls and procedures are effective.
- b) Internal controls over financial reporting. No changes occurred in the Company's internal control over financial reporting during first quarter 2019 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

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PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

Cboe Global Markets, Inc. incorporates herein by reference the discussion set forth in Note 19 (“Income Taxes”) and Note 21 (“Commitments and Contingencies– Legal Proceedings”) of the consolidated financial statements included herein.

Other than the legal proceedings below, there have been no material updates during the period covered by this Form 10-Q to the Legal Proceedings as set forth in Item 3. of our Annual Report on Form 10-K for the year ended December 31, 2018.

Transaction Fee Pilot

In December 2018, the SEC approved a transaction fee pilot in national market system (“NMS”) stocks (the “pilot”). The pilot will subject stock exchange transaction fee pricing, including maker-taker fee-and-rebate pricing models, to new temporary pricing restrictions across two test groups, and require the exchanges to prepare data to be submitted to the SEC. The pilot includes a test group that will prohibit rebates and linked pricing, as well as a test group that will impose a cap of \$0.0010 for removing or providing displayed liquidity. Once commenced, the pilot will last for up to two years with an automatic sunset at one year unless extended by the SEC. On February 15, 2019, the Company filed a Petition for Review in the Court of Appeals for the D.C. Circuit asserting the pilot is unlawful. The pilot was published in the Federal Register on February 20, 2019 and was scheduled to become effective on April 22, 2019. On March 28, 2019, the SEC granted a partial stay of the pilot, agreeing to delay implementing its fee-and-rebate and data-publication requirements until after the D.C. Circuit decides the pending challenges. The data-gathering requirement of the pilot’s pre-pilot period remains in effect. The pilot may cause the Company’s equities exchanges, BZX, BYX, EDGX and EDGA, to require additional resources to comply with or challenge the pilot and it may have a material impact on our business, financial condition and operating results if, for example, shifts in order flow away from exchanges were to occur. The Company intends to litigate the matter vigorously.

Item 1A. Risk Factors.

Other than the risk factor listed below, there have been no material updates during the period covered by this Form 10-Q to the Risk Factors as set forth in Item 1A. of our Annual Report on Form 10-K for the year ended December 31, 2018. These risks and uncertainties, however, are not the only risks and uncertainties that we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial may also significantly impact us. Any of these risks and uncertainties may materially and adversely affect our business, financial condition or results of operations, liquidity and cash flows.

We may be required to inject further capital into OCC or EuroCCP or return dividends received back to OCC.

OCC is the sole provider of clearing on all of our options and futures exchanges. In addition, Cboe Europe Limited owns 20% of EuroCCP, which is one of three interoperable central counterparties used to clear trades conducted on Cboe Europe Limited. Prior to February 13, 2019, OCC maintained a capital plan under which (among other things) each of OCC’s existing exchange stockholders, which include Cboe Options, provided equity capital to OCC, received annual dividends in respect thereof, and agreed to provide replenishment capital if certain capital thresholds were breached. However, as discussed in additional detail in Note 5 (“Investments”), on February 13, 2019 the OCC capital plan was disapproved by the SEC and, while OCC has taken certain steps toward unwinding the disapproved capital plan and achieving compliance with required target capital levels in the absence of the capital plan, there remains

uncertainty regarding potential consequences. Depending on the terms on which the OCC capital plan is ultimately required to be unwound as a result of this disapproval, we may be required to return dividend payments received from OCC, which could have a material adverse effect on our financial condition and operating results. Although as a result of the SEC's disapproval of the OCC capital plan, Cboe Options no longer has a contractual obligation to contribute further capital to OCC, given OCC's importance to Cboe Options' business, if OCC were to experience financial difficulties, Cboe Options might nevertheless be required to inject further capital into it in order for OCC to maintain its working or regulatory capital. Likewise, if EuroCCP were to experience financial difficulties, Cboe Europe Limited might be

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required to inject further capital into it in order to maintain its working or regulatory capital. In a worst case scenario, OCC or EuroCCP, as applicable, might have their regulatory license suspended or withdrawn, or might have to wind down. This may result in a loss to Cboe Options and Cboe Europe Limited of their respective investments in OCC and EuroCCP and withdrawals of OCC or EuroCCP as clearing houses, which could have a material adverse effect on our business, financial condition and operating results.

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

Share repurchase program

In 2011, the board of directors approved an initial authorization for the Company to repurchase shares of its outstanding common stock of \$100 million and approved additional authorizations of \$100 million in each of 2012, 2013, 2014, 2015 and 2016, \$150 million in February 2018, and \$100 million in August 2018, for a total authorization of \$850 million. The program permits the Company to purchase shares through a variety of methods, including in the open market or through privately negotiated transactions, in accordance with applicable securities laws. It does not obligate the Company to make any repurchases at any specific time or situation.

The table below shows the purchases of equity securities by the Company in the three months ended March 31, 2019, reflecting the purchase of common stock under the Company's share repurchase program:

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs
January 1 to January 31, 2019	—	\$ —	—	\$ 206,095,776
February 1 to February 28, 2019	—	—	—	206,095,776
March 1 to March 31, 2019	366,793	95.36	366,793	171,095,784
Total	366,793	\$ 95.36	366,793	

Purchase of common stock from employees

The table below reflects the acquisition of common stock by the Company in the three months ended March 31, 2019 that were not part of the publicly announced share repurchase authorization. These shares consisted of shares retained to cover payroll withholding taxes in connection with the vesting of restricted stock unit awards and performance share awards, and shares used by employees to cover the price of certain stock options that were exercised.

Period	Total number of shares purchased	Average price
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		paid per share
January 1 to January 31, 2019	32,424	\$ 94.51
February 1 to February 28, 2019	83,597	94.57
March 1 to March 31, 2019	2,542	96.05
Total	118,563	94.59

Use of Proceeds

None.

Item 3. Defaults upon Senior Securities.

None.

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Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

None.

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Item 6. Exhibits.

Exhibit No.	Description
10.1	<u>Fifth Amended and Restated Bylaws, incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on February 14, 2019.</u>
31.1	<u>Certification of Chief Executive Officer pursuant to Rule 13a-14 (Filed herewith).</u>
31.2	<u>Certification of Chief Financial Officer pursuant to Rule 13a-14 (Filed herewith).</u>
32.1	<u>Certificate of Chief Executive Officer pursuant to Rule 13a-14(b) and Section 1350 of Chapter 63 of Title 18 of the United States Code (Filed herewith).</u>
32.2	<u>Certificate of Chief Financial Officer pursuant to Rule 13a-14(b) and Section 1350 of Chapter 63 of Title 18 of the United States Code (Filed herewith).</u>
101.INS	XBRL Instance Document (Filed herewith).
101.SCH	XBRL Taxonomy Extension Schema Document (Filed herewith).
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document (Filed herewith).
101.DEF	XBRL Taxonomy Extension Definition Linkbase (Filed herewith).
101.LAB	XBRL Taxonomy Extension Label Linkbase Document (Filed herewith).
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document (Filed herewith).

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SIGNATURES

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

CBOE GLOBAL MARKETS, INC.

Registrant

By: /s/ Edward T. Tilly
Edward T. Tilly
Chief Executive Officer
(Principal Executive Officer)

Date: May
3, 2019

By: /s/ Brian N. Schell
Brian N. Schell
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)

Date: May
3, 2019