Cboe Global Markets, Inc.
Form 10-K
February 22, 2019
Table of Contents

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, DC 20549

Form 10-K

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

For the fiscal year ended December 31, 2018

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 No. 001-34774

Cboe Global Markets, Inc.

(Exact name of registrant as specified in its charter)

Delaware	20-5446972
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

400 South LaSalle Street	
Chicago, Illinois	60605
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code

(312) 786-5600

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

Title of Each Class	Name of Exchange on Which Registered
Common Stock, par value $0.01 per share	Cboe BZX

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

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

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 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 if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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

Large accelerated filer	Accelerated filer	Non-accelerated filer	Smaller reporting company	Emerging growth company

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

As of June 30, 2018, the aggregate market value of the Registrant's outstanding voting common equity held by non-affiliates was approximately $11.7 billion based on the closing price of $104.07 per share of common stock.

The number of outstanding shares of the registrant's common stock as of February 15, 2019 was 111,596,097 shares of common stock.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of Cboe Global Market’s Definitive Proxy Statement for the 2019 Annual Meeting of Stockholders, which will be filed no later than 120 days after December 31, 2018, are incorporated by reference in Part III.

Table of Contents

TABLE OF CONTENTS

CBOE GLOBAL MARKETS, INC.

2018 FORM 10-K

	PART I	
Item 1.	Business	7
Item 1A.	Risk Factors	26
Item 1B.	Unresolved Staff Comments	45
Item 2.	Properties	45
Item 3.	Legal Proceedings	45
Item 4.	Mine Safety Disclosures	45
	PART II	
Item 5.	Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	46
Item 6.	Selected Financial Data	49
Item 7.	Management's Discussion and Analysis of Financial Condition and Results of Operations	51
Item 7A.	Quantitative and Qualitative Disclosures about Market Risk	87
Item 8.	Financial Statements and Supplementary Data	90
Item 9.	Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	136
Item 9A.	Controls and Procedures	136
Item 9B.	Other Information	136
	PART III	
Item 10.	Directors, Executive Officers and Corporate Governance	137
Item 11.	Executive Compensation	137
Item 12.	Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	137
Item 13.	Certain Relationships and Related Transactions, and Director Independence	137
Item 14.	Principal Accountant Fees and Services	137
	PART IV	
Item 15.	Exhibits, Financial Statement Schedules	138
Item 16.	Form 10-K Summary	144

Table of Contents

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 Equities" 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.
- "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.
    - "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.
- "OCC" refers to 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.

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.

Table of Contents

This Annual Report on Form 10-K 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 I, Item 1A of this Annual Report on Form 10-K and our other filings with the SEC.

Table of Contents

FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K 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 "Business" and "Management's Discussion and Analysis of Financial Condition and Results of Operations." 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 this Annual Report.

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;

Table of Contents

- 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 I, 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.

Table of Contents

PART I

Item 1. Business

The following description of the business should be read in conjunction with the information included elsewhere in this Annual Report on Form 10-K for the year ended December 31, 2018. This description contains forward-looking statements that involve risks and uncertainties. Actual results could differ significantly from the results discussed in the forward-looking statements due to the factors set forth in "Risk Factors" and elsewhere in this Annual Report on Form 10-K.

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. 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 reports the results of its operations in five business segments: Options, U.S. Equities, Futures, European Equities and Global FX. Our operating revenues consist primarily of transaction fees, regulatory fees, market data fees and connectivity fees. We also generate revenue from both the calculation and dissemination of index values and from the licensing of our proprietary products. Transaction fee revenues are generated on the contracts or shares traded on our exchanges. In 2018, approximately 68.6% of our net revenues were transaction fee revenues.

Our principal executive offices are located at 400 South LaSalle Street, Chicago, Illinois 60605, and our telephone number is (312) 786-5600. Our web site is www.cboe.com. Information contained on or linked through our web site is not incorporated by reference into this Annual Report on Form 10-K.

Our Business

Cboe Options was founded in 1973 as a non-stock corporation owned by its members. Cboe Options was the first organized marketplace for the trading of standardized, exchange-traded options on equity securities. In 2004, CFE began operations as a futures exchange. Cboe Global Markets was incorporated in the State of Delaware on August 15, 2006. In June 2010, Cboe Options demutualized, Cboe Options, CFE and C2 became wholly-owned subsidiaries of Cboe Global Markets and Cboe Global Markets completed its initial public offering. In October 2010, C2 initiated operations. As described in further detail below, on February 28, 2017, the Company completed the acquisition of Bats. Following the acquisition, on October 16, 2017, we changed our legal name from CBOE Holdings, Inc. to Cboe Global Markets, Inc. On September 17, 2018, we voluntarily delisted our common stock from Nasdaq Global Select Market and transferred the listing to Cboe BZX Exchange.

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 Global Markets, 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 (the "Subsequent Merger") of Bats with and into Merger LLC. As a result of the Merger, Bats became a wholly-owned subsidiary of Cboe. In connection with the Merger, the Company issued approximately 30 million shares of Cboe Global Markets common stock and paid approximately $956 million in cash. The Company entered into a term loan agreement and completed a notes offering, as described below, securing $1.65 billion to finance the cash portion of its acquisition of Bats as well as the repayment of Bats' existing indebtedness.

Table of Contents

The Merger significantly expanded the Company's product lines across multiple asset classes, broadened its geographic reach with pan-European equities, added global FX markets and diversified its business mix with significant non-transactional revenue streams.

As a result of the Merger, in 2017 the Company began reporting five business segments: Options, U.S. Equities, Futures, European Equities, and Global FX. Prior to this, the Company operated as a single reportable business segment as of December 31, 2016.

- Options. The Options segment includes our options exchange business, which lists for trading (i) options on market indexes ("index options"), including the VIX Index and SPX, mostly on an exclusive basis, (ii) non-exclusive "multiply-listed" options, such as options on the stocks of listed individual corporations ("equity options") and (iii) options on other ETPs, such as exchange-traded funds ("ETFs") and exchange-traded notes ("ETN"). These options trade on Cboe Options, C2, BZX and EDGX. Cboe Options is our primary options market and offers trading in listed options through a single system that integrates electronic trading and traditional open outcry trading on our trading floor in Chicago. This integration of electronic trading and traditional open outcry trading into a single exchange is known as our Hybrid trading model. C2, BZX and EDGX are our all-electronic exchanges that also offer trading in listed options, and typically operate with different market models and fee structures than Cboe Options. It also includes market data revenue generated from the U.S. tape plans and from the sale of associated proprietary market data.
- U.S. Equities. The U.S. Equities segment includes listed cash equities and ETP transaction services that occur on BZX, BYX, EDGX and EDGA. It also includes ETP listings, market data revenue generated from the U.S. tape plans, and from the sale of proprietary market data, routing services, connectivity fees and advertising activity from ETF.com.
- Futures. The Futures segment includes the business of our futures exchange, CFE, which lists futures on the VIX Index, corporate bond indexes and bitcoin and other futures products. It also includes market data revenue generated from the sale of associated proprietary market data.
- European Equities. 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 Equities. It also includes the listed cash equities and ETPs routed transaction services that occurred through Cboe Chi-X Europe, as well as the listings business where ETPs can be listed on Cboe Europe Equities. Cboe Europe Equities operates two lit books, a periodic auctions book, a Large In Scale trading negotiation facility and two dark books on its MTF, and operates one lit book and one dark book on its RM. On its MTF books, Cboe Europe Equities offers trading in listed cash equity securities from 18 European markets. It also includes market data revenue generated from the sale of associated proprietary market data.
- Global FX. The Global FX segment includes institutional FX services on the Cboe FX platform, which offers an independent, transparent electronic marketplace structure where institutional buyers and sellers worldwide can trade spot FX directly, either anonymously or on a disclosed basis with each other. The Global FX segment also includes non-deliverable forward FX transactions executed on Cboe SEF.

See "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Note 17 - Segment Reporting to the notes to our Consolidated Financial Statements for discussion of revenues, and operating income (loss) by business segment. Certain areas within our segments operate globally. For information regarding risks related to our international operations see "Risk Factors."

Table of Contents

The following chart illustrates volume and notional value for Options (Cboe Options, C2 Options, BZX Options and EDGX Options); Futures (CFE); U.S. Equities (BZX Equities, BYX Equities, EDGA Equities, EDGX Equities); European Equities; and Global FX (Cboe FX) for the periods indicated (which includes information prior to the acquisition of Bats):

	Annual Volumes		
	2018	2017	2016
Options ADV (in millions)	7.9	6.9	4.5
U.S. Equities ADV (in billions)	1.4	1.3	1.6
Futures ADV (in thousands)	300.0	294.8	238.8
European Equities touched ADNV (€ in billions)	10.4	9.4	10.6
Global FX ADNV ($ in billions)	37.4	29.5	26.9

ADV= average daily volume

ADNV= average daily notional value

Competitive Strengths

We have established ourselves as a global leader and innovator in our industry. We believe we are well positioned to further enhance our leadership position through several key competitive strengths:

- Innovative Products and Services. We are structured and committed to deliver a differentiated experience to our customers, through our offering of innovative proprietary products, order types, risk management tools and other products and services. We have also worked closely and collaboratively with market participants to introduce new products and services to meet the evolving needs of the industry, and we plan to continue these efforts. Products we have developed include index options, equity options, options and futures on the VIX Index and other volatility indexes, short duration options, including Weeklys, FLexible EXchange Options (“FLEX options”) and options strategy benchmark indexes. We have also developed products that enable our customers to monitor their order handling on our markets in real time, such as our user dashboard and latency reports. We were the first U.S. options exchange to trade options during non-U.S. trading hours, offering extended trading hours in our exclusive proprietary products. We also connect with a growing customer base through trading and educational resources, including resources available through our website, the world-renowned Cboe Options Institute, participating at industry trade shows and industry forums.
- Leading Proprietary Technology. Bats’ leading proprietary technology was designed in-house to optimize reliability, speed, scalability and versatility. The trading technology platforms have experienced very low operational downtime and have low latency. We believe that this reliability, capacity and speed gives our customers an additional incentive to use our platforms to mitigate trade execution risk, especially in times of extreme market volatility. We plan to further utilize Bats’ leading proprietary trading technology for trading in all of our equities, options and futures markets, which is expected to enhance reliability, speed, efficiency, versatility, resiliency and scalability and result in uniformity of customer experience across all of our markets. C2 and CFE were migrated to Bats’ trading platform on February 25, 2018 and May 14, 2018, respectively. We expect to migrate Cboe Options to Bats’ trading platform on October 7, 2019.
- Leading Market Position, Reputation and Brand. We are a leading global operator of securities exchanges and other electronic markets and have a strong market share in the markets we serve. Cboe Options, the largest U.S. options exchange, based on both contract volume and notional value, and one of the largest options exchanges in the world, is an options market leader. As the creator of listed options and other significant products in the listed options

industry, including the VIX Index and VIX futures and options, Cboe is a leading brand name in the options and volatility space. In U.S. listed cash equities, we are one of the largest three exchange operators, with a market share of 18.4% of the overall U.S. equity market for the year ended December 31, 2018. In European-listed equities, we execute the largest notional value of pan-European equities traded by a single market operator, with a market share of 22.3% of European trading in the securities available for trading on Cboe Europe Equities for the year ended December 31, 2018. In addition, we have a substantial presence in the

Table of Contents

spot FX markets, with a 15.1% market share of the publicly reported institutional spot FX markets for the year ended December 31, 2018. The combination of our attractive market positions, the quality of our markets and the expertise of our teams have enabled us to grow our market share across most of our markets.

- Strategic Relationships and Partnerships. We have entered into licensing agreements with index providers under which we have rights to create volatility indexes and offer options and futures products on their indexes. We have also formed partnerships with key providers to develop new products and services. See “Proprietary Products-Strategic Relationships.”

Growth Strategy

Our mission is “to power your potential to stay ahead of an evolving market” and is brought to life through: (1) relentless innovation to expand our diverse offering for investors around the world, (2) cutting-edge technology to connect customers to global markets, and (3) seamless solutions to enhance the customer experience through insights, education, data, analytics and more. We expect to further grow our business and increase our revenues and profitability by following our mission and pursuing the following growth strategies:

- Expand Our Customer Base. The acquisition of Bats expanded our customer base through geographic expansion and broader product offerings and leveraged alliances that complement our core business. We intend to continue our efforts to grow the use of our products domestically and internationally, by intensifying our business development efforts to target new institutional investors and retail investors and to inform them about how to trade our products, especially our proprietary products. With our expanded sales team through the Bats acquisition, we are able to increase our cross selling efforts and reach a larger group of potential customers domestically and internationally. We also intend to continue to offer investor education and a wide breadth of educational resources for both institutional and retail customers through the Cboe Options Institute and through our comprehensive website, as well and through our presence at industry trade shows and participation in industry forums. We have expanded, and intend to continue growing, our educational offerings, including through the Cboe Risk Management Conferences (“RMC”), which are held annually in the United States, Europe and Asia. Cboe Europe also expanded access in 2018 to securities listed in Czech Republic, Hungary and Poland.
- Develop Innovative Products and Services. We are continuing to explore the development of index and other high margin derivative products to trade on our exchanges. We intend to license and create proprietary intellectual property to develop proprietary products that meet the needs of the derivatives industry, both through strategic relationships and internally developed products, while continuing to diversify our product line across asset classes. In addition, as market share and volumes on our exchanges and trading platforms continue to rise, we believe that additional proprietary market data, analytics and connectivity revenues can be generated while continuing to offer competitive pricing across all of our segments. In 2018, we continued to leverage relationships to extend our product offering by launching new products, such as futures on corporate bond indexes. The MiFID II (defined below) solutions that we implemented in 2018, Periodic Auctions and Cboe Large-In-Scale, have seen strong adoption from our clients searching for MiFID II compliant solutions.
- Grow U.S. Equities by Expanding Listings. We were the number one market by continuous trading volume for ETPs in 2018. We believe this trading market share leadership can be used to attract new ETP listings or transfers of existing ETPs listed on other exchanges in both the United States and Europe. In 2018, Cboe added to its U.S. market 61 new ETPs and 12 transfers. In addition to generating more revenues from increased trading volume in ETPs, we believe listing ETPs offers the opportunity to generate incremental fees from opening and closing auctions, as well as value added market data and analytics. In Europe, we are capitalizing on changes to regulatory transparency requirements that encourage ETP trading to migrate to regulated exchange markets like Cboe Europe Equities. We also expect continued global industry expansion in ETP launches, trading volumes and assets, which we hope will create additional opportunities for us to serve issuers, liquidity providers and investors.

Table of Contents

- Offer Compelling Economic Models. We have designed our fees and pricing models to provide benefits to market participants that concentrate their overall trading activity, which we believe encourages market participants to increase their business with us. In our proprietary products, we offer discounts and incentives to certain participants based on relative volume and the use of selected strategies. In multiply-listed products and cash equities trading, we offer incentive programs to attract order flow to help our market participants manage both the fixed and transaction-based costs of trading. We regularly review the fees and pricing models for all of our exchanges to provide an industry-leading economic offering.
- Continue to Enhance Our Leading Edge Technology. We recognize that the opportunity to participate in the growth of the equities and derivatives market will be driven in great part by the trading functionality and technology capabilities that an exchange offers to market participants. We intend to use our strong in-house development capabilities and continued investment to further enhance and develop the functionality and capacity of our trading systems. See “Technology.”
- Evaluate Strategic Opportunities. We evaluate strategic opportunities that we believe will enhance stockholder value. We specifically look for strategic opportunities beyond our current businesses that will capitalize on our core competencies and diversify our sources of revenue. We continue to form new alliances with various partners that leverage our strengths and enable us to diversify our product and business lines across new regions and asset classes.

Proprietary Products

In addition to our exchanges providing a marketplace and listing venue for the trading of securities and derivatives that meet criteria established in the rules of their respective exchanges, we also offer trading in products and licenses based on our own proprietary indexes and index methodologies. These include volatility index products based on various broad-based market indexes (such as the S&P 500, the S&P 100 and the Russell 2000), volatility indexes based on ETFs and individual stocks (such as the Cboe S&P 500 Implied Correlation Index and the Cboe S&P 500 Smile Index) and options strategy benchmarks (such as BuyWrite, PutWrite and Collar indexes based on the S&P 500 and Russell 2000 and BuyWrite indexes based on other broad-based market indexes). Our most frequently traded products are SPX options and VIX options and futures. In addition to any transaction fee revenue generated on products created based on these indexes, we have licensed others to use some of these indexes to create products and have entered into agreements whereby we have granted to others the rights to sub-license certain indexes. We generate revenue from both the calculation and dissemination of index values and from the licensing of our proprietary indexes.

These proprietary products are built both through our in-house research and development staff and our strategic relationships and license agreements with index providers. The following is a discussion of our strategic relationships and additional detail on our most frequently traded products, including SPX options and VIX options and futures.

Strategic Relationships

The Company has long-term business relationships with several providers of market indexes. We license their indexes, including on an exclusive basis, as the foundation for indexes, index options and other products. The Company also acquires interests in and forms partnerships with key providers to develop new products and services that are expected to capitalize on our core competencies and diversify our sources of revenue. Of particular note are the following:

- S&P 500, S&P 100, S&P Select Sector Indexes. We have the exclusive right to offer options contracts on the S&P 500 Index, the S&P 100 Index and the S&P Select Sector Indexes as a result of a licensing arrangement with S&P Dow Jones Indices, LLC (“S&P”). Our license with S&P is through December 31, 2033, with an exclusive license to trade options on the S&P 500 Index through December 31, 2032. We are also authorized to use the S&P 500 Index and S&P 100 Index for the creation of Cboe volatility indexes, such as the VIX Index, and tradable products on those volatility indexes.

11

Table of Contents

- FTSE Russell Indexes. Under our license agreement with the London Stock Exchange Group's leading global index franchises, Frank Russell Company and FTSE International Limited (together "FTSE Russell"), we have the exclusive right in the United States to offer options on more than two dozen FTSE Russell indexes, which represent a diverse group of domestic and global equities with international appeal. We offer options on the Russell 2000, Russell 1000, Russell 1000 Value, Russell 1000 Growth, FTSE Emerging Markets, FTSE 100 and FTSE China 50 Indexes.
- MSCI. We have the exclusive right in the United States to offer options on six of MSCI's indexes, as a result of a licensing arrangement with MSCI Inc. We currently offer options on two of these indexes, the MSCI EAFE and the MSCI Emerging Markets Indexes.
- Dow Jones Industrial Average ("DJIA"). We have the exclusive right during standard U.S. trading hours to offer options contracts on the DJIA and certain other Dow Jones indexes through December 31, 2033 as a result of a licensing arrangement with DJI Opco, LLC. We are also authorized to use these indexes to create Cboe volatility indexes and trade options, futures and other products on these indexes.
- Cboe Vest. We have a majority equity investment in Cboe Vest Financial Group, Inc. ("Cboe Vest"), an investment manager focused on Target Outcome Investment strategies. Cboe Vest offers mutual funds, including Cboe Vest S&P 500 Buffer Protect Strategy Fund and Cboe Vest Defined Distribution Strategy Fund.

SPX Options

The S&P 500 Index is an index comprised of 500 large-cap U.S. listed companies. It is one of the most commonly followed indexes, and is considered a bellwether for the U.S. economy. The options we offer on the S&P 500 Index are exclusive to Cboe and contribute substantially to our volumes and transaction fees. Because of its status as a bellwether, SPX is traded in a number of different trading strategies by customers with different goals, including pension funds hedging their equity exposure by buying put options, asset managers seeking enhanced returns by selling covered call options and hedge funds using risk-managed strategies to capture so-called "risk premia" embedded in option prices. We also offer SPX Weeklys options, which we believe that traders are using to fine tune the timing of hedging strategies and maximize the risk premium in strategies that involve the sale of options, such as covered call writing.

Volatility Trading

Cboe pioneered the volatility trading space with its introduction of futures on the VIX Index in 2004 and options on the VIX Index in 2006. The VIX Index is based on real-time prices of options on the S&P 500 Index and is designed to reflect investors' consensus view of future 30-day expected stock market volatility. Since we started offering these products, we have seen trading from a number of different customer segments utilizing a number of different trading strategies, including hedging extreme stock market declines, also known as "tail risk" hedging, and risk-managed strategies that seek to capture the relative price changes of expected volatility at different times in the future. We also offer VIX Weeklys options and futures to provide investors with opportunities and tools to trade volatility over a shorter term.

Trading volumes in options and futures on the VIX Index may be especially sensitive to market volatility, with increases in volume generally occurring along with spikes in volatility. While we believe that there will be continued intrinsic growth in our volatility products, significant changes in the levels of market volatility may significantly impact volumes in these products.

Listing

Cboe serves as a listing destination for ETPs in the U.S. and Europe. In 2018, Cboe's market specifically structured and designed for ETP issuers and their investors added 61 listings and won 23 percent of all new U.S. ETP listings. There are now 290 ETPs globally listed on Cboe from 55 different issuers. We offer fully automated opening, closing and halt reopening auctions for our listed securities, which are designed to maximize the efficiency of the price

discovery process.

Table of Contents

Cboe also offers issuers the choice of a more traditional market maker program referred to as the Cboe Lead Market Maker ("LMM") program on Cboe BZX and the Cboe Europe Equities Liquidity Provider Program ("LPP") on Cboe Europe Equities. An LMM has certain quoting obligations and for meeting those enhanced obligations, Cboe pays the LMM an enhanced rebate for executions against its displayed orders in the issuer's security and charges a reduced fee when the LMM executes against other orders in the issuer's security. Under the LPP, Cboe Europe Equities offers three programs designed for participants that wish to provide liquidity by posting and maintaining executable quotes within certain set parameters with the result of providing liquidity on a regular and ongoing basis. Cboe BZX also offers the Cboe Liquidity Management Provider ("LMP") Program ("LMP Program"). The LMP Program is a rewards-based program that incentivizes liquidity providers to make a better market in ETPs. Incentives are based on an LMP's quote quality in the Cboe LMP Program securities, which include all Cboe-listed ETPs and certain non-Cboe-listed ETPs.

Market Data

We derive a portion of our revenue from market data fees from U.S. tape plans, including Unlisted Trading Privileges ("UTPs"), the Consolidated Tape Association ("CTA") and OPRA. Fees, net of plan costs, from UTP, CTA, and OPRA are allocated and distributed to plan participants like us according to their share of tape fees based on a formula, required by Regulation NMS, which may take into account both trading and quoting activity.

We also provide a robust offering of market data products across multiple asset classes and geographic regions that are designed to suit our customers' diverse needs. Products include real-time depth of book quotation information, auction and complex option information, top of book quotes and trades, last sale information, consolidated equity feeds, real-time index values, and trade reporting facility information. We also provide analytics services and historical information for our markets through multiple data services.

Our Models

To meet various market demands we utilize a variety of market and pricing models. Cboe Options utilizes various models in different listed options classes, with different combinations of customer priority, participation rights and pro-rata, modified pro-rata or price-time priority depending on the product. We have adopted a pro-rata model on listed equity options trading on C2 and EDGX. Cboe Options and EDGX Options utilize a "classic" pricing model that charges a fee to market makers and a portion of that fee is then provided back to customers' brokers (known as payment for order flow). The classic pricing model also provides customers with rebates and volume incentive programs and charges fees to non-customers. In our proprietary products, we assess transaction fees on all participants, with the amount of the fee based on the market participant's role and the origin of the underlying order, and subject to discounts based on relative volume or trading strategies.

CFE utilizes a price-time priority model for VIX futures and clients are charged transaction fees that vary depending on the type of market participant on whose behalf a trade is made and on whether the trade is executed through CFE's central limit order book, or is a block trade. CFE also has rebate schedules for VIX futures that provide rebates for satisfying designated trading volume thresholds and has also adopted a maker–taker fee structure for weekly VIX futures.

We have adopted a price-time priority model and "maker-taker" and "taker-maker" pricing models in certain of our markets. Under our "maker-taker" pricing model, on BZX (for both listed cash equity securities and listed equity options), EDGX (for listed cash equity securities) and C2 (options), a customer posting an order on our book (the "liquidity maker") is paid a rebate for an execution occurring against that order, a customer executing against an order resting on our book (the "liquidity taker") is charged a fee. We generate a substantial portion of our operating income from the difference between the "maker" rebate and the "taker" fee. Although customers must pay a fee to access that

liquidity, that fee is explicitly disclosed and charged to all customers on a non-discriminatory basis. Conversely, the BYX and EDGA listed cash equity securities “taker-maker” pricing model provides that a liquidity taker will be paid a rebate, and the liquidity maker will be charged a fee. In Europe, following the implementation of MiFID II, rebates are no longer generally available unless they are tied to a market making scheme or specific service. Cboe Europe Equities is therefore moving away from its traditional maker-taker pricing model to one where a participant must meet certain performance criteria to earn rebates.

Table of Contents

The Cboe FX platform uses a price firmness-time priority model and clients are charged either a flat or tiered commission rate based upon the notional amount traded on the platform.

Our exchanges also charge fees for the opportunity to trade or access our exchanges, including fees for trading-related functionality. To facilitate trading, we also charge fees for certain technology services, terminal and other equipment rights, maintenance services, trading floor space and telecommunications services.

Customers

Our customers include financial institutions, institutional and individual investors and professional traders. Our equities and options customers in the United States include trading permit holders and members of Cboe Options, C2, BZX, BYX, EDGX and EDGA, which are SEC registered broker dealers, and the clients of those broker dealers. Our futures customers include banks, futures commission merchants, hedge funds, asset managers, proprietary trading firms and Commodity Trading Advisors. Similarly, our equities' customers in Europe are European Union ("E.U.") regulated brokerage and proprietary trading firms, as well as sponsored access clients of these brokerage firms, and certain non-E.U. regulated and unregulated direct access participants. Our institutional spot FX customers include banks, broker dealers, hedge funds, asset managers, proprietary trading firms, Commodity Trading Advisors and corporates. Access to our markets, trading rights and privileges depend upon the nature of the customer, such as whether the individual is a trading permit holder, trading privilege holder, member or participant of one of our markets.

Competition

The industry in which we operate is intensely competitive. We believe we face competition on a number of factors, including:

- the price, quality and speed of our trade execution;
- functionality and ease of use of our trading platforms;
- range of our products and services;
- integrity of our marketplaces;
- technological innovation and adaption; and
- our reputation.

We believe that we compete favorably with respect to these factors through a variety of methods, including:

- offering access to a broad array of products and services, including proprietary products and market data;
- offering fee schedules, pricing models that both attract order flow and provide incentives to liquidity providers;
- providing advanced technology that offers broad functionality, low latency, fast execution, ease of use, scalability, reliability and security;
- offering efficient, transparent and liquid marketplaces;
- offering deep and liquid markets with opportunities for price improvement;
- maintaining close relationships with customers; and
- providing customers with a comprehensive source of information on options and ETPs as well as extensive options education.

In our proprietary products, we compete against other futures exchanges and swap execution facilities that offer similar products, as well as against financial market participants that offer similar over-the-counter derivatives. We also compete against certain multiply-listed options products, such as options on SPY, which offer some of the market exposure of our proprietary products such as options on SPX.

The multiply-listed options industry is extremely competitive. We expect this trend to continue. The number of U.S. options exchanges that we compete with is 11 exchanges, as of December 31, 2018, in large part due to existing exchange holding companies opening new exchanges that offer different markets and pricing models on existing technology. Most of the equity options and options on ETPs listed and traded on our exchanges are also listed and traded

Table of Contents

on the other options exchanges. In addition, the options exchanges that we compete with set fees and rebates to attract multiply-listed options business to their exchanges, which has historically reduced the net revenue per contract that we generate from multiply-listed options, and the options exchanges that we compete with structure their options businesses in partnership with established market participants, such as consolidators, and other order flow providers, to increase their volume traded.

Our U.S. listed cash equity securities and listing services compete against nine other exchanges and several alternative trading systems ("ATSs"). Market participants have multiple venues for the execution of orders, including national securities exchanges and numerous off exchange venues, including ATSs operating "dark pools" that do not publicly display quotations, "lit" ATSs that publicly display quotations operating as electronic communication networks, and broker dealers who internalize orders off exchange. Additionally, issuers have multiple venues for the listing of their products, including other national and regional exchanges.

The market for execution services in Europe has become significantly more competitive following the introduction of the Markets in Financial Instruments Directive (Directive 2004/39/EC) ("MiFID"). We expect that competition in pan-European trading will continue to increase in the near term, though the Directive on Markets in Financial Instruments (Directive 2014/65/EU) repealing Directive 2004/39/EC ("MiFID II") and the Regulation on Markets in Financial Instruments (Regulation (EU) No 600/2014) ("MiFIR") place more onerous conditions on trading venues and investment firms and restrict certain types of trading activity. New MTFs emerged that have captured significant market share from existing national exchanges. Our major competitors in Europe include national stock exchanges and other pan-European market operators as of December 31, 2018.

The spot FX market remains severely fragmented, with transparent automated marketplaces such as Cboe FX challenging a small number of similarly situated competitors. While the spot FX market recently has been experiencing a shift from competing interbank platforms to ECNs, the electronification of the spot FX market may encounter resistance from clients that still prefer to utilize the phone, instant chats, terminals and key banking relationships for price discovery and trading. Furthermore, electronification of the FX market appears to be experiencing more resistance outside the United States. The electronic spot FX market is also intensely competitive, with over 10 other venues competing for market share as of December 31, 2018.

In addition, demand for our market data faces competition from other securities exchanges, technology companies, third-party market data providers and information and software vendors, who have their own substantial market data distribution capabilities that serve as alternative means for receiving open market data feeds instead of connecting directly to our exchanges. The sale of our proprietary data products is also under competitive threat from ATSs and trading venues that offer similar products. Distributors and consumers of our market data may also use our market data as an input into a product that competes against one of our traded or cleared products.

Technology

Cboe Trading Technology

Cboe currently operates two distinct technology platforms for its equity, options and futures markets, Cboe Command and the Bats trading platform. Cboe Options is currently operating on Cboe Command. C2, CFE, BZX, BYX, EDGA, EDGX and Cboe Europe Equities all operate on the Bats platform. CFE's migration to Bats' trading platform was completed on February 25, 2018 and C2's migration was completed on May 14, 2018. We also plan to utilize Bats' leading proprietary technology by migrating trading on Cboe Options onto Bats' trading platform which is expected to be completed on October 7, 2019. Until the migration is completed, Cboe Options is expected to continue operating on Cboe Command. In addition, Cboe operates a separate FX trading platform for Global FX.

Our trading platforms are developed, owned and operated in-house and are designed to optimize reliability, speed, scalability and versatility. Each of our exchanges provide different market models, appealing to different user bases and the trading technologies support all of them. Further, the technologies are designed to support many specialized features for each of the markets, including: dark books, trade reporting facility, systematic internalizer, Large-in-Scale, smart order routing, FLEX options, 24x5 trading and hybrid trading (combining electronic and open outcry).

Table of Contents

Our trading platforms have experienced very low operational downtime and low latency. The trading platforms use readily available hardware, thereby minimizing capital outlays required for each new market entry. Also, in order to continue to implement new enhancements to the Bats trading platforms, new releases of software are deployed on a weekly basis in all of the applicable markets.

Disaster Recovery

We operate and maintain geographically diverse disaster recovery facilities for all of our markets. We expect that the disaster recovery facilities can be up and running in a short period of time and work with our market participants to ensure that the marketplace can be quickly reopened. We believe that our recovery time in the event of an outage is comparable to or better than that of our competitors. We regularly test our data center recovery plans and periodically carry out weekend tests using our back-up data centers, as well as an annual test with our U.S. trading participants. In Europe, we also regularly test our data center recovery plans and periodically carry out weekend tests which use our back-up data center, as well as an annual test with our European trading participants. We continue to work to improve both the availability of our technology and our disaster recovery facilities.

Routing and Clearing

OCC is the sole provider of clearing on all of our options and futures exchanges. National Securities Clearing Corporation ("NSCC") is the sole provider of clearing on our U.S. listed cash equity exchanges. Cboe Europe Equities relies on LCH.Clearnet Group Limited ("LCH"), EuroCCP N.V., a Dutch domiciled clearing house ("EuroCCP") and SIX x clear Ltd ("SIX x-clear") to clear trades in European listed equity securities as part of an interoperable clearing model.

Cboe Trading is a routing broker-dealer used by our four U.S. equity exchanges and our BZX, C2 and EDGX exchanges for options.

Regulatory Environment and Compliance

Various aspects of our business are subject to regulation by the SEC, CFTC, FINRA, ESMA and FCA and market participants may be subject to regulation by the SEC, CFTC, FINRA, FCA, Board of Governors of the Federal Reserve, U.S. Department of the Treasury and/or foreign regulators. The following is a discussion of the more significant areas of regulation of us by the SEC, the CFTC, and certain European regulators.

Recent Developments

Laws and regulations regarding our business are frequently modified or changed to address perceived problems, new products, competition or at the request of market participants. The following is a summary of the general regulatory structure and brief discussion of recent regulatory developments that may significantly impact our business.

United States

Transaction Fee Pilot

In December 2018, the SEC approved a transaction fee pilot in national market system ("NMS") stocks (the "transaction fee 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.

The transaction fee pilot may cause Cboe'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

Table of Contents

condition and operating results if, for example, order flow shifts away from exchanges were to occur. See Note 23 ("Commitments, Contingencies, and Guarantees—Legal Proceedings") for more information.

Europe

MiFID Review

The overarching objective of MiFID II and MiFIR is to further the stability, integrity, transparency and efficiency of E.U. financial markets, as well as to enhance investor protection. MiFID II and MiFIR began to apply in January 2018. This legislation has resulted in a significant change in the E.U. regulatory landscape for trading and clearing. Cboe Europe Equities and its customers have incurred significant costs related to the implementation of these requirements and may continue to incur additional costs as the regulation evolves through further guidance or legislation.

Capital Markets Union

The E.C. has highlighted one of its top priorities as being the establishment of a fully functioning, well regulated Capital Markets Union by 2019. In February 2015, the E.C. adopted a Green Paper outlining its possible scope and highlighting five short term priority areas, including securitization, updating the Prospectus Directive, Small and Medium Enterprise ("SME") credit information, private placements and finalization of the European Long Term Investment Funds. An Action Plan of concrete steps was set out in September 2015, and an update of the list of initiatives was published in September 2016. This remains an ongoing project for the E.C., which may result in additional regulation or legislation.

Orderly Markets

ESMA has implemented "Guidelines on systems and controls in an automated trading environment for trading platforms, investment firms and competent authorities." The purpose of the guidelines is to ensure common, uniform and consistent application of MiFID and the Market Abuse Directive as they apply to the systems and controls required of: (i) trading platforms and investment firms in an automated trading environment; and (ii) trading platforms and investment firms in relation to the provision of direct market access and sponsored access. These requirements will be further enhanced by MiFID II and MiFIR and the Market Abuse Regulation ("MAR") which came into effect on July 3, 2016. MAR extends the scope of the market abuse framework to new markets, new behaviors and new platforms.

OTC Derivatives, Central Counterparties and Trade Repositories

The European Market Infrastructure Regulation sets out new rules relating to OTC derivatives markets, central counterparties and trade repositories. The new rules introduce a reporting obligation for OTC derivatives markets, a clearing obligation for eligible OTC derivatives markets, measures to reduce counterparty credit and operational risk for bilateral OTC derivatives markets, CCPs, and trade repositories, and rules on the establishment of interoperability between CCPs. The regulation became effective in August 2012, with the first obligations effective beginning in March 2013. In addition, a new regulation governing the authorization and supervision of Central Securities Depositories was approved in September 2014, with the publication of most "Level 2" Regulatory Technical Standards in March 2017, for implementation in March 2019, and a recovery and resolution framework is currently being considered for CCPs.

Compliance

U.S. Securities Industry

Federal securities laws have established a two-tiered system for the regulation of securities exchanges and market participants. The first tier consists of the SEC, which has primary responsibility for enforcing federal securities laws. The second tier consists of self-regulatory organizations ("SROs"), which are non-governmental entities that must register with and are regulated by the SEC. Cboe Options, C2, BZX, BYX, EDGX, and EDGA (the "Exchanges") are SROs, each registered under Section 6 of the Exchange Act of 1934, as amended ("Exchange Act") as a "national securities exchange," and are subject to oversight by the SEC.

Table of Contents

SROs are an essential component of the regulatory scheme of the Exchange Act for providing fair and orderly markets and protecting investors. To be registered as a national securities exchange, an exchange must successfully undergo an application and review process with the SEC prior to beginning operations. Among other things, the SEC must determine that the SRO has the ability to comply with the Exchange Act and to enforce compliance by its members and persons associated with its members with the provisions of the Exchange Act, the rules and regulations thereunder and the rules of the exchange.

In general, an exchange SRO is responsible for operating its trading platforms consistent with its rules, and regulating its members through the adoption and enforcement of rules governing the business conduct of its members. The rules of the exchange must also assure fair representation of its members in the selection of its directors and administration of its affairs and, among other things, provide that one or more directors be representative of issuers or investors and not be associated with a member of the exchange or with a broker or dealer. Additionally, the rules of the exchange must be adequate to ensure fair dealing and to protect investors and may not impose any burden on competition not necessary or appropriate in furtherance of the purposes of the Exchange Act.

As registered national securities exchanges, virtually all facets of our Exchange operations are subject to the SEC's oversight, as prescribed by the Exchange Act. The Exchange Act and the rules thereunder impose on us many regulatory and operational responsibilities, including record keeping and the day-to-day responsibilities for market operations and broker-dealer oversight. Furthermore, as SROs, the Exchanges are potentially subject to regulatory or legal action by the SEC or other interested parties. The SEC also has broad enforcement powers to censure, fine, issue cease-and-desist orders, prohibit us from engaging in some of our businesses, suspend or revoke our designation as a registered securities exchange or remove or censure any of our officers or directors who violate applicable laws or regulations. For example, on June 11, 2013, Cboe Options and C2 entered into a consent order with the SEC, under which Cboe Options and C2 were censured, ordered to cease and desist from violating certain sections of the Exchange Act, paid a fine of $6 million and agreed to complete certain undertakings. We have certified to the completion of these undertakings and are also required to certify until 2019. In addition, on January 12, 2015, EDGX and EDGA entered into a consent order with the SEC, under which EDGX and EDGA were censured, ordered to cease and desist from violating certain sections of the Exchange Act, paid a fine of $14 million and agreed to complete certain undertakings. We have certified to the completion of these undertakings and are no longer required to certify.

As part of its regulatory oversight, the SEC conducts periodic reviews and inspections of exchanges, and the Exchanges have been subject to such routine reviews and inspections. To the extent such reviews and inspections result in regulatory or other changes, we may be required to modify the manner in which we conduct our business, which may adversely affect our business. We collect certain fees to cover Section 31 fees charged to the Exchanges by the SEC and certain fees derived from our regulatory function and fines in connection with our disciplinary proceedings. The Exchanges are responsible for the ultimate payment of Section 31 fess to the SEC. Additionally, under the rules of each of our options exchanges, as required by the SEC, any revenue derived from the regulatory fees and fines cannot be used for non-regulatory purposes.

Section 19 of the Exchange Act also provides that we must submit to the SEC proposed changes to any of the Exchanges' rules, including revisions of their certificates of incorporation, bylaws, or other governing documents of the SROs or their parent companies. The SEC will typically publish the proposal for public comment, following which the SEC may approve or disapprove the proposal, as it deems appropriate. Certain categories of rule changes, like fee changes, can be effective on filing, but the SEC retains the ability to suspend or reject such filings within a prescribed period of time.

Futures and Swaps Industry-CFE and Cboe SEF

The operations of each of CFE and Cboe SEF are subject to regulation by the CFTC under the Commodity Exchange Act. The Commodity Exchange Act generally requires that futures trading in the United States be conducted on a designated contract market and, in some cases, requires swaps trading to be conducted on swap execution facility ("SEF") or designated contract market ("DCM"). The Commodity Exchange Act and CFTC regulations establish criteria for an exchange to be designated as a contract market on which futures and futures options contracts may be traded, and for a trading platform to be designated as a swap execution facility on which certain swaps may be traded. Designation

Table of Contents

as a contract market or swap execution facility for the trading of a specified futures or swaps contracts is non-exclusive. This means that the CFTC may permit additional exchanges or trading platforms to be contract markets or swap execution facilities for trading the same or similar contracts.

CFE is a designated contract market, and Cboe SEF is a swap execution facility, each of which is subject to the oversight of the CFTC and to a variety of ongoing regulatory and reporting responsibilities under the Commodity Exchange Act. As a designated contract market, CFE is required to comply with the applicable core principles and regulations under the Commodity Exchange Act, as is Cboe SEF as a swap execution facility. Each of CFE and Cboe SEF has surveillance and regulatory operations and procedures to monitor and enforce compliance by trading privilege holders with CFE rules, and by participants with SEF rules, as applicable. If CFE or Cboe SEF fails to comply with applicable laws, rules or regulations, it may be subject to censure, fines, cease-and-desist orders, suspension of its business, removal of personnel or other sanctions, including revocation of CFE's designation as a contract market or Cboe SEF's designation as a swap execution facility.

Europe

Our European stock exchange, Cboe Europe Equities, is located in London and subject to regulation in the United Kingdom and to certain European regulations. Cboe Europe Equities has applied to the Netherlands Authority for the Financial Markets to become a Regulated Market in the Netherlands. The application is expected to be decided by the end of the first quarter of 2019. The current United Kingdom regulatory system was established by the Financial Services Act 2012 ("FSA12"), which amended the Financial Services and Markets Act 2000 ("FSMA"). The legislation replaced the previous financial services regulator, the Financial Services Authority, with three new bodies: The Financial Policy Committee ("FPC"), The Prudential Regulation Authority ("PRA"), and the FCA. The FPC is a committee of the Bank of England and sets policy for financial regulation. It is made up of the Governor and other senior figures within the Bank, along with the chief executives of the PRA and FCA and senior industry figures. The PRA is responsible for the prudential regulation of banks, insurance companies and other systemically important institutions. Financial conduct of markets, including activity on, and the operation of, markets is regulated by the FCA, which is an independent non governmental body, given statutory powers by the FSA12. The FCA has three statutory objectives: to secure an appropriate degree of protection for consumers; to protect and enhance the integrity of the U.K. financial system; and to promote effective competition in the interests of consumers in the markets for financial services. The FCA is accountable to Her Majesty's Treasury Ministers and, through them, to Parliament.

FSMA, as amended by FSA12, governs the regulation of financial services and markets in the U.K. Under Section 19 of FSMA, any person who carries on a regulated activity in the U.K. must be authorized by the appropriate authority or exempt. Recognized bodies, which include exchanges and clearing houses, are exempt. Breach of Section 19 may be a criminal offense and punishable on indictment by a maximum term of two years imprisonment and/or a fine. The FSMA (Regulated Activities) Order 2001 which is secondary legislation under FSMA, details regulated activities and specified investments.

Once a firm is authorized or recognized by the FCA, it is required to meet the standards set out in its Handbook of Rules and Guidance and to supply the FCA with information so that the FCA can monitor the firm's business. The FCA supervises the firm according to the risks that it poses to the FCA's statutory objectives.

Much of the U.K. financial services regulation originates in the European Union. On November 1, 2007, MiFID, which replaced the Investment Services Directive, came into force, and was implemented by EEA member states. MiFID aims to harmonize European financial services businesses by setting out provisions governing organizational and conduct of business requirements that apply to firms and the requirements applicable to RMs (for example, stock exchanges) and MTFs. MiFID also aims to facilitate cross border business by extending the concept of "passporting," which allows firms authorized to carry on business in one EEA member state to carry on business in other EEA

member states.

As an RIE that operates both an RM and an MTF, Cboe Europe Equities is required to comply with the relevant U.K. requirements as set out in the FCA Handbook, including, where applicable, relevant European Directives and Regulations, as implemented, or which apply directly in the U.K. These requirements include organizational

Table of Contents

requirements, capital resources requirements and the specific requirements for RMs and MTFs. MiFID sets out requirements for RMs and MTFs with respect to the establishment of transparent and non discretionary rules and procedures governing access and for fair and orderly trading and the efficient execution of orders, as well as to facilitate the efficient settlement of transactions conducted on RMs and MTFs and monitoring compliance with the rules. The regulatory functions required of Cboe Europe Equities by MiFID are performed by in house staff. Cboe Europe Equities utilizes the same state of the art, real time surveillance system that we use to monitor trading and market activities on BZX, BYX, EDGA and EDGX.

MiFID has been updated, and the new legislation, known as MiFID II and MiFIR, was implemented January 3, 2018 and generally tightens the requirements placed on both exchanges and investment firms. In particular, use of certain waivers from pre trade transparency are capped as a percentage of total market volume and a general trading obligation requires almost all equity trades to be conducted on a duly registered trading venue. Furthermore, MiFID II and MiFIR extend mandatory transparency requirements to non equity markets, such as fixed income.

Global FX

While the global institutional spot FX market remains largely unregulated, the enactment of the Dodd Frank Act and its related regulations in the United States and the ongoing implementation of MiFID II and MiFIR in Europe have impacted the regulatory landscape for currency derivative products. For example, certain standardized currency derivative products are required to trade on an organized trading venue such as an SEF or DCM in the United States or on an MTF or OTF in Europe. Moreover, even in the largely unregulated spot FX market, this movement towards additional trading standards and norms is highlighted by the publication of the FX Global Code in 2017 by the Global Foreign Exchange Committee, reflecting principles of good conduct for the wholesale FX market (the “Global Code”), and whose publication may lead to additional oversight in the global FX market.

Broker Dealer

Cboe Trading is a registered broker dealer regulated by the SEC, FINRA, other SROs of which it is a member and various state securities regulators. Cboe Trading currently operates as the routing broker dealer for sending orders from the BZX, BYX, C2, EDGX and EDGA exchanges to other venues for execution, including routing orders among BZX, BYX, C2, EDGX and EDGA. Cboe Trading does not currently serve as the routing broker-dealer for Cboe Options. Cboe Trading is considered a facility of BZX, BYX, C2, EDGX and EDGA and is subject to the rules of these exchanges. BZX, BYX, C2, EDGX and EDGA are responsible for enforcing Cboe Trading’s compliance with their rules, including to ensure Cboe Trading is not given preferential treatment.

Cboe Trading is subject to SEC and SRO rules and, as a registered broker-dealer, regulations concerning all aspects of its business, including trading practices, order handling, best execution, anti money laundering, handling of material non public information, safeguarding data, reporting, record retention, market access and the conduct of its officers, employees and other associated persons. The SEC, SROs and state securities commissions may conduct proceedings which can result in injunctions or other sanctions, censures, fines, the issuance of cease and desist orders or the suspension or expulsion of a broker dealer, its officers or employees. The SEC and FINRA impose certain minimum capital requirement rules that require notification when a broker dealer’s net capital falls below certain predefined criteria, dictate the ratio of debt to equity in the regulatory capital composition of a broker dealer, constrain the ability of a broker dealer to expand its business under certain circumstances and impose certain requirements that may have the effect of prohibiting a broker dealer from distributing or withdrawing capital.

Cboe Global Markets

Certain aspects of Cboe Global Markets are also subject to SEC and FCA oversight, including certain ownership and voting restrictions on its stockholders. The focus of the SEC's regulation of Cboe Global Markets is to assure fair representation of members in the selection of the directors of the Exchanges, public participation in the governance of the Exchanges and that the Exchanges can satisfy their regulatory responsibilities under the Exchange Act. Furthermore, the SEC requires that Cboe Global Markets give due regard to the preservation of the independence of the self-regulatory function of the Exchanges and to Cboe Global Markets' obligations to investors and the general public. The

Table of Contents

SEC also requires that Cboe Global Markets not take any actions that would interfere with the effectuation of any decisions by the board of directors of any of the Exchanges relating to its regulatory functions or the structure of the market that it regulates or that would interfere with the ability of such Exchange to carry out its responsibilities under the Exchange Act. To the extent that Cboe Global Markets' business activities involve or relate to the Exchanges, the officers and directors of Cboe Global Markets may be deemed to be officers and directors of the exchanges for purposes of and subject to oversight under the federal securities laws. Accordingly, the SEC may exercise direct supervision and disciplinary authority over certain Cboe Global Markets' activities and those activities may be subject to SEC approval and, in some cases, public notice and comment.

In addition, Cboe Global Markets indirectly holds all of the issued share capital and voting rights in Cboe Europe Equities and its wholly owned subsidiary, Cboe Chi-X Europe. As a result, we and any person who holds, or has voting power with respect to, 10% or more of the outstanding shares of Cboe Global Markets common stock is subject to certain regulatory requirements under U.K. law, such as filing a change in control notice with the FCA when acquiring indirect control in an FCA entity.

U.S. Regulatory Responsibilities

Our U.S.-based exchanges are responsible for assessing the compliance of their TPHs or members, including Cboe Trading, with the respective exchange's rules and the applicable rules of the SEC and/or CFTC. The main activities that the exchanges, as applicable, are required to monitor for the purpose of compliance with these rules include:

- surveillance designed to detect violations of exchange trading rules;
- surveillance designed to detect violations of other SEC and/or CFTC rules;
- the further investigation of matters deemed to be problematic;
- the investigation of complaints about possible rule violations brought by customers, TPHs, members or other SROs; and
- the examination of TPHs or members, including Cboe Trading, for compliance with rules such as those related to net capital, books and records, market access and other matters related to the TPHs' exchange business functions.

In order to ensure market integrity, we regulate and monitor our TPHs' and members' trading activities by using both our employees and third parties under RSAs. See "Regulatory Agreements" below. Providing effective regulation is important for attracting and retaining the confidence and participation of market-makers, broker-dealers and institutional and retail investors.

We expend considerable time, financial resources and effort to ensure that the exchanges' rules and regulations conform to regulatory best practices within the securities and futures exchange industries and within the regulatory regime overseen by the SEC and CFTC, our primary regulators. In order to support our efforts and those of our market participants to comply with applicable law and our exchange rules, we developed a regulatory program to monitor market activity on our exchanges.

All of our Exchanges and CFE are participants in the Intermarket Surveillance Group ("ISG"). ISG is an international information-sharing cooperative governed by a written agreement that provides for a comprehensive surveillance sharing arrangement. In addition to the agreement for confidential information sharing, the ISG provides a framework for the coordination of regulatory efforts among exchanges trading securities, commodity futures and related products to address potential intermarket manipulations and trading abuses.

As part of the regulatory program, each of our Exchanges and CFE have rules pertaining to their respective disciplinary processes.

U.S. Regulatory Agreements

The Exchanges and CFE have entered into agreements under which third parties have agreed to perform regulatory functions on behalf of our markets, (i.e., RSAs). As discussed below, in addition, in certain other instances for our

Table of Contents

Exchanges, a third party has assumed the regulatory responsibility under Rule 17d-1 or Rule 17d-2 under the Exchange Act, while in others, we retain the regulatory responsibility for the activities.

Regulatory Services Agreement with FINRA

The Exchanges have entered into agreements with FINRA under which FINRA has agreed to provide regulatory services to the Exchanges. Under these agreements, FINRA performs certain regulatory functions on behalf of the Exchanges. The Exchanges remain responsible for the regulation of their TPHs, members and marketplaces, and retain the authority for bringing disciplinary actions against their TPHs, members, although FINRA performs various disciplinary-related functions on behalf of the Exchanges.

Regulatory Services Agreements with NFA and OCC

The National Futures Association ("NFA") performs regulatory functions on behalf of CFE pursuant to an RSA with CFE. CFE retains overall responsibility for the regulation of its marketplace. In addition, OCC also performs certain regulatory functions on behalf of CFE pursuant to an RSA with CFE. CFE also performs certain regulatory functions in-house. Whether performed under an RSA or in-house, CFE also remains responsible for bringing disciplinary actions. CFE is also a party to cooperative and regulatory information sharing agreements with other SROs and is a member of the ISG, described above.

Rule 17d-1 Designations and Rule 17d-2 Agreements

Section 17(d) of the Exchange Act and the related Exchange Act rules permit SROs to allocate certain regulatory responsibilities to avoid duplicative oversight and regulation. Under Exchange Act Rule 17d-1, the SEC designates one SRO to be the designated examining authority ("DEA") for each broker-dealer that is a member of more than one SRO. The DEA is responsible for the regulatory oversight of the Exchange Act's financial responsibility rules pertaining to that broker-dealer. Cboe Options is the DEA for several of its TPHs. Cboe Trading's assigned DEA is FINRA.

Exchange Act Rule 17d-2 permits SROs to enter into agreements, commonly called Rule 17d-2 agreements, which are approved by the SEC and concern the enforcement of rules applicable to all of those SROs and relating to TPHs and members those SROs have in common. The Exchanges have entered into certain bi-lateral Rule 17d-2 agreements under which FINRA is allocated responsibility for enforcing certain federal securities laws and certain Exchange rules that are common with FINRA rules. The Exchanges have entered into certain other multi-party Rule 17d-2 agreements that allocate responsibility among the participating SROs, which may include the Exchanges, for ensuring that their allocated common members comply with certain rules governing, among other items, options sales practices, expiring exercise declarations, options position limits and large options position reporting and position adjustments.

National Market System Plans

We are member participants of several NMS plans. Cboe Options, C2, BZX, and EDGX are member exchanges in OPRA, which is the designated securities information processor for market information that is generated through the trading of exchange-listed securities options in the United States, and it disseminates certain core trading information, such as last sale reports and quotations. Cboe Options, BZX, BYX, EDGA and EDGX also participate in the CTA and the Nasdaq Unlisted Trading Privileges Plan, which perform analogous services for the U.S. equities market. NYSE Technologies acts as the "processor" for OPRA and CTA. Nasdaq acts as the processor for the Nasdaq Unlisted Trading Privileges Plan.

Cboe Options, C2, BZX and EDGX are also parties to the Options Order Protection and Locked/Crossed Market Plan (the “Distributive Linkage”), which is designed to prohibit trade-throughs and avoid locked/crossed markets. Cboe Options, C2, BZX and EDGX are also parties to the Options Listing Procedures Plan, which sets forth the procedures that the options exchanges must follow to list new options. Cboe Options, C2, BZX, BYX, EDGA and EDGX are also parties to the NMS plan for the selection and reservation of securities symbols.

Table of Contents

Under the Options Regulatory Surveillance Authority Plan ("ORSA Plan"), U.S. securities options exchanges are permitted to act jointly in the administration, operation and maintenance of a regulatory system for the surveillance, investigation and detection of the unlawful use of undisclosed, material information in trading in one or more of their markets. The ORSA Plan is intended to enhance the effectiveness and efficiency with which the exchanges regulate their respective markets and to avoid duplication of certain regulatory efforts. FINRA operates the ORSA Plan facility.

The consolidated audit trail NMS plan ("CAT") involves the creation of a comprehensive audit trail of orders that enhances the ability to efficiently and accurately track all activity in Regulation NMS securities in the U.S. markets. Upon final implementation of the provisions of the CAT, data will be required to be reported to a central repository the following day by each SRO and broker-dealer. On November 15, 2016, the SEC approved the CAT. In 2017, Thesys CAT LLC ("Thesys"), a subsidiary of Thesys Technologies, LCC, was selected as the plan processor with the responsibility to build and operate the CAT. There is a phased implementation through 2021. The first phase was required to go live on November 15, 2017, but failed to go live on that date. The CAT went live in November 2018, at which time we began initial reporting to the CAT. The current CAT plan processor, Thesys, is expected to be replaced by a new plan processor. The second phase is scheduled to go live November 15, 2019, however, such deadline might be impacted as a result of engaging a new plan processor. While the funding of the CAT is ultimately expected to be provided by both the execution venues (which includes us) and industry members, until the SEC approves a funding model, the funding to date has solely been provided by the execution venues. The funding by the execution venues has been done in exchange for promissory notes expected to be repaid once such industry member fees are collected. Until the SEC approves a funding model that shares the cost of the CAT between the execution venues and industry members, the execution venues may continue to incur additional significant costs, including as a result of engaging a new plan processor, or result in the uncollectibility of promissory notes related to the funding of the implementation and operation of the CAT.

Intellectual Property

We own or have rights to a number of intellectual property assets, including trademarks, service marks, domain names, trade names, copyrights, trade secrets and patents. While the majority of our intellectual property is protected under U.S. law, we have many intellectual property assets protected by laws in Europe, Asia and other parts of the world. We license some intellectual property assets to other entities. We attempt to protect our intellectual property rights, while respecting the legitimate intellectual property rights of others.

Employees

As of December 31, 2018, we employed 842 individuals, 730 of whom are based in the United States, 92 of whom are located in London, 15 of whom are located in Ecuador, 1 of whom is located in Switzerland, 1 of whom is located in Hong Kong, and 3 of whom are located in Singapore. Of these employees, 297 were involved in technology or operations and 115 were involved in direct support of trading operations. The remaining 430 employees provide business development, financial, regulation, human resources, compliance, legal, planning and research, administrative and managerial support.

We have 8 building engineers that are covered by a collective bargaining agreement, which expires on May 31, 2021, with the International Union of Operating Engineers Local 399, AFL-CIO. Management believes that we have strong relationships with our employees, and we have never experienced a work stoppage.

Table of Contents

Executive Officers of Cboe Global Markets

Set forth below is information regarding our executive officers:

Name	Age	Position
Edward T. Tilly	55	Chairman of the Board, President and Chief Executive Officer
Christopher A. Isaacson	40	Executive Vice President and Chief Operating Officer
Brian N. Schell	53	Executive Vice President, Chief Financial Officer and Treasurer
John Deters	48	Executive Vice President, Chief Strategy Officer and Head of Multi-Asset Solutions
Bryan Harkins	42	Executive Vice President, Co-Head of Markets Division
Mark S. Hemsley	56	Executive Vice President, President Europe
Andrew Lowenthal	57	Executive Vice President, Co-Head of Markets Division
Patrick Sexton	54	Executive Vice President, General Counsel and Corporate Secretary
Jill Griebenow	39	Senior Vice President, Chief Accounting Officer

Edward T. Tilly. Mr. Tilly is our Chairman, President and Chief Executive Officer. Mr. Tilly has served as our President since January 2019, Chairman since February 2017 and as CEO and director since May 2013. Prior to becoming CEO, Mr. Tilly served as President and Chief Operating Officer from November 2011, and Executive Vice Chairman from August 2006 until November 2011. He was a member of CBOE from 1989 until 2006, and served as Member Vice Chairman from 2004 through July 2006. He holds a B.A. degree in Economics from Northwestern University.

Christopher A. Isaacson. Mr. Isaacson is our Executive Vice President and Chief Operating Officer, a position he has held since January 2019. Previously he was our Executive Vice President and Chief Information Officer, a position he was appointed to upon the Company’s acquisition of Bats. Prior to that, he served as Bats' Executive Vice President and Global Chief Information Officer since February 2014 and he has held other various senior leadership positions since 2005. Prior to being one of the founders of Bats, Mr. Isaacson was a software developer at Tradebot Systems, Inc. from 2003 to 2005. Mr. Isaacson serves on the board of directors of the OCC. Mr. Isaacson holds a B.S. degree in information systems with a minor in math from Nebraska Wesleyan University and an M.B.A. degree from the University of Nebraska-Lincoln.

Brian N. Schell. Mr. Schell is our Executive Vice President, Chief Financial Officer and Treasurer, a position he has held since January 2018. Previously, he was Deputy Chief Financial Officer of the Company’s subsidiary Cboe Exchange, Inc., a position he was appointed to upon the Company’s acquisition of Bats. Prior to that, he served as Chief Financial Officer of Bats since March 2011. Prior to joining Bats, he held various senior leadership positions at H&R Block Inc., as well as various positions at the FDIC, KPMG and JP Morgan. Mr. Schell holds a B.B.A. degree with an emphasis in finance from the University of Notre Dame and an M.B.A. degree from The George Washington University.

John Deters. Mr. Deters is our Executive Vice President, Chief Strategy Officer and Head of Multi-Asset Solutions. He has served as our Head of Multi-Asset Solutions since 2018 and as Chief Strategy Officer since December 2013. Prior to joining Cboe in 2013, Mr. Deters was most recently a Vice President and Investment Banker of Financial Institutions Group, Investment Banking at Barclays from 2008 to 2013. Mr. Deters holds a B.A. degree from Wheaton College, an M.B.A. degree from the University of Chicago, and a J.D./M.S. dual degree from Georgetown University Law Center.

Bryan Harkins. Mr. Harkins is our Executive Vice President, Co-Head of Markets Division, a position he has held since March 2018. Previously, he was Head of Equities and Global FX of the Company’s subsidiaries, a position he was appointed to upon the Company’s acquisition of Bats. Prior to that, he served as Executive Vice President, Head of U.S. Markets of Bats since January 2014. Prior to the Direct Edge acquisition by Bats in January 2014 when Mr. Harkins first joined Bats, Mr. Harkins served as Chief Operating Officer of Direct Edge, where he worked since 2007. Mr. Harkins holds a B.A. degree from the University of Notre Dame and an M.B.A. degree from New York University's Stern School of Business.

Table of Contents

Mark S. Hemsley. Mr. Hemsley is our Executive Vice President, President Europe, a position he was appointed to upon the Company's acquisition of Bats. Previously, he served as Bats Europe Limited's Executive Vice President, Chief Executive Officer since November 2011 and as Chief Executive Officer and Chairman from 2008 to 2011. Prior to joining Bats, Mr. Hemsley founded Belvedere Hill Limited, a corporate advisory firm, where he worked from 2005 to 2008, and is currently a non-shareholder director. Mr. Hemsley holds an M.B.A. degree from City University Business School.

Andrew Lowenthal. Mr. Lowenthal is our Executive Vice President, Co-Head of Markets Division, a position he has held since March 2018. Previously, he was Senior Vice President, Head of Global Derivatives of the Company's subsidiary Cboe Exchange, Inc. from March 2017 to March 2018 and Senior Vice President, Business Development of Cboe Exchange, Inc. from September 2016 to March 2017. He has also held various positions with increasing responsibility and oversight in the business development area since joining the Company in 1983. Mr. Lowenthal attended the University of Michigan and holds a B.S. degree from DePaul University and an M.B.A. degree from DePaul University.

Patrick Sexton. Mr. Sexton is our Executive Vice President, General Counsel and Corporate Secretary, a position he has held since March 2018. Previously, he was Deputy General Counsel of the Company's subsidiary Cboe Exchange, Inc. He has served in that capacity since July 2013 and has acted as legal, regulatory and compliance counsel with increasing responsibility and oversight since joining the Company in 1997. Mr. Sexton holds a B.A. degree from the University of Notre Dame and a J.D. degree with honors from Notre Dame Law School.

Jill Griebenow. Ms. Griebenow is our Senior Vice President, Chief Accounting Officer, a position she has held since August 2018. Previously, she served as Chief Financial Officer, Europe of the Company's subsidiary Cboe Europe Limited, a position she was appointed to upon the Company's acquisition of Bats. She also previously served as Chief Financial Officer, Europe of Bats' subsidiary Bats Europe Limited since February 2014 and was employed by Bats in the financial area since 2011. Prior to that, she has also held various positions at Ernst & Young LLP. Ms. Griebenow is a certified public accountant and holds a bachelor's degree in accounting from the University of Northern Iowa.

Available Information

Our website is www.cboe.com. The Company files annual, quarterly and current reports, proxy statements and other information with the SEC under the Exchange Act. The Company makes available, free of charge, on its website its annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as soon as reasonably practicable after such reports are electronically filed with, or furnished to, the SEC. The Company's reports filed with, or furnished to, the SEC are also available on the SEC's website at www.sec.gov.

In addition, we have posted on our website the charters for our (i) Audit Committee, (ii) Compensation Committee, and (iii) Nominating and Governance Committee, as well as our Code of Business Conduct and Ethics and Corporate Governance Guidelines. We will provide a copy of these documents without charge to stockholders upon written request to Investor Relations, Cboe Global Markets, Inc., 400 South LaSalle Street, Chicago, Illinois 60605. Our website and information included in or linked to our website are not part of this Form 10-K.

Table of Contents

Item 1A. Risk Factors.

The risks and uncertainties described below are those that we believe are material at this time relating to our business. 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.

Loss of our right to exclusively list and trade certain index options and futures could have a material adverse effect on our financial performance.

We hold exclusive licenses to list securities index options on the S&P 500 Index, the Russell 2000 Index, as well as others, granted to us by the owners of such indexes and based on which we have developed our proprietary VIX methodology. In 2018, approximately 64.7% of our net transaction fees (defined below) were generated by futures and index options, the overwhelming majority of which were generated by our exclusively-licensed products and products based on the VIX methodology. The bulk of this revenue is attributable to our S&P 500 Index options and VIX Index options and futures. As a result, our net revenues are dependent in large part on the exclusive licenses we hold for these products and our ability to maintain our exclusive VIX methodology.

There is a risk, with respect to each of our current exclusive licenses, that the owner of the index may not renew the license with us on an exclusive basis or at all. In the first event, we would be subject to multiple listing in the trading of what is now an exclusive index product, which could result in a loss of market share and negatively impact our profitability. In the second event, we could lose the right to list the index product entirely. The loss or limited use of any of our exclusive index licenses, especially for the S&P 500 Index, for any reason could have a material adverse effect on our business and profitability.

In addition to the risks related to our exclusive licenses, if we are unable to retain exclusive proprietary rights in the VIX methodology, our volatility products could be subject to multiple listing, which could have a material adverse effect on us.

The E.U. has adopted legislation commonly referred to as MiFIR that will require the person with proprietary rights to a benchmark to provide non-discriminatory access to that benchmark to trading venues and central counterparty clearing houses for the purposes of trading and clearing. Licenses to the benchmark must be provided on fair, reasonable and non-discriminatory terms. In addition, the E.U. implemented at the beginning of 2018 legislation known as the Benchmark Regulation that may impact the ability of European investors to trade our U.S. benchmark products if they are not recognized, authorized, endorsed or deemed equivalent in the E.U. While similar legislation to MiFIR has not been proposed in the U.S., if it were passed, it could cause us to lose exclusivity in our internally developed and licensed index products. The new European legislation may impact our expansion activities of our U.S. benchmark products in Europe, and may reduce the volume on our US options and futures exchanges from international customers.

Furthermore, our competitors may succeed in providing a market for the trading of index-based or volatility products that are economically similar to those that we offer. It is also possible that a third party may offer trading in index-based products that are the same as those that are the subject of one of our exclusive licenses, but in a jurisdiction in which the index owner cannot require a license or in a manner otherwise not covered by our exclusive license.

The value of our exclusive licenses to list securities index options and futures also depends on the continued ability of index owners to require licenses for the trading of options and futures based on their indexes. Although we and the

index owners have prevailed in legal actions challenging our rights to exclusively license indexes, we may be subject to changes in the law or other actions taken in the future that might impede our ability to exclusively offer trading in certain index options and futures.

Table of Contents

General economic conditions and other factors beyond our control could significantly reduce demand for our products and services and harm our business.

The volume of exchange transactions and the demand for our products and services are directly affected by economic, political and market conditions in the U.S., Europe and elsewhere in the world that are beyond our control, including:

- economic, political and geopolitical market conditions;
- broad trends in business and finance;
- concerns over inflation and wavering institutional or retail confidence levels;
- government or central bank actions, such as changes in government fiscal and monetary policy and foreign currency exchange rates;
- other legislative and regulatory changes;
- the availability of short-term and long-term funding and capital;
- the perceived attractiveness of the U.S. or European capital markets;
- the availability of alternative investment opportunities;
- changes in the level of trading activity in underlying instruments;
- changes and volatility in the prices of securities;
- changes in the volume of foreign currency transactions;
- changes in supply and demand for currencies;
- movements in currency exchange rates;
- the level and volatility of interest rates;
- changes in the financial strength of market participants;
- consolidation among market participants and market data subscribers;
- unforeseen market closures or other disruptions in trading; and
- disruptions due to terrorism, war, extreme weather events or other catastrophes

Any of these factors, individually or collectively, could have a material adverse effect on our business, financial condition and operating results by causing a substantial decline in the financial services markets and reducing trading volumes and demand for market data.

We operate in a highly regulated industry and may be subject to censures, fines and other legal proceedings if we fail to comply with legal and regulatory obligations.

Cboe Options, C2, BZX, BYX, EDGX and EDGA are registered national securities exchanges and self-regulatory organizations (“SROs”), and, as such, are subject to comprehensive regulation by the SEC. CFE is a designated contract market (“DCM”), and Cboe SEF is a swap execution facility (“SEF”), each registered with the CFTC and subject to comprehensive regulation by the CFTC. In addition to its other SRO responsibilities, BZX, as a listing market, also is responsible for evaluating applications submitted by issuers interested in listing their securities on BZX and monitoring each issuer’s compliance with BZX’s continued listing standards. Failure to comply with these SRO responsibilities could result in potential sanctions or fines and a negative impact on Cboe’s reputation or branding.

Our European business is subject to regulatory oversight in the U.K. by the U.K. Financial Conduct Authority (“FCA”), which through the “passporting” regime provides authorization to carry on business in other Member States of the E.U. and the European Economic Area in accordance with the applicable E.U. legislation and regulation to which our European business is subject. If a regulatory authority makes a finding of non compliance, conditional fines could be imposed, and our licenses could be revoked. Any such fine or revocation of a license could have a material adverse effect on our business, financial condition and operating results.

In addition to the requirements related to operating our U.S. markets imposed by the SEC and the CFTC, we also have certain responsibilities for regulating the TPHs and members that trade on our exchanges. While we have entered into agreements under which FINRA with respect to our options and equities exchanges, and NFA with respect to our

Table of Contents

futures exchange, provide certain regulatory services, we retain ultimate responsibility for the regulation of our TPHs and members.

Our ability to comply with applicable laws and rules is largely dependent on the establishment and maintenance of appropriate systems and procedures, our ability to attract and retain qualified personnel, the ability of FINRA and NFA to perform under the regulatory services agreements and our oversight of the work done by FINRA and NFA. The SEC and CFTC have broad powers to audit, investigate and enforce compliance and to punish noncompliance by, as applicable, SROs, DCMs and SEFs pursuant to applicable laws, rules and regulations.

If a regulatory authority were to find one of our programs of enforcement or compliance to be deficient, our SROs, DCM, or SEF could be the subject of investigations and enforcement proceedings that may result in substantial sanctions, including revocation of registration as a national securities exchange, DCM, or SEF. Any such investigations or proceedings, whether successful or unsuccessful, could result in substantial costs, the diversion of resources, including management time, and potential harm to our reputation, which could have a material adverse effect on our business, financial condition and operating results. In addition, our SROs, DCM, or SEF may be required to modify or restructure their regulatory functions in response to any changes in the regulatory environment, or they may be required to rely on third parties to perform regulatory and oversight functions, each of which may require us to incur substantial expenses and may harm our reputation if our regulatory services are deemed inadequate. For example, if we are unable to fulfill our obligations under the consent orders with the SEC with respect to Cboe Options and C2, it may have a significant adverse impact on our business, financial condition and operating results.

In addition, SROs are required by federal law to perform a variety of regulatory functions. In light of those responsibilities, courts have held that SROs are immune from damages for some civil claims related to actions that are incident to their regulatory responsibilities. There is a risk that a court might not adopt the immunity doctrine, and whether a court that recognizes the doctrine would apply it to a claim depends on the nature of the claim. In addition, we could be exposed to liability to regulators or other governmental authorities even in situations where immunity would bar a civil claim.

Our business may be adversely affected by price competition.

The securities industry is characterized by intense price competition, especially with respect to transaction fees. We may be required to adjust pricing to respond to actions by new or existing competitors, which could adversely impact our business, financial condition and operating results. We also compete with respect to the pricing of market data and value-added market data, such as historical market data.

In our options segment, the pricing model for trade execution has changed in response to competitive market conditions, and our competitors have adjusted transaction fees and fee structures accordingly, including by opening new exchanges, which allow them to offer multiple pricing models that can appeal to different segments of market participants. These changes have resulted in significant pricing pressures on us, especially on transaction fees and incentives for multiply-listed products. As a result of these pricing pressures, our average rate per multiply-listed options contract may decrease. It is likely that this pressure will continue and even intensify as our competitors continue to seek to increase their share of trading by further reducing their transaction fees or by offering other financial incentives to order providers and liquidity providers to induce them to direct orders to their markets.

In addition, one or more competitors may engage in aggressive pricing strategies and significantly decrease or completely eliminate their profit margin for a period of time in order to capture a greater share of trading volume. Some order-providing firms on our exchanges have taken ownership positions in options exchanges that compete with us and such exchanges have given those firms added economic incentives to direct orders to them.

With respect to our proprietary products, we compete with futures exchanges and swap execution facilities that offer similar products and other financial market participants that offer over-the-counter derivatives. We also compete against certain multiply-listed options products, including SPY, which offer some of the features of our proprietary products.

Table of Contents

To attract market share, we may offer "inverted" pricing specials or no transaction fee trading from time to time. BZX also offers a "cross asset add volume tier" that gives a bigger rebate for additional volume on both the BZX equities and options platforms. These forms of promotions may adversely affect our profitability.

If we are unable to compete successfully with respect to the pricing of our services and products, our business, financial condition and operating results may be adversely affected. We could lose a substantial percentage of our share of trading if we are unable to price transactions in a competitive manner. Also, our profits could decline if competitive pressures or regulatory changes, such as the transaction fee pilot, force us to reduce fees.

A significant portion of our operating revenues is generated by our transaction-based business. If the amount of trading volume on our exchanges decreases, or the product mix shifts to lower revenue products, our revenues from transaction fees will most likely decrease.

In 2018, approximately 68.6% of our net revenues were generated by our transaction-based business. This business is dependent on our ability to attract and maintain order flow, both in absolute terms and relative to other market centers. If the amount of trading volume on our exchanges, CFE or notional value traded on Cboe FX and Cboe Europe Equities exchanges decreases, we are likely to see a decrease in transaction fees.

Our total trading volumes could decline if our market participants reduce their trading activity for any reason, such as:

- heightened capital requirements;
- transaction tax;
- regulatory or legislative actions;
- reduced need to trade due to changes in volatility and/or passive investment trends;
- reduced access to capital required to fund trading activities;
- consolidation among market participants; or
- significant market disruptions.

Over the past few years, a number of legislative actions have been taken, both domestically and internationally, that may cause market participants to be subject to increased capital requirements and additional compliance burdens. These actions, including the Collins Amendment to Dodd-Frank, MiFID II and MiFIR, may cause market participants to reduce trading activity on our exchanges.

In addition, the transaction fees generated are different based on type of product and other factors, including the type of customer and certain volume discounts. If the amount of our trading volume decreases, the mix traded shifts to our lower revenue per contract products or the transaction fee pilot is implemented, our revenues from transaction fees will most likely decrease. We can offer no assurance that we would be able to reduce our costs to match the amount of any such decrease.

Our market data fees, connectivity fees and revenues may be reduced due to declines in our market share, trading volumes or regulatory changes.

The occurrence of any event that reduces the amount of market data fees that we receive, whether as a result of fee reductions, fewer members subscribing to the U.S. tape plans, declines in market share or trading volumes (or notional volume in the case of Cboe Europe Equities) or regulatory changes, will have a direct negative impact on our business, financial condition and operating results. For example, if our market share of U.S. listed cash equities and options, or Cboe's European cash equities trading, were to decline, our share of market data fees could also decline. Moreover, market data fees could decline as a result of a reduction in the numbers of market data users, for example because of consolidation among market data subscribers or due to a decline in professional subscriptions as a result of staff reductions in the financial services industry or otherwise.

29

Table of Contents

Regulatory and legal developments could also impact the fees we receive from market data and connectivity, or our cost in providing such services. In the U.S., we are generally required to file with the SEC any changes to the fees that we charge for our securities market data products and connectivity fees. In recent years, certain industry groups have objected to the ability of exchanges to charge for certain market data products. Specifically, the Securities Industry and 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 our market data products, connectivity fees and related services. Further, the SEC and some media have been scrutinizing market data and market access in late 2018. An adverse ruling in these matters or additional scrutiny could cause the SEC to more closely examine exchange market data and connectivity fees, which in turn could result in our having to reduce the fees we charge for market data and connectivity and there could be a negative impact on our revenues. See Note 23 ("Commitments, Contingencies, and Guarantees—Legal Proceedings") for more information.

We believe Cboe Europe Equities currently offers market data to customers on a non discriminatory basis at a reasonable cost. As regulators determine how market data should be disaggregated and what is a reasonable commercial basis for providing market data, it could affect our ability to offer market data products in the same manner that we do today thereby causing an adverse effect on our European market data revenues. While MiFID II and MiFIR aim to encourage a commercial solution to a consolidated tape in Europe, should this fail to materialize, policy makers might be encouraged to implement a mandatory solution that could impact our ability to develop our own commercial offering.

Legislative or regulatory changes affecting our markets could have a material adverse effect on our business, financial condition and operating results.

Changes in regulation by the SEC, CFTC, FCA, foreign regulators or other government action, including SEC approval of rule filings by other SROs or entities, including OCC, could materially affect our markets. In recent years, the securities and derivatives industries have been subject to regulatory changes as a result of increasing government and public scrutiny of the securities and derivatives industries. We have also experienced an increase in rulemaking and legislation that could affect our business.

Starting in 2015, large U.S. banks were required to use a calculation methodology known as the current exposure method ("CEM") to compute regulatory capital requirements associated with the clearing guarantee provided by bank-affiliated OCC clearing members. U.S. banks, as well as European banks that also apply CEM, are required to maintain regulatory capital that is disproportionate to the risk of clearing options contracts and has led to further increases in capital requirements for bank holding companies and bank subsidiaries involved in the trading and clearing of derivatives. In October 2018, the Board of Governors of the Federal Reserve, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency proposed to replace CEM with a more risk-sensitive calculation method known as the standardized approach to counterparty credit risk ("SA-CCR"), which is expected to reduce capital requirements associated with the clearing of listed options. If CEM is not replaced or the implementation of SA-CCR does not reduce capital requirements, we may experience a reduction in trading in options and futures due to bank-affiliated clearing members charging their customers more to trade, reducing the type or number of customers or withdrawing from the business of market-maker clearing.

Further, Congress, regulators and some media have been increasingly scrutinizing electronic trading, the structure of equity markets and high frequency trading in recent years. The SEC continues to consider various potential market structure changes, which could result in reduced trading volumes, or which could negatively affect our business. To the extent the SEC adopts regulatory changes, our business, financial condition and operating results could be negatively impacted. In addition, the continued growth of high frequency trading has been the subject of private litigation and regulatory enforcement actions alleging that high frequency trading firms have received unfair advantages at the expense of other traders. High frequency trading accounts for a meaningful percentage of the daily

volume in the U.S. and European equity markets, and these actions and other efforts to slow trading could lead to a reduction in trading volumes, negatively impacting all trading markets, including our business. Additionally, in September 2018, the SEC held a roundtable on market data and market access to discuss a number of topics, including market data revenue received by exchanges. To the extent the SEC adopts regulatory changes related to market data and market access (connectivity), our business, financial condition and operating results could be negatively impacted.

Table of Contents

In addition, as discussed above, in December 2018, the SEC approved the transaction fee pilot. The transaction fee pilot may cause Cboe'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. See Note 23 ("Commitments, Contingencies, and Guarantees—Legal Proceedings") for more information.

Under E.U. regulations, European banks and other European financial institutions become subject to punitive capital charges if they transact options or futures through a non-qualifying clearinghouse. OCC, our clearinghouse for options and futures, is not currently recognized as a qualified clearinghouse by the E.U.; however, the OCC is working with the E.U. to qualify as a foreign clearinghouse equivalent. As a prerequisite to becoming qualified, OCC could be required by the E.U. to contribute significant capital to its default waterfall applicable in the event of clearing member default. This capital could be required to be drawn before the default fund contributions of non-defaulting clearing members in the event that a defaulting clearing member's margin and other contributions were to be exhausted. OCC's stockholders, including Cboe Options, could effectively be required to fund this capital. If the E.U. does not recognize OCC as a qualified clearinghouse by June 15, 2019 (or by a subsequent date in the event that the current deadline is extended), then European market participants that clear through OCC would become subject to punitive capital charges. As a result, we could experience the loss of a significant number of European market participants and a significant reduction in trading activity on our options and futures markets, which could have a material adverse effect on our business, financial condition and operating results.

MiFID came into effect in 2007 regulating the market for execution services within European listed cash equity securities. MiFID has been superseded and enhanced by MiFID II and MiFIR, which were implemented at the beginning of 2018. The implementation of MiFID II and MiFIR in Europe has resulted in an alteration of the existing MiFID structure that has encouraged competition among market centers in Europe. MiFID II and MiFIR introduce a number of new rules, including enhanced internal organizational and compliance monitoring requirements, which apply directly to European trading venues such as our MTF and RM. The impact of MiFID II and MiFIR is significant, and could reduce trading volumes and trading fees, while increasing our costs of operating in Europe.

The legislative and regulatory environment in which the spot FX market operates is evolving and has undergone significant changes in the recent past, and there may be future regulatory changes in the spot FX industry. Spot FX market participants have seen an increasing number of law enforcement actions and regulatory inquiries into their business practices, resulting in the publication of the Global Code as a means to reach global consensus on standards of good conduct in the wholesale FX market. The governmental bodies and regulatory organizations that regulate parts of the spot FX market may enact, propose and may consider legislative and regulatory initiatives and may adopt new or revised laws and regulations. Changes in the interpretation or enforcement of existing laws and regulations by these entities, or the adoption of new legal or regulatory requirements, may also adversely affect our spot FX business. Further, our FX non-deliverable forwards business may also be adversely affected by proposed regulatory changes to the rules governing swap execution facilities.

It is also possible that there will be additional legislative and regulatory changes or efforts in the environment in which we operate our businesses. Actions on any of the specific regulatory issues currently under review in the U.S. or Europe and other proposals could have a material impact on our business.

In addition, U.S. and foreign legislatures and regulators and other regulatory authorities could impose legislative or regulatory changes that could adversely impact the ability of our market participants to use our markets or participate in the securities industry at all. Any such changes could result in the loss of a significant number of market participants or a reduction in trading activity on our markets, either of which could have a material adverse effect on our business, financial condition and operating results. Changes or proposed changes in regulation may also result in additional costs of compliance and modification of market participants' trading activity on our exchanges and markets.

31

Table of Contents

A failure to migrate our information technology systems successfully following the Merger or a material disruption in our information technology systems could adversely affect our business, financial condition and operating results.

We rely extensively on our information technology systems. The failure of information technology systems to operate effectively, difficulty in migrating our information technology systems, inconsistencies in standards, controls, procedures and policies and problems with transitioning to upgraded or replacement systems could adversely impact our business, financial condition and operating results. In addition, a number of our TPHs are not connected to Bats' technology platforms and must complete the process of connecting to these platforms as part of the migration.

Although we have successfully migrated CFE and C2 to the Bats' technology platforms, the process of migrating Cboe Options may take longer, cost more and provide fewer synergies than initially anticipated. There may also be new regulations adopted during the transition period that require systems changes, which could divert attention away from migration process and cause delays. To the extent this occurs, the anticipated benefits of the Bats acquisition may be reduced or delayed or may never come to fruition. Although our combined management team has experience with migrating other businesses and CFE and C2 to Bats' technology platform, there are certain portions of our Cboe Options business, such as open outcry trading that have not yet been supported by Bats' technology platform.

We currently expect to complete the migration of Cboe Options by October 7, 2019. However, we may not be able to successfully achieve the transition on the timetable currently contemplated, and the transition may not be successful, have inadequate performance or could encounter various difficulties and unexpected issues. Any delays, trading disruptions or issues that we encounter in the transition could have a material adverse effect on our businesses and could negatively affect our reputation, which in turn could have a material adverse effect on our overall business, results of operations and financial condition, as well as impair customer confidence in our product offerings and overall services or be subject to heightened regulatory scrutiny.

The technology upon which we rely, including those of our service providers, may be vulnerable to security risks, cybersecurity risks, insider threats, unauthorized disclosure of confidential information, operational disruptions, and other risks and events that could harm our business.

The secure and reliable operation of our technology, including our computer systems and communications networks, and those of our service providers and market participants, is a critical element of our operations. These systems and networks may be subject to various cybersecurity incidents, improper or inadvertent access to or disclosure of confidential, commercially sensitive, or personally identifiable information, data theft, corruption or destruction, cyber-attack, malware and other security problems, as well as acts of terrorism, natural disasters, human error, criminal insider activity, power loss and other events that are beyond our control. For example, in 2018, we discovered and investigated, and are continuing to further investigate as of the date of this filing, an incident involving a suspected theft of computer servers and networking devices. Additionally, as of the date of this filing, we believe that a number of the suspected stolen servers may have contained a limited amount of firm-specific trading data from in or before 2017, but we did not find evidence that the servers or devices contained personally identifiable information. We continue to review and enhance our policies, procedures and controls around the protection of our computer systems and communications networks to minimize the risk of reoccurrence.

We currently maintain physical, technical, and administrative safeguards to protect the confidentiality, integrity, availability and reliability of our systems, networks and information more broadly, and to guard against cybersecurity incidents and unauthorized access. We also maintain and continue to enhance measures for tracking and appropriately disposing of technology equipment hardware during technology updates and migrations. Collectively, these safeguards and measures may prove inadequate to prevent the attendant risk posed by cybersecurity incidents, subjecting us to contractual restrictions, liability and damages, loss of business, penalties, unfavorable publicity, and increased scrutiny by our regulators, and materially impacting our financial condition and operating results. We may

be required to expend significant resources in the event of any real or threatened breaches in security or system failures, including to protect against threatened breaches, to alleviate harm caused by an actual breach, and to address any reputational harm or litigation or regulatory liability. Such harms also could cause us to lose market participants, experience lower trading volume, and negatively impact our competitive advantage and business, financial condition and operating results.

Table of Contents

Additionally, as threats continue to evolve and increase, and as the regulatory environment related to information security, data collection and use, and privacy becomes increasingly rigorous, we may be required to devote significant additional resources to modify and enhance our security controls and to identify and remediate any security vulnerabilities, which could have an adverse effect on our business, financial condition and operating results.

Intense competition could materially adversely affect our market share and financial performance.

The market for trade execution services and products is intensely competitive in the asset classes and geographies in which we operate. Increased competition may result in a decline in our share of trading activity and a decline in our revenues from transaction fees and market data fees, thereby adversely affecting our operating results. We compete with a number of entities on several different fronts, including the cost, quality and speed of our trade execution, functionality and ease of use of our trading platform, range of our products and services, our technological innovation and adaptation and our reputation. See “Business – Competition.”

Some of our competitors and potential competitors have greater financial, marketing, technological, personnel and other resources than we do. These factors may enable them to develop similar or more innovative products, to offer lower transaction fees or better execution to their customers or to execute their business strategies more quickly or efficiently than we can. In addition, our business, financial condition and operating results may be adversely affected if we cannot successfully develop, introduce and/or market new services and products or if we need to adopt costly and customized technology for our services and products.

Furthermore, new or existing competitors may:

- respond more quickly to competitive pressures;
- develop products that compete with our products or are preferred by our customers;
- offer products and services at prices below ours to gain market share and to promote other businesses;
- develop and expand their technology and service offerings more efficiently;
- provide better, more user-friendly and more reliable technology;
- take greater advantage of acquisitions, alliances and other opportunities;
- market, promote, bundle and sell their products and services more effectively;
- leverage existing relationships with customers and alliance partners more effectively or exploit brand names to market and sell their services; and
- exploit regulatory disparities between traditional, regulated exchanges and alternative markets, including over-the-counter markets, that benefit from a reduced regulatory burden and lower-cost business model.

If our products, markets, services and technology are not competitive or we fail to anticipate or respond adequately to changes in technology, customer preferences and regulatory requirements or any significant delays in product development efforts our business, financial condition and operating results could be materially harmed.

We depend on third-party service providers for certain services that are important to our business. An interruption, significant increase in fees or cessation or impairment of such service by any third party could have a material adverse effect on our business, financial condition and operating results.

We depend on a number of service providers, including clearing organizations such as OCC, NSCC, LCH, EuroCCP and SIX x clear; securities information processors such as the CTA, UTP Securities Information Processor and OPRA; regulatory and other service providers such as FINRA, NFA, OCC and Thesys; the hosts of our data and disaster recovery centers; and various vendors of communications and networking products and services. In addition, we also depend on third party routing and clearing firms who are involved in processing transactions on our behalf. More specifically:

· If OCC, NSCC, EuroCCP, LCH and SIX x-clear were unable to perform clearing services for existing or new products, or their clearing members were unable or unwilling to clear through them, transactions could likely not occur on our markets or there may be delays, including until clearing is moved to another clearing agency.

Table of Contents

In 2018, approximately 64.7% of our net transaction fees were generated by options and futures that were cleared through OCC.

- OPRA, UTP Securities Information Processor and the CTA consolidate options and equities market information such as last sale reports and quotations. If any of them were unable to provide this information for a sustained period of time, we may be unable to offer trading on our options and equities markets.
- We are heavily dependent on technology for our markets, including our data and disaster recovery centers, including those housed by third parties, and certain communications and networking products and services. If this technology is unavailable, and cannot be replaced in a short time period, we may be unable to operate our markets.
- FINRA, OCC, and NFA provide certain regulatory services and functions for our options, equities and futures exchanges, while we retain regulatory responsibilities for such services. If FINRA, OCC, or NFA stopped providing services, or provided inadequate services, we may be subject to action by the SEC or CFTC, or may have limitations placed upon our markets.
- We rely on Thesys to provide services for the implementation of the CAT. Thesys is expected to be replaced by a new plan processor. If Thesys or the new plan processor stop providing services, provide inadequate services or we experience difficulties in the transition to a new plan processor, we and the other execution venues may incur regulatory liability including enforcement action by the SEC or limitations placed upon our markets. In addition, until the SEC approves a funding model that shares the cost of the CAT between the execution venues and industry members, the execution venues may continue to incur additional significant costs, including as a result of engaging a new plan processor, or result in the uncollectibility of promissory notes related to the funding of the implementation and operation of the CAT.
- We rely on third party routing and clearing firms to clear trades in U.S. listed cash equity securities routed by us to other markets, and to execute trades in options that we route to other markets.

With respect to options, all contracts traded on our exchanges must be cleared through clearing members of OCC. At December 31, 2018, there were 95 TPHs that are clearing members of OCC. Two clearing members accounted for approximately 52.5% of transaction and other fees collected through OCC in 2018. The next largest clearing member accounted for approximately 15.8% of transaction and other fees collected through OCC. Additionally, the two largest clearing members clear the majority of the market-maker sides of transactions at Cboe Options, C2, BZX, EDGX and at all of the options exchanges. Should a clearing member or liquidity provider exit the business or withdraw from our options exchanges, enact additional market-maker financial requirements or if market-makers were unable to transfer to another clearing member or other liquidity providers were unable to provide additional liquidity, this could create a significant disruption to the options markets, including ours.

We cannot provide assurance that any of these providers will be able to continue to provide these services in an efficient manner or that they will be able to adequately expand their services to meet our needs. An interruption or malfunction in or the cessation or impairment of an important service by a third party or disruption of a third party's operations could cause us to halt trading in some or all of our products or our services, make us unable to conduct other aspects of our business, cause us to experience the loss of a significant number of market participants or cause us to experience a significant reduction in trading activity on our options and futures markets, each of which could have a material adverse effect on our business, financial condition and operating results. In addition, our inability to make alternative arrangements, such as moving clearing to another clearing agency, in a timely manner, or at all, could have a material adverse impact on our business, financial condition and operating results.

Our operations outside of the U.S. expose us to currency risk.

In addition to our operations in the U.S., we have operations in the U.K., continental Europe, Ecuador, Hong Kong and Singapore. We, therefore, have exposure to exchange rate movements between the British pound, the Euro, the Hong Kong dollar, and the Singapore dollar against the U.S. dollar. Significant inflation or changes in foreign exchange rates with respect to one or more of these currencies could occur as a result of general economic conditions, acts of war or terrorism, changes in governmental monetary or tax policy, Brexit or changes in local interest rates.

These exchange rate differences will affect the translation of our non U.S. results of operations and financial condition into U.S. dollars as part of our consolidated financial statements.

Table of Contents

If one or more of the index providers from which we have licenses or service providers with respect to proprietary products fails to maintain the quality and integrity of their indexes or fails to perform under our agreements with them or if customer preferences change, revenues we generate from trading in these proprietary products may suffer.

We are a party to a number of license agreements pursuant to which we may list for trading securities options on various indexes including license agreements that we have with S&P, for the S&P 500 Index and S&P 100 Index, S&P, for the DJIA, LSEG, for more than two dozen FTSE Russell indexes, including the Russell 2000 Index, and MSCI Inc., for six MSCI indexes, including the MSCI EAFE Index and MSCI Emerging Markets Index. These license agreements provide that we are authorized to list options on their indexes, and some of the resulting index options are among the most actively traded products on our exchanges. The quality and integrity of each of these indexes are dependent on the ability of the index providers to maintain the index, including by means of the calculation and rebalancing of the index, and we are dependent on the index providers for a number of things, including the provision of index data to us. We also rely on index providers to enforce intellectual property rights against unlicensed uses of the indexes and uses of the indexes that infringe on our licenses. Furthermore, some of our agreements concerning our proprietary products provide for the parties to those agreements to provide important services to us. If any of our index providers are unable to maintain the quality and integrity of their indexes, or if any of the index providers or service providers fail to perform their obligations under the agreements, trading in these products, and therefore transaction fees we receive, may be adversely affected or we may not receive the financial benefits of the agreements that we negotiated.

We and our licensors may not be able to protect our respective intellectual property rights.

We rely on patent, trade secret, copyright and trademark laws, the law of the doctrine of misappropriation and contractual protections to protect our proprietary technology, proprietary products, index methodologies and other proprietary rights. In addition, we rely on the intellectual property rights of our licensors in connection with our listing of exclusively-licensed index and futures products. We and our licensors may not be able to prevent third parties from copying, or otherwise obtaining and using, our intellectual property without authorization, listing our proprietary or exclusively-licensed index products without licenses or otherwise infringing on our rights. We and our licensors may have to rely on litigation to enforce our intellectual property rights, determine the validity and scope of the proprietary rights of others or defend against claims of infringement or invalidity. We and our licensors may not be successful in this regard. Such litigation, whether successful or unsuccessful, could result in substantial costs to us, diversion of our resources or a reduction in our revenues, any of which could materially adversely affect our business.

Any infringement by us on intellectual property rights of others could result in litigation and could have a material adverse effect on our operations.

Our competitors, as well as others, have obtained, or may obtain, patents or may otherwise hold intellectual property rights that are related to our technology or the types of products and services we offer or plan to offer. We may not be aware of all intellectual property that may pose a risk of infringement by our products, services or technologies. In addition, some patent applications in the U.S. are confidential until a patent is issued, and therefore we cannot evaluate the extent to which our products and services may be covered or asserted to be covered in pending patent applications. Thus, we cannot be sure that our products and services do not infringe on the rights of others or that others will not make claims of infringement against us. Claims of infringement are not uncommon in our industry, and even if we believe that such claims are without merit, they can be time-consuming and costly to defend and divert management resources and attention. If one or more of our products, services or technologies were determined to infringe a patent or other intellectual property right held by another party, we may be required to pay damages, stop using, developing or marketing those products, services or technologies, obtain a license from the holders of the patents or redesign those products, services or technologies to avoid infringing the patent. If we were required to stop using, developing or marketing certain products, our business, financial condition and operating results could be

materially harmed. Moreover, if we were unable to obtain required licenses, we may not be able to redesign our products, services or technologies to avoid infringement, which could materially adversely affect our business, financial condition and operating results.

Table of Contents

If we fail to attract or retain highly skilled management and other employees, including those experienced with integration of our business, our business may be harmed.

Our success largely depends on the skills, experience and continued efforts of management and other key personnel. As a result, to be successful, we must retain and motivate executives and other key employees. We expect to benefit from the integration experience of certain employees who were formerly Bats personnel. However, we have no assurances that these employees will remain with us. The roles and responsibilities of departing executive officers and employees will need to be filled either by existing or new officers and employees, which may require us to devote time and resources to identifying, hiring and integrating replacements for the departed executives and employees that could otherwise be used to advance integration or otherwise pursue business opportunities, which could have a material adverse effect on our overall business, financial condition and operating results.

Additionally, certain of our information technology employees will be important to retain during the migration period to effectively manage our technology platforms and to assist in the process of migrating our systems to the Bats' technology platform. Many of these employees have extensive knowledge and experience in highly technical and complex aspects of Cboe Command. Because of the complexity and risks associated with our business and the specialized knowledge required to conduct this business effectively, and because the growth in our industry has increased demand for qualified personnel, many of our employees could find employment at other companies if they chose to do so, particularly if we fail to continue to provide competitive levels of compensation. Also, our employees may experience uncertainty about their future roles until integration strategies following the Merger are executed. These circumstances may adversely affect our ability to retain key personnel. We also must continue to motivate employees and maintain their focus on our strategies and goals. Doing so may be difficult due to the uncertainty and challenges associated with post-merger integration. In addition, if these personnel were to leave or we are unable to recruit highly qualified personnel, we may experience increased difficulty in the integration process, synergy realization, maintenance of the current technology platform and may not be able to adequately replace such personnel, which could have a material adverse effect on our overall business, results of operations and financial condition.

There is substantial competition for qualified and capable personnel in the technology space, which may make it difficult for us to retain and recruit qualified employees in sufficient numbers. If we fail to retain our current employees, it would be difficult and costly to identify, recruit and train replacements needed to continue to conduct and expand our business. In particular, failure to retain and attract qualified systems personnel could result in systems failures. Consequently, our reputation may be harmed, we may incur additional costs and our profitability could decline. There can be no assurance that we will be able to retain and motivate our employees in the same manner as we have historically done.

Additionally, effective succession planning is also important to our long-term success. Failure to ensure effective transfer of knowledge and smooth transitions involving our management team and key employees could hinder our strategic planning and execution.

Computer and communications systems failures and capacity constraints could harm our reputation and our business.

Our business depends on the integrity and performance of our computer and communications systems. If our systems cannot expand to cope with increased demand or otherwise fail to perform, including during migrations from the Cboe Command platform to the Bats technology platform, we could experience unanticipated disruptions in service, slower response times and delays in the introduction of new products and services. These consequences could result in trading outages, lower trading volumes, financial losses, decreased customer service and satisfaction and regulatory sanctions and could have a material adverse effect on our ability to conduct our business. Although we have a back-up plan of significant trading and key corporate systems, the back-up systems or disaster recovery plans may prove to be inadequate in the event of a systems failure or cyber-security breach. Despite having disaster recovery facilities, there

can be no guarantees that we will be able to open an efficient, transparent and liquid marketplace, if we can open at all, following a systems failure. Moreover, with extended trading hours, we have to operate our systems longer and have fewer non-trading hours to address any potential concerns with the systems on which we rely.

Table of Contents

Our markets have experienced occasional systems failures and delays in the past and in the future our systems may fail, in whole or in part, or may operate slowly, causing one or more of the following:

- unanticipated disruption in service to our participants;
- failures or delays during peak trading times or times of unusual market volatility;
- slower response times and delays in trade execution and processing;
- incomplete or inaccurate accounting, recording or processing of trades; and
- distribution of inaccurate or untimely market data to participants who rely on this data in their trading activity.

Any of these events may cause:

- a loss in transaction or other fees due to the inability to provide services for a time;
- requests by market participants or others that we reimburse them for financial loss, either within the constraints of the limited liability provisions of our exchanges' rules or in excess of those amounts;
- trading volume to diminish on our exchanges due to dissatisfaction with the platform; and
- one or more of our regulators to investigate or take enforcement action against us.

As a consequence of any of these events, our business, financial condition and results of operations could suffer materially.

In addition to other measures, we test our systems to confirm whether they will be able to handle anticipated present and future peak trading activity or times of unusual market volatility. However, we cannot assure you that our estimates of future trading volume will be accurate or that our systems will always be able to accommodate actual trading volume without failure or degradation of performance.

We anticipate that we will need to continue to make significant investments in hardware, software and telecommunications infrastructure to accommodate the increases in traffic. If we cannot increase the capacity and capabilities of our systems to accommodate increasing trading activity and to execute our business strategy, our ability to maintain or expand our businesses would be adversely affected.

Misconduct by our TPHs, members, participants or others could harm us.

We run the risk that our TPHs, members, participants or other persons who use our markets or our products or our employees may engage in fraud, market or product manipulation or other misconduct, which could result in regulatory sanctions and serious harm to our reputation, especially because we are the parent company of SROs. It is not always possible to deter misconduct, or market or product manipulation, and the precautions we take to prevent and detect this activity may not be effective in all cases. In addition, misconduct, or market or product manipulation by, or failures of, participants on our or other exchanges may discourage trading on our exchanges or of our products, which could reduce revenues.

Our use of open source software code may subject our software to general release or require us to re engineer our software, which could harm our business.

The Bats technology platform uses open source software code. Companies that incorporate open source software into their products have, from time to time, faced claims challenging the ownership of open source software. As a result, we could be subject to suits by parties claiming ownership of what we believe to be open source software. In addition, some open source software licenses require users who distribute open source software as part of their software to publicly disclose all or part of the source code in their software and make any derivative works of the open source code available on unfavorable terms or at no cost. Open source license terms may be ambiguous, and many of the risks associated with usage of open source software cannot be eliminated. We believe that our use of open source

software is in compliance with the relevant open source software licenses and does not require disclosure of any of our source code. However, if we were found to have inappropriately used open source software, we may be required to release our proprietary source code, re engineer or discontinue use of our software or take other remedial action.

Table of Contents

Potential conflicts of interest between our for-profit status and our regulatory responsibilities may adversely affect our business.

As a for-profit business with regulatory responsibilities, we are responsible for disciplining TPHs and members for violating our rules, including by imposing fines and sanctions. This may create a conflict of interest between our business interests and our regulatory responsibilities. Any failure by us to fulfill our regulatory obligations could significantly harm our reputation, increase regulatory scrutiny or cause the SEC or CFTC to take action against us, all of which could adversely affect our business, results of operations or financial condition.

Brexit could have a negative impact on the U.K. and E.U. economies and lead to considerable uncertainty while new treaties are negotiated.

On June 23, 2016, the U.K. voted to leave the E.U. in a referendum (the "Brexit Vote"). On March 29, 2017, the U.K. invoked Article 50 with its notice to leave the E.U. The terms and the exact timing of the U.K.'s exit from the E.U. ("Brexit") remain unclear, although it is unlikely to be completed before March 29, 2019. In addition to the economic uncertainty the Brexit Vote brings, there are a number of potential risks that investors should consider:

- Political uncertainty. Following the Brexit Vote, the U.K. has entered into a period of acute political uncertainty both as to the nature and timing of the negotiations with the E.U. Such uncertainty could lead to a high degree of economic and market disruption and legal uncertainty. It is not possible to ascertain how long this period will last and the impact it will have on the U.K. in general and markets more broadly.
- Legal uncertainty. A significant proportion of English law currently derives from or is designed to operate in concert with E.U. law. This is especially true of English law relating to financial markets, financial services, prudential and conduct regulation of financial institutions, bank recovery and resolution, payment services and systems, settlement finality, and market infrastructure. Depending on the timing and terms of the U.K.'s exit from the E.U., significant changes to English law are likely, and we cannot predict what these changes will be and how they may affect our business.
- Regulatory uncertainty. There is significant uncertainty about how the remaining E.U. countries ("EU27") financial institutions with assets (including branches) in the U.K. and U.K. financial institutions with assets in the EU27 will be regulated. At present, E.U. single market regulation allows regulated financial institutions (including credit institutions, investment firms, alternative investment fund managers, insurance and reinsurance undertakings) to benefit from a passporting system for regulatory authorizations required to conduct their businesses, as well as facilitating mutual rights of access to important elements of market infrastructure such as payment and settlement systems. E.U. law is also the framework for mutual recognition of bank recovery and resolution regimes.
- Once the U.K. ceases to be a member state of the E.U., the current passporting arrangements are expected to cease to be effective, as will the current mutual rights of access to market infrastructure and current arrangements for mutual recognition of bank recovery and resolution regimes. The ability of regulated financial institutions to continue to do business between the U.K. and the EU27 after the U.K. ceases to be a member state of the E.U. would therefore be subject to separate arrangements between the U.K. and the EU27. There can be no assurance that there will be any such arrangements concluded and, if they are concluded, on what terms.
- Market uncertainty. Since the Brexit Vote, there has been volatility and disruption of the capital, currency, exchange rates and credit markets. If this disruption continues, it may adversely impact our business, financial condition and operating results.

In 2018, we derived 7.8% of our total net revenues from our U.K. operations. Depending on the outcome of the Brexit negotiations, companies with operations in the U.K. may face unfavorable business conditions to access the single market. In preparation for Brexit, Cboe Europe Equities is planning to establish a new venue in Amsterdam and has applied to the Netherlands Authority for the Financial Markets to become a Regulated Market in the Netherlands. The

Table of Contents

application is expected to be decided by the end of the first quarter of 2019. Cboe Europe Equities may continue to choose to move some or all of its operations to the E.U. and the related costs and expenses could have a material adverse effect on our business, financial condition and operating results.

Damage to our reputation could have a material adverse effect on our business, financial condition and operating results.

We believe one of our competitive strengths is our strong industry reputation. Various issues may give rise to reputational risk, including issues relating to:

- the representation of our business in the media;
- the quality and benefits of using our proprietary products, including the reliability and functionality of our transaction based business, and the accuracy of our market data;
- the ability to execute our business plan, key initiatives or new business ventures and the ability to keep up with changing customer demands and regulatory initiatives;
- our regulatory compliance and our enforcement of compliance on our customers;
- the accuracy of our financial statements and other financial and statistical information;
- the quality of our corporate governance structure;
- the quality of our disclosure controls and internal controls over financial reporting, including any failures in supervision;
- the integrity and performance of our computer and communications systems;
- security breaches, including any unauthorized delivery of proprietary data to third parties;
- management of our outsourcing relationships, including our relationship with FINRA and NFA;
- any misconduct or fraudulent activity by our employees, especially senior management, or other persons formerly or currently associated with us;
- our listings business and our enforcement of our listing rules; and
- any negative publicity surrounding our listed companies.

Damage to our reputation could cause a reduction in the trading volume of our proprietary products or on our exchanges or cause us to lose customers. This, in turn, may have a material adverse effect on our business, financial condition and operating results.

If our risk management and compliance methods are not effective, our business, financial condition and operating results may be adversely affected.

Our ability to comply with all applicable laws and rules is largely dependent on our establishment and maintenance of compliance, audit, risk and reporting systems and procedures, as well as our ability to attract and retain qualified compliance, audit and risk management personnel. These systems and procedures may not be fully effective. We face the risk of intervention by regulatory authorities, including extensive examination and surveillance activity. In the case of actual or alleged non compliance with applicable laws or regulations, we could be subject to investigations and judicial or administrative proceedings that may result in substantial penalties, settlements or civil lawsuits, including by customers, for damages, which may be substantial. In the past, the SEC has brought actions against exchange operators, including us, for failing to fulfill their obligations to have an effective regulatory system. Any failure to comply with applicable laws and rules could adversely affect our business, reputation, financial condition and operating results and, in extreme cases, our ability to conduct our business or portions thereof. As the parent company for SROs, we are responsible for maintaining exchanges that comply with securities and futures laws, SEC and CFTC regulations and the rules of the respective exchanges.

We have methods to identify, monitor and manage our risks. Management of legal and regulatory risk requires policies and procedures to properly monitor, record and verify a large number of transactions and events. If our

policies, procedures, and compliance systems are not effective or we are not successful in monitoring or evaluating the risks to which we are or may be exposed, our business, reputation, financial condition and operating results could be materially adversely affected. We cannot provide assurance that our policies and procedures will always be effective, or that our

Table of Contents

management, compliance department, enterprise risk management program and internal audit department would be able to identify any such ineffectiveness. If these functions, policies and procedures are not effective, we may be subject to monetary or other penalties by our regulators, and our insurance policies may not provide adequate coverage.

Financial or other problems experienced by third parties could have an adverse effect on our business.

We are exposed to credit risk from third parties, including customers, clearing agents and counterparties. For example, we are exposed to credit risk for transaction fees we bill to customers on a monthly basis in arrears. Our customers and other third parties may default on their obligations to us due to a lack of liquidity, operational failure, bankruptcy or other reasons.

In addition, with respect to orders Cboe Trading routes to other markets for execution on behalf of our customers, Cboe Trading is exposed to counterparty credit risk in the case of failure to perform on the part of our routing and clearing firms who are involved in processing equities and options transactions on our behalf, as well as failure on the part of such brokers to pass back any transactional rebates. Wedbush Securities Inc. ("Wedbush"), and Morgan Stanley & Co. LLC ("Morgan Stanley") guarantee equity 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 an equity trade routed to another market center between the trade date and one day after the trade date in the event that Wedbush or Morgan Stanley fails to perform. 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.

With respect to U.S. equities, Cboe Trading has counterparty credit risk exposure to Wedbush and Morgan Stanley related to clearing until the day following the trade date. Cboe Trading uses Wedbush to clear trades routed through affiliates of Credit Suisse Securities (USA) LLC as well as for trades routed directly to other exchanges and optionally dark pools. Morgan Stanley clears trades routed through the Morgan Stanley routing brokers and also clears executions routed to most dark pools. Cboe Trading maintains counterparty credit risk exposure from routing brokers with respect to rebates earned until completion of the routing brokers next invoice cycle following the execution.

With respect to U.S. listed equity and exchange traded product options, Cboe Trading is subject to counterparty credit risk exposure with respect to rebates earned from routing brokers until completion of the routing brokers' next invoice cycle has completed for an execution.

Our exposure to credit risk may be further impacted by volatile securities markets that may affect the ability of our customers and other third parties to satisfy their contractual obligations to us. Moreover, we may not be successful in managing our credit risk through reporting and control procedures or by maintaining credit standards. Any losses arising from such defaults or other credit losses could adversely affect our financial condition and operating results.

While neither Cboe FX nor Cboe SEF has direct counterparty risk, Cboe FX or Cboe SEF 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 and Cboe SEF may have risk that is related to the credit of the banks and prime brokers that trade spot FX on the Cboe FX platform, or non-deliverable forward FX transactions on Cboe SEF.

We may be required to assume ownership of a position in securities in connection with our order routing service, which could subject us to trading losses when our broker-dealer disposes of that position.

We offer a smart order routing service through our broker dealer subsidiary, Cboe Trading, which provides its customers with access to other market centers when we route their orders to those market centers for execution. In connection with this service, we may assume ownership of a position in securities. This may occur, for example, when a market center to which we have routed a customer's order experiences systems problems and is unable to determine the status of that order. When this happens, we may make a business decision to provide a cancellation notice to our customer, relieving our customer of any liability with respect to the order. We may be informed later, however, that the order was executed at the market center to which we routed it, in which case Cboe Trading would be required to take

Table of Contents

ownership of that securities position. Our third party clearing brokers maintain error accounts on behalf of Cboe Trading into which such positions settle, and we require the respective clearing broker to trade out of those positions as expeditiously as possible, which could result in our incurring trading losses.

We may not effectively manage our growth, which could materially harm our business, financial condition and operating results.

We have experienced increased volume on our futures exchange, extended trading hours on our futures exchange and in SPX and VIX options and developed several proprietary products. We also experienced a substantial expansion of our business following our acquisition of Bats, which significantly expanded our product line across asset classes, broadened our geographic reach with strong pan-European equities and global FX positions and diversified our business mix with significant non-transactional revenue streams. Bats has also experienced significant growth in its business since its inception in 2005, with material expansions into diverse businesses including European listed cash equity securities, U.S. listed equity options and global institutional spot FX trading.

We expect that our business will continue to grow, which may place a significant strain on our management, personnel, systems and resources. We must continually improve our operational, financial and regulatory systems and managerial controls and procedures, and may need to continue to expand, train and manage our workforce. We must also maintain close coordination among our technology, legal, accounting, finance, marketing, sales, regulatory and compliance functions. We cannot assure you that we will manage our growth effectively. If we fail to do so, our business, financial condition and operating results could be materially harmed. Furthermore, failure to successfully expand into new asset classes or new geographies may adversely affect our growth strategy and our future profitability.

Our continued growth will require increased investment by us in technology, facilities, personnel, and financial and management systems and controls. It also will require expansion of our procedures for monitoring and assuring our compliance with applicable regulations, and we will need to integrate, train and manage a growing employee base. The expansion of our existing businesses, any expansion into new businesses and the resulting growth of our employee base will increase our need for internal audit and monitoring processes, which may be more extensive and broader in scope than those we have historically required. We may not be successful in identifying or implementing all of the processes that are necessary. Further, unless our growth results in an increase in our revenues that is proportionally greater than or equal to the increase in our costs associated with this growth, our business, financial condition and operating results will be adversely affected.

Our ability to implement or amend rules could be limited or delayed because of regulation, which could negatively affect our ability to implement needed changes.

Our exchanges registered with the SEC must submit proposed rule changes to the SEC for its review and, in many cases, its approval. Even where a proposed rule change may be effective upon filing with the SEC, the SEC retains the right to suspend and disapprove such a rule change. Also, the CFTC may stay or disapprove rules that we file with it for CFE or Cboe SEF. The rule review process can be lengthy and can significantly delay the implementation of proposed rule changes that we believe are necessary to the operation of our markets. If the SEC or CFTC delays, including because of a government shutdown, or does not allow one of our exchanges to implement a rule change, this could negatively affect our ability to make needed changes or implement business activities.

Similarly, the SEC must approve amendments to our exchange subsidiaries' certificates of incorporation and bylaws as well as certain amendments to the certificate of incorporation and bylaws of Cboe Global Markets. The SEC may decide not to approve a proposed amendment or may delay such approval in a manner that could negatively affect our ability to make a desired change, which could prevent or delay us from improving the operations of our markets or

recognize income from new products.

Table of Contents

Changes in the tax laws and regulations affecting us, our products and our market participants could have a material adverse effect on our business.

Legislation may be proposed, both domestically and internationally, that could add a transaction tax on our products or change the way that our market participants are taxed on the products they trade on our markets. If such proposals were to become law, they could have a negative impact on the securities industry and on us by making transactions more costly to market participants, which may reduce trading and could make our markets less competitive.

In addition to proposed tax changes that could affect our market participants, like other corporations, we are subject to taxes at federal, state and local levels, as well as in non-U.S. jurisdictions. Changes in tax laws, regulations or policies or successful claims by tax authorities could result in our having to pay higher taxes, which would in turn reduce our net income. If this occurs, we may experience a higher effective tax rate.

We selectively explore acquisition opportunities and strategic alliances relating to other businesses, products or technologies. We may not be successful in integrating other businesses, products or technologies with our business. Any such transaction also may not produce the results we anticipate, which could adversely affect our business, financial condition and operating results.

We selectively explore and pursue acquisition and other opportunities to strengthen our business and grow our company. We may enter into business combination transactions, make acquisitions or enter into strategic partnerships, joint ventures or alliances, any of which may be material. The market for acquisition targets and strategic alliances is highly competitive, which could make it more difficult to find appropriate merger or acquisition opportunities. If we are required to raise capital by incurring debt or issuing additional equity for any reason in connection with a strategic acquisition or investment, financing may not be available or the terms of such financing may not be favorable to us and our stockholders, whose interests may be diluted by the issuance of additional stock.

The process of integration, such as integrating our business with Bats' business, may produce unforeseen regulatory issues and operating difficulties and expenditures and may divert the attention of management from the ongoing operation of our business and harm our reputation. We may not successfully achieve the integration objectives, and we may not realize the anticipated cost savings, revenue growth and synergies in full or at all, or it may take longer to realize them than expected, any of which could negatively impact our business, financial condition and operating results.

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 owns 20% of EuroCCP, which is one of three interoperable central counterparties used to clear trades conducted on Cboe Europe. Under OCC's capital plan, each of OCC's existing exchange stockholders, which include Cboe Options, agreed 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. However, as discussed in additional detail in Note 7 ("Investments"), the OCC capital plan has been disapproved by the SEC and due to the recency there is uncertainty regarding next steps and potential consequences. If the OCC capital plan is 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 the SEC's disapproval of the OCC capital plan may affect Cboe Options' $40 million replenishment capital commitment described above, 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 to maintain its working or regulatory capital. Likewise, if EuroCCP were to experience financial difficulties, Cboe Europe might be 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 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.

Table of Contents

We have outstanding indebtedness, which may decrease our business flexibility and adversely affect our business, financial condition and operating results.

As of December 31, 2018, we had $275 million outstanding under our term loan facility, $950 million of senior unsecured notes and no funds outstanding under our revolving credit facility. The financial and other covenants to which we have agreed and our increased indebtedness may have the effect of reducing our flexibility to respond to changing business and economic conditions, thereby placing us at a competitive disadvantage compared to competitors that have less indebtedness and making us more vulnerable to general adverse economic and industry conditions. Our increased indebtedness will also increase future borrowing costs, and the covenants pertaining thereto may also limit our ability to repurchase shares of our common stock, increase dividends or obtain additional financing to fund working capital, capital expenditures, acquisitions or general corporate requirements. We are also required to dedicate a larger portion of our cash flow from operations to payments on our indebtedness, thereby reducing the availability of our cash flow for other purposes, including working capital, capital expenditures and general corporate purposes. Further, a portion of our borrowings are at variable rates of interest, which exposes us to the risk of increased interest rates unless we enter into offsetting hedging transactions.

Our ability to make payments on and to refinance our debt obligations and to fund planned capital expenditures depend on our ability to generate cash from our operations. This, to a certain extent, is subject to general economic, financial, competitive, legislative, regulatory and other factors that are beyond our control.

We may not be able to refinance any of our indebtedness on commercially reasonable terms, or at all. If we cannot service our indebtedness, we may have to take actions such as selling assets, seeking additional equity or reducing or delaying capital expenditures, strategic acquisitions, investments and alliances, any of which could impede the implementation of our business strategy or prevent us from entering into transactions that would otherwise benefit our business. Additionally, we may not be able to effect such actions, if necessary, on commercially reasonable terms, or at all. Any of the foregoing consequences could adversely affect our business, financial condition and operating results.

Deterioration in our credit profile may increase our costs of borrowing money.

As of December 31, 2018, we have investment grade credit ratings from S&P Global Ratings (A-) and Moody’s Investor Service (A3). Ratings from credit agencies are not recommendations to buy, sell or hold our securities, and each rating should be evaluated independently of any other rating. There is no assurance that we will maintain such credit ratings, since credit ratings may be lowered or withdrawn entirely by a rating agency if, in its judgment, the circumstances warrant. If a rating agency were to downgrade our rating below investment grade, our borrowing costs could increase.

If our goodwill, investments in non-consolidated subsidiaries and intangible assets become impaired, the resulting charge to earnings may be significant.

We are required to assess investments in non-consolidated subsidiaries and intangible assets for impairment at least annually. 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. In the future, we may take charges against earnings resulting from impairment. Any determination requiring the write-off of a significant portion of our goodwill, intangible assets or investments in non-consolidated subsidiaries could adversely affect our results of operations and financial condition.

Any decision to pay dividends on our common stock is at the discretion of our board of directors and depends upon the earnings and cash flow of our operating subsidiaries. Accordingly, there can be no guarantee that we will pay

dividends to our stockholders.

Any decision to pay dividends on our common stock in the future will be at the discretion of our board of directors, which may determine not to declare dividends at all or at a reduced amount. The board's determination to declare dividends will depend upon our profitability and financial condition, contractual restrictions, restrictions imposed by applicable law and the SEC and other factors that the board deems relevant. As a holding company with no significant business operations of its own, Cboe Global Markets depends entirely on distributions, if any, it may receive from its

Table of Contents

subsidiaries to meet its obligations and pay dividends to its stockholders. If these subsidiaries are not profitable, or even if they are and they determine to retain their profits for use in their businesses, we will be unable to pay dividends to our stockholders.

Fluctuations in our quarterly operating results may negatively affect the valuation of our common stock.

Our business could experience seasonal fluctuations, reflecting reduced trading activity generally during the third quarter of each year and during the last month of each year. As a result, it is possible that our operating results or other operating metrics may fail to meet the expectations of stock market analysts and investors. If this happens, the market price of our common stock may be adversely affected.

Certain provisions in our organizational documents could prevent or delay a change of control.

Our organizational documents contain provisions that could block actions that stockholders might find favorable, including discouraging, delaying or preventing a change of control or any unsolicited acquisition proposals for us. These include provisions:

- prohibiting stockholders from acting by written consent;
- requiring advance notice of director nominations and of business to be brought before a meeting of stockholders; and
- limiting the persons who may call special stockholders' meetings.
- In addition, our organizational documents include provisions that:
- restrict any person from voting or causing the voting of shares of stock representing more than 20% of our outstanding voting capital stock; and
- restrict any person from beneficially owning shares of stock representing more than 20% of the outstanding shares of our capital stock.

Furthermore, our board of directors has the authority to issue shares of preferred stock in one or more series and to fix the rights and preferences of these shares without stockholder approval. Any series of our preferred stock is likely to be senior to our common stock with respect to dividends, liquidation rights and, possibly, voting rights. The ability of the board of directors to issue preferred stock also could have the effect of discouraging unsolicited acquisition proposals, thus adversely affecting the market price of our common stock.

Delaware law makes it difficult for stockholders that have recently acquired a large interest in a corporation to cause the merger or acquisition of the corporation against the board's wishes. Under Section 203 of the Delaware General Corporation Law, a Delaware corporation may not engage in any merger or other business combination with an interested stockholder for a period of three years following the date that the stockholder became an interested stockholder except in limited circumstances, including by approval of the corporation's board of directors.

We indirectly hold 100% of the issued share capital and voting rights in Cboe Europe and its wholly owned subsidiary, Cboe Chi-X Europe. As a result, any person who holds, or has voting power with respect to, 10% or more of the outstanding shares of our common stock is subject to certain regulatory requirements under U.K. law.

A person that indirectly acquires control in a FCA entity is required to file a change in control notice with the FCA. Though both are FCA regulated entities, the statutorily prescribed change in control notification threshold for Cboe Europe is acquisition of voting power with respect to 20% or more of the issued share capital thereof. The change in control notification threshold for Cboe Chi-X Europe is acquisition of voting power with respect to 10% or more of the issued share capital thereof. Therefore, any person who holds, or has voting power with respect to, 10% or more of the outstanding shares of our common stock will be required to file a change in control notice in respect of Cboe Chi-X Europe and, if this holding is in excess of 20%, also for Cboe Europe. This obligation may discourage, delay or

prevent accumulations of 10% or more of our common stock.

Table of Contents

Item 1B.Unresolved Staff Comments

Not applicable.

Item 2.Properties

Our principal offices are located at 400 South LaSalle Street, Chicago, Illinois 60605. Through our wholly-owned subsidiary, Cboe Building Corporation, we own the building in which our principal offices are located and occupy approximately 300,000 square feet of this building.

In addition to our principal offices, we have space located at 8050 Marshall Drive, Lenexa, Kansas, where we lease approximately 61,900 square feet of space. The lease on this space expires in February 2027 and contains two five-year renewal options, as well as a one-time option to terminate in November 2019 if certain contingencies under the lease are met. We have an office located at 17 State Street, New York, New York, where we lease approximately 21,000 square feet of space, which expires in April 2024, and contains one five-year renewal option. The disaster recovery sites in the United States are located in Kansas City, Missouri and Secaucus, New Jersey. In addition, we have agreements with a primary data center in Secaucus, New Jersey and a secondary data center in Chicago, Illinois. Our principal offices in the United Kingdom are at 11 Monument Street, London, where we lease approximately 10,300 square feet of office space, which expires in March 2027. Our work area recovery space is available on invocation with a specialist provider. In Europe, our primary data center is in Slough, England. The secondary data center for Cboe Europe is in Park Royal, London. We operate a back-up location for our London operations in the United Kingdom. We also maintain leased locations in California, Florida, Singapore, Amsterdam, and Hong Kong.

We believe that our properties are in good operating condition and adequately serve our current business operations. Generally, our properties are not earmarked for use by a particular segment. Instead, most of our properties are used by two or more segments. We also anticipate that suitable additional or alternative space will be available at commercially reasonable terms for future expansion to the extent necessary.

Item 3.Legal Proceedings

Cboe incorporates herein by reference the discussion set forth in Note 21 (“Income Taxes”) and Note 23 (“Commitments, Contingencies, and Guarantees– Legal Proceedings”) of the consolidated financial statements included herein.

Item 4.Mine Safety Disclosures

Not applicable.

Table of Contents

PART II

Item 5.Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Common Stock

The Company's common stock is listed on Cboe BZX under the trading symbol CBOE. On September 17, 2018, we voluntarily delisted our common stock from Nasdaq Global Select Market and transferred the listing to Cboe BZX Exchange. As of January 31, 2019, there were approximately 163 holders of record of our common stock.

Dividends

Each share of common stock, including restricted stock awards and restricted stock units, is entitled to receive dividend and dividend equivalents, respectively, if, as and when declared by the board of directors of the Company.

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, 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.

As a holding company, the Company's ability to declare and continue to pay dividends in the future with respect to its common stock will also be dependent upon the ability of its subsidiaries to pay dividends to it under applicable corporate law.

Recent Sales of Unregistered Securities

Not applicable.

Use of Proceeds

Not applicable.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

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 year ended December 31, 2018, the Company repurchased 1,347,954 shares of common stock at an average cost per share of $104.52, totaling $140.9 million. Since inception of the program through December 31, 2018, the Company has repurchased 12,295,355 shares of common stock at an average cost per share of $52.37, totaling $643.9 million.

As of December 31, 2018, the Company had $206.1 million of availability remaining under its existing share repurchase authorizations.

Table of Contents

Purchase of common stock from employees

During the fiscal quarter ended December 31, 2018, we purchased shares from employees in connection with the settlement of employee tax withholding obligations arising from the vesting of restricted stock units, restricted stock awards, and stock options. The table below represents repurchases made by or on behalf of us or any "affiliated purchaser" of our common stock during the fiscal quarter ended December 31, 2018:

Period	Total number of shares purchased	Average price paid per share
October 1 to October 31, 2018	120	$ 104.91
November 1 to November 30, 2018	6,207	112.49
December 1 to December 31, 2018	45,870	106.18
Total	52,197	106.93

Stockholder Return Performance Graph

The following graph compares the cumulative total return provided to stockholders on our common stock since our initial public offering against the return of the S&P 500 Index and a customized peer group that includes CME Group Inc., Intercontinental Exchange Inc., and Nasdaq, Inc.

An investment of $100, with reinvestment of all dividends, is assumed to have been made in our common stock, the index and the peer groups on December 31, 2013, and its performance is tracked on an annual basis through December 31, 2018.

Table of Contents

Comparison of Cumulative Total Return of the

Company, Peer Groups, Industry Indexes and/or Broad Markets

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN*

Among Cboe Global Markets, Inc., the S&P 500 Index

and a Peer Group

	12/13	12/14	12/15	12/16	12/17	12/18
Cboe Global Markets, Inc.	100.00	123.82	128.48	148.42	253.01	200.89
S&P 500	100.00	113.69	115.26	129.05	157.22	150.33
Peer Group	100.00	113.10	131.68	159.36	199.20	233.49

Table of Contents

Item 6.Selected Financial Data

The following selected financial and operating data should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and the accompanying notes included in Items 7 and 8, respectively of this Form 10-K. The information set forth below is not necessarily indicative of our future results for any period. We completed the acquisition of Bats during 2017 and included the financial results of Bats in our consolidated financial results from March 1, 2017.

	Year Ended December 31,				
	2018	2017	2016	2015	2014
	(in millions, except per share data)				
Consolidated Statements of Operations Data:					
Revenues:					
Transaction fees	$ 1,986.9	$ 1,564.9	$ 509.3	$ 485.3	$ 466.9
Access fees	127.9	106.8	52.4	53.3	59.3
Exchange services and other fees	83.1	74.8	46.3	42.2	38.0
Market data fees	204.0	164.5	33.2	30.0	30.5
Regulatory fees	333.9	291.5	48.3	33.5	37.1
Other revenue	33.0	26.6	13.6	19.5	14.6
Total revenues	2,768.8	2,229.1	703.1	663.8	646.4
Cost of revenues:					
Liquidity payments	1,113.0	849.7	35.8	29.2	29.1
Routing and clearing	39.1	37.6	11.1	2.3	4.1
Section 31 fees (1)	302.4	260.0	11.8	—	—
Royalty fees	97.4	86.2	78.0	70.6	66.1
Total cost of revenues	1,551.9	1,233.5	136.7	102.1	99.3
Revenues less cost of revenues	1,216.9	995.6	566.4	561.7	547.1
Operating expenses:					
Compensation and benefits	228.8	201.4	113.2	105.9	121.7
Depreciation and amortization	204.0	192.2	44.4	46.3	40.0
Technology support services	47.9	42.1	22.5	20.7	19.2
Professional fees and outside services	68.3	66.0	53.1	50.1	32.0
Travel and promotional expenses	13.0	17.2	11.0	9.0	9.0
Facilities costs	11.5	10.3	5.7	5.0	5.7
Acquisition-related costs	30.0	84.4	13.6	—	—
Other expenses	14.0	10.1	4.7	4.8	5.7
Total operating expenses	617.5	623.7	268.2	241.8	233.3
Operating income	599.4	371.9	298.2	319.9	313.8
Interest (expense) income, net	(38.2)	(41.3)	(5.7)	—	—
Other income (expense)	10.0	3.8	14.1	4.1	(4.1)
Income before income tax provision	571.2	334.4	306.6	324.0	309.7
Income tax provision	146.0	(66.2)	120.9	119.0	120.0
Net income	$ 425.2	$ 400.6	$ 185.7	$ 205.0	$ 189.7
Net loss attributable to noncontrolling interests	1.3	1.1	1.1	—	—
Net income excluding noncontrolling interests	426.5	401.7	186.8	205.0	189.7
Change in redemption value of noncontrolling interests	(1.3)	(1.1)	(1.1)	—	—
Net income allocated to participating securities	(3.1)	(3.9)	(0.8)	(0.9)	(1.3)

Net income allocated to common stockholders	$ 422.1	$ 396.7	$ 184.9	$ 204.1	$ 188.4
Basic earnings per share	$ 3.78	$ 3.70	$ 2.27	$ 2.46	$ 2.21
Diluted earnings per share	$ 3.76	$ 3.69	$ 2.27	$ 2.46	$ 2.21
Basic weighted average shares outstanding	111.8	107.2	81.4	83.1	85.4
Diluted weighted average shares outstanding	112.2	107.5	81.4	83.1	85.4
Distributions per share	$ 1.16	$ 1.04	$ 0.96	$ 0.88	$ 0.78

(1) As national securities exchanges, Cboe Options, C2, BZX, BYX, EDGX, and EDGA are assessed fees pursuant to Section 31 of the Exchange Act. Section 31 fees are assessed on the notional value traded and are designed to recover the costs to the government of supervision and regulation of securities markets and securities professionals. Section 31 fees are paid directly to the SEC, and our national securities exchanges then pass these costs along to our members as regulatory transaction fees, recognizing these amounts as incurred in cost of revenues and revenues, respectively.

Table of Contents

	As of December 31,				
	2018	2017	2016	2015	2014
	(in millions)				
Balance Sheet Data:					
Assets:					
Cash and cash equivalents	$ 275.1	$ 143.5	$ 97.3	$ 102.3	$ 147.9
Financial investments	35.7	47.3	—	—	—
Goodwill and intangible assets, net	4,411.6	4,610.0	35.2	10.1	—
Total assets	$ 5,321.0	$ 5,265.7	$ 476.7	$ 384.8	$ 383.9
Liabilities and stockholders' equity:					
Short-term and long-term debt	$ 1,215.4	$ 1,237.9	$ —	$ —	$ —
Total liabilities	2,070.6	2,145.7	146.2	125.2	133.8
Total redeemable noncontrolling interest	9.4	9.4	12.6	—	—
Total stockholders' equity	3,241.0	3,110.6	317.9	259.6	250.1
Total liabilities, redeemable noncontrolling interest, and stockholders' equity	$ 5,321.0	$ 5,265.7	$ 476.7	$ 384.8	$ 383.9

Table of Contents

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations

Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") should be read in conjunction with the consolidated financial statements of the Company and the notes thereto included in Item 8 of this Annual Report on Form 10-K. The following discussion contains forward-looking statements. Actual results could differ materially from the results discussed in the forward-looking statements. See "Risk Factors" and "Forward-Looking Statements" above.

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, global foreign exchange and multi-asset volatility products based on the VIX, 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, Singapore, Hong Kong, and Ecuador.

On February 28, 2017, pursuant to the Agreement and Plan of Merger, dated as of September 25, 2016, Cboe acquired Bats Global Markets, Inc. The year ended December 31, 2017 includes financial results for Bats for the period from March 1, 2017 through December 31, 2017.

Business Segments

We previously operated as a single reportable business segment as of December 31, 2016. As a result of the Merger, in 2017, we began reporting 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 of our 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 trading of listed 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 trading of listed cash equities and ETP transaction services that occur on BZX, BYX, EDGX and EDGA. It also includes the listings business where ETPs and the Company are listed on BZX.

Futures. Our Futures segment includes trading of futures on the VIX Index and bitcoin, and other products that occur on CFE, our all-electronic futures exchange.

European Equities. Our European Equities segment includes trading of pan European listed equities transaction services, ETPs, exchange traded commodities, and international depository receipts that occur on the RIE, operated by

Table of Contents

Cboe Europe Equities. It also includes the listed cash equities and ETPs routed transaction services that occurred through Cboe Chi-X Europe, as well as the listings business where ETPs can be listed on Cboe Europe Equities.

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

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;
- 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 services;
- consolidation of our customers and competitors in the industry,
- continuing pressure in transaction fee pricing due to intense competition in the United States and Europe; 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 a return of 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.

Access Fees

Access fees represent fees assessed for the opportunity to trade, including fees for trading-related functionality and connectivity across all segments. They are billed monthly in accordance with the Company’s published fee schedules

and recognized on a monthly basis when the performance obligation is met. There is no remaining performance obligation after revenue is recognized.

Table of Contents

Exchange Services and Other Fees

To facilitate trading, the Company offers technology services, terminal and other equipment rights, maintenance services, trading floor space, trading floor connectivity and telecommunications services. Trading floor and equipment rights are generally on a month-to-month basis. Facilities, systems services and other fees are generally monthly fee-based, although certain services are influenced by trading volume or other defined metrics, others are based solely on demand. All fees associated with the trading floor are recognized in the Options segment.

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 and calculated and billed monthly. These fees are recognized in the U.S. Equities and Options segments and 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.

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

Table of Contents

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 Equities 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.

Facilities Costs

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

Table of Contents

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 the 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.

Results of Operations

The comparability of our results of operations between reported periods is impacted by the acquisition of Bats on February 28, 2017. Operating results and other financial metrics for U.S. Equities, European Equities and Global FX represent activity for the ten months ended December 31, 2017. The following are summaries of changes in financial performance and include 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 consolidated financial statements.

Table of Contents

Comparison of Years Ended December 31, 2018 and 2017

Overview

The following summarizes changes in financial performance for the year ended December 31, 2018, compared to the year ended December 31, 2017:

	Year Ended December 31, 2018		2017		Increase/ (Decrease)		Percent Change	
	(in millions, except percentages, earnings per share, and as noted below)							
Total revenues	$ 2,768.8		$ 2,229.1		$ 539.7		24.2	%
Total cost of revenues	1,551.9		1,233.5		318.4		25.8	%
Revenues less cost of revenues	1,216.9		995.6		221.3		22.2	%
Total operating expenses	617.5		623.7		(6.2)		(1.0)	%
Operating income	599.4		371.9		227.5		61.2	%
Income before income tax provision	571.2		334.4		236.8		70.8	%
Income tax provision	146.0		(66.2)		212.2		(320.5)	%
Net income	$ 425.2		$ 400.6		$ 24.6		6.1	%
Basic earnings per share	$ 3.78		$ 3.70		$ 0.08		2.1	%
Diluted earnings per share	3.76		3.69		0.07		1.9	%
EBITDA(1)	$ 810.3		$ 564.0		$ 246.3		43.7	%
EBITDA margin(2)	66.6	%	56.6	%	10.0	%		*
Adjusted EBITDA(1)	$ 840.4		$ 662.3		$ 178.1		26.9	%
Adjusted EBITDA margin(3)	69.1	%	66.5	%	2.6	%		*
Adjusted earnings(4)	$ 563.4		$ 368.0		$ 195.4		53.1	%
Diluted weighted average shares outstanding	112.2		107.5		4.7		4.4	%
Diluted Adjusted earnings per share(5)	$ 5.02		$ 3.42		$ 1.60		46.8	%

* Not Meaningful

(1) EBITDA is defined as income before interest, income taxes, depreciation and amortization. Adjusted EBITDA is defined as EBITDA before acquisition-related costs, accelerated stock-based compensation, change in fair value of contingent consideration, and provision for uncollectable convertible notes receivable. 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, interest and other borrowing costs, impairment of intangible assets, provision for uncollectable convertible

notes receivable, change in fair value of contingent consideration, changes in redemption value of non-controlling interest, tax effect of amortization and other items, tax effect of tax reform law, tax provision remeasurements, re-measurement of deferred tax assets and liabilities as a result of corporate tax increases in Illinois, net income allocated to participating securities, and accelerated stock-based compensation, 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.

Table of Contents

(5) Diluted Adjusted earnings per share represents Adjusted earnings divided by diluted weighted average shares outstanding.

The following is a reconciliation of net income (loss) allocated to common stockholders to EBITDA and Adjusted EBITDA:

	Year Ended December 31, 2018						
	Options	U.S. Equities	Futures	European Equities	Global FX	Corporate	Total
	(in millions)						
Net income (loss) allocated to common stockholders	$ 267.5	$ 120.5	$ 42.7	$ 19.2	$ (11.8)	$ (16.0)	$ 422.1
Interest	(0.5)	—	—	(0.2)	—	38.9	38.2
Income tax provision (benefit)	132.7	19.5	42.8	4.8	0.1	(53.9)	146.0
Depreciation and amortization	46.4	87.1	2.2	31.3	34.6	2.4	204.0
EBITDA	446.1	227.1	87.7	55.1	22.9	(28.6)	810.3
Acquisition-related costs	15.4	—	—	1.5	0.1	13.0	30.0
Change in fair value of contingent consideration	—	—	—	—	0.1	—	0.1
Adjusted EBITDA	$ 461.5	$ 227.1	$ 87.7	$ 56.6	$ 23.1	$ (15.6)	$ 840.4

	Year Ended December 31, 2017						
	Options	U.S. Equities	Futures	European Equities	Global FX	Corporate	Total
	(in millions)						
Net income (loss) allocated to common stockholders	$ 214.0	$ 23.4	$ 126.2	$ 9.9	$ (13.0)	$ 36.2	$ 396.7
Interest	—	—	—	—	—	41.3	41.3
Income tax provision (benefit)	39.4	80.0	—	(0.5)	0.2	(185.3)	(66.2)
Depreciation and amortization	53.2	80.5	1.5	25.5	30.3	1.2	192.2
EBITDA	306.6	183.9	127.7	34.9	17.5	(106.6)	564.0
Acquisition-related costs	1.6	—	—	—	—	82.8	84.4
Accelerated stock-based compensation	—	—	—	—	—	9.1	9.1
Provision for uncollectable convertible notes receivable	3.8	—	—	—	—	—	3.8
Change in fair value of contingent consideration	—	—	—	—	1.0	—	1.0
Adjusted EBITDA	$ 312.0	$ 183.9	$ 127.7	$ 34.9	$ 18.5	$ (14.7)	$ 662.3

The following is a reconciliation of net income allocated to common stockholders to Adjusted earnings:

	Year Ended December 31,	
	2018	2017
	(in millions)	
Net income allocated to common stockholders	$ 422.1	$ 396.7
Amortization of purchased intangibles	160.6	142.6
Acquisition-related costs	30.0	84.4

Accelerated stock-based compensation	—	9.1
Interest and other borrowing costs	—	5.2
Impairment of intangible assets	—	3.8
Change in fair value of contingent consideration	0.1	1.0
Change in redemption value of noncontrolling interest	1.3	1.1
Tax effect of amortization and other items	(49.4)	(92.3)
Tax effect of tax reform law	—	(191.1)
Tax provision re-measurements	(0.4)	—
Re-measurement of deferred tax assets and liabilities as a result of corporate rate increases in Illinois	—	7.0
Net income allocated to participating securities	(0.9)	0.5
Adjusted earnings	$ 563.4	$ 368.0

Table of Contents

The following summarizes changes in certain operational and financial metrics for the year ended December 31, 2018, compared to the year ended December 31, 2017:

	Year Ended December 31,		Increase/	Percent
	2018	2017	(Decrease)	Change
	(in millions, except percentages, trading days, and as noted below)			
Options:				
Average daily volume (ADV) (in millions of contracts):				
Total touched contracts	7.9	6.6	1.3	19.7 %
Market ADV	20.5	16.7	3.8	22.8 %
Index contract ADV	2.2	2.0	0.2	10.0 %
Number of trading days	251	251	—	— %
Total Options revenue per contract (RPC) (1)	$ 0.258	$ 0.248	$ 0.010	4.0 %
Multiply Listed Options RPC (1)	0.069	0.061	0.008	13.1 %
Index Options RPC (1)	0.736	0.687	0.049	7.1 %
Market share	38.5 %	39.7 %	(1.2)	(3.0) %
U.S. Equities:				
ADV:				
Total touched shares (in billions)	1.4	1.3	0.1	7.7 %
Market ADV (in billions)	7.3	6.5	0.8	12.3 %
Trading days (3)	251	212	39.0	18.4 %
Market share	18.4 %	19.0 %	(0.6)	(3.2) %
U.S. Equities (net capture per one hundred touched shares)(2)	$ 0.025	$ 0.023	$ 0.002	8.7 %
U.S. ETPs: launches (number of launches)	61	89	(28.0)	(31.5) %
U.S. ETPs: listings (number of listings)	290	250	40.0	16.0 %
Futures:				
ADV (in thousands)	300.0	294.8	5.2	1.8 %
Trading days	252	251	1.0	0.4 %
Revenue per contract	$ 1.690	$ 1.779	$ (0.089)	(5.0) %
European Equities:				
ADNV:				
Matched and touched ADNV (in billions)	€ 10.4	€ 9.4	€ 1.0	10.6 %
Market ADNV (in billions)	46.5	44.8	1.7	3.8 %
Trading days (3)	256	214	42.0	19.6 %
Market share	22.3 %	21.0 %	1.3	6.2 %
European Equities (net capture per matched notional value in basis points)(4)	0.192	0.167	0.025	15.0 %
Average Euro/British pound exchange rate	£ 0.884	£ 0.877	£ 0.007	0.8 %
Global FX:				
ADNV (in billions)	$ 37.4	$ 29.8	$ 7.6	25.5 %
Trading days (3)	259	217	42.0	19.4 %
Global FX (net capture per one million dollars traded)(5)	2.56	2.61	(0.05)	(1.9) %
Average British pound/U.S. dollar exchange rate	$ 1.335	$ 1.287	$ 0.048	3.7 %

(1)

Revenue per contract represents transaction fees less liquidity payments and routing and clearing costs divided by total contracts traded during the period.

(2) 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.

(3) Trading days presented exclude the two months of 2017 prior to the Bats acquisition.

(4) Net capture per matched notional value refers to transaction fees less liquidity payments in British pounds divided by the product of matched ADNV in British pounds and the number of trading days for the period.

(5) Net capture per one million dollars traded refers to net transaction fees, divided by the product of one-millionth of ADNV 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.

Table of Contents

Revenues

Total revenues for the year ended December 31, 2018 increased $539.7 million, or 24.2%, compared to the prior period primarily due to a $422.0 million, or 27.0% increase in transaction fees as a result of increased market volumes over the prior period. An additional two months of activity in 2018 from the Bats acquisition comprised $349.1 million of the increase over the prior period. The following summarizes changes in revenues for the year ended December 31, 2018 compared to the year ended December 31, 2017:

	Year Ended December 31,		Increase/ (Decrease)	Percent Change	
	2018	2017			
	(in millions, except percentages)				
Transaction fees	$ 1,986.9	$ 1,564.9	$ 422.0	27.0	%
Access fees	127.9	106.8	21.1	19.8	%
Exchange services and other fees	83.1	74.8	8.3	11.1	%
Market data fees	204.0	164.5	39.5	24.0	%
Regulatory fees	333.9	291.5	42.4	14.5	%
Other revenue	33.0	26.6	6.4	24.1	%
Total revenues	$ 2,768.8	$ 2,229.1	$ 539.7	24.2	%

Transaction Fees

Transaction fees increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to a 22.8% increase in overall options market ADV, including a 10.0% increase in index options ADV and a 12.3% increase in U.S. Equities ADV. The additional two months of activity in 2018 from the Bats acquisition contributed $232.0 million.

Access Fees

Access fees increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to an increase in the Options segment as a result of additional subscribers and an increase in access fees within the Futures segment, as the pricing model was revised as a result of increased functionality associated with the migration of the futures exchange to the Bats trading platform on February 28, 2018. The additional two months of activity in 2018 from the Bats acquisition contributed $11.8 million.

Exchange Services and Other Fees

Exchange services and other fees increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to the additional two months of activity in 2018 from the Bats acquisition that contributed $5.7 million.

Market Data Fees

Market data fees increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to the additional two months of activity in 2018 from the Bats acquisition that contributed $30.8 million, as well as increases from the U.S. Equities, Futures, and Options segments that contributed $7.0 million, $2.1 million, and $1.8 million, respectively.

Regulatory Fees

Regulatory transaction fees increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to the additional two months of activity in 2018 from the Bats acquisition that added $66.9 million, partially offset by a decrease in U.S. Equities regulatory fees, 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.

Table of Contents

Other Revenue

Other revenue increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to an increase in trade reporting services revenue from the European Equities segment of $3.5 million, coupled with the additional two months of activity in 2018 from the Bats acquisition that contributed $1.9 million.

Cost of Revenues

Cost of revenues increased in the year ended December 31, 2018 compared to the same period in 2017 primarily due to the additional two months of activity in 2018 from the Bats acquisition that contributed $260.0 million. The following summarizes changes in cost of revenues for the year ended December 31, 2018 compared to the prior year:

	Year Ended December 31,		Increase/	Percent	
	2018	2017	(Decrease)	Change	
	(in millions, except percentages)				
Liquidity payments	$ 1,113.0	$ 849.7	$ 263.3	31.0	%
Routing and clearing	39.1	37.6	1.5	4.0	%
Section 31 fees	302.4	260.0	42.4	16.3	%
Royalty fees	97.4	86.2	11.2	13.0	%
Total	$ 1,551.9	$ 1,233.5	$ 318.4	25.8	%

Liquidity Payments

Liquidity payments increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to two months of additional Bats activity in 2018 of $187.7 million, with the remainder of the increase due to the 12.3% increase in U.S. Equities ADV.

Routing and Clearing

The increase in routing and clearing fees for the year ended December 31, 2018 compared to the same period in 2017 was primarily driven by the two months of additional Bats activity in 2018 of $5.8 million, partially offset by a 11.4% decrease in routing fees per 100 touched shares in the U.S. Equities segment.

Section 31 Fees

Section 31 fees increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to two additional months of activity in 2018 from the Bats acquisition that added $66.4 million, partially offset by a decrease in Section 31 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.

Royalty Fees

Royalty fees increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to higher trading volumes in licensed products in 2018.

Revenues Less Cost of Revenues

Revenues less cost of revenues increased $221.3 million, or 22.2%, in the year ended December 31, 2018 compared to the same period in 2017 primarily due to a $157.2 million, or 23.2%, increase in transaction fees less liquidity payments and routing and clearing costs. The additional two months of activity in 2018 from the acquisition of Bats contributed $89.1 million.

Table of Contents

The following summarizes the components of revenues less cost of revenues for the year ended December 31, 2018, presented as a percentage of revenues less cost of revenues and compared to the prior year:

	Year Ended December 31,			Percentage of Revenues Less Cost of Revenues Year Ended December 31,	
	2018	2017	Percent Change	2018	2017
	(in millions, except percentages)				
Transaction fees less liquidity payments and routing and clearing costs	$ 834.8	$ 677.6	23.2 %	68.6 %	68.1 %
Access fees	127.9	106.8	19.8 %	10.5 %	10.7 %
Exchange services and other fees	83.1	74.8	11.1 %	6.8 %	7.5 %
Market data fees	204.0	164.5	24.0 %	16.8 %	16.5 %
Regulatory fees, less Section 31 fees	31.5	31.5	(0.0) %	2.6 %	3.2 %
Royalty fees	(97.4)	(86.2)	13.0 %	(8.0) %	(8.7) %
Other	33.0	26.6	24.1 %	2.7 %	2.7 %
Revenues less cost of revenues	$ 1,216.9	$ 995.6	22.2 %	100.0 %	100.0 %

Transaction Fees Less Liquidity Payments and Routing and Clearing Costs

Transaction fees less liquidity payments and routing and clearing costs (“Net Transaction Fees”) increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to a 22.8% increase in overall options market ADV, including a 10.0% increase in index options ADV and a 12.3% increase in U.S. Equities ADV, coupled with the additional two months of activity in 2018 from the Bats acquisition that contributed $38.4 million.

Access Fees

Access fees increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to an increase in the Options segment as a result of additional subscribers, as well as an increase in access fees within the Futures segment, as the pricing model was revised as a result of increased functionality associated with the migration of the futures exchange to the Bats trading platform on February 28, 2018. The additional two months of activity in 2018 from the Bats acquisition contributed $11.8 million.

Exchange Services and Other Fees

Exchange services and other fees increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to the additional two months of activity in 2018 from the Bats acquisition that contributed $5.7 million.

Market Data Fees

Market data fees increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to the additional two months of activity in 2018 from the Bats acquisition that contributed $30.8 million, as well as increases from the U.S. Equities, Futures, and Options segments that contributed $7.0 million, $2.1 million, and $1.8

million, respectively.

Regulatory Fees, less Section 31 Fees

Regulatory fees, less Section 31 Fees, remained flat in the year ended December 31, 2018 compared to the same period in 2017, as a result of a 12.3% increase in U.S. Equities trading ADV.

Table of Contents

Royalty Fees

Royalty fees increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to higher trading volumes in licensed products in 2018.

Other

Other revenue increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to an increase in trade reporting services revenue from the European Equities segment of $3.5 million, coupled with the additional two months of activity in 2018 from the Bats acquisition that contributed $1.9 million.

Operating Expenses

For the year ended December 31, 2018 compared to the year ended December 31, 2017, non-recurring acquisition-related costs for the Bats acquisition incurred in 2017 drove the decrease in operating expenses, partially offset by an increase in compensation and benefits and depreciation and amortization in 2018 driven in part by two additional months of activity in 2018 from the Bats acquisition. The following summarizes changes in operating expenses for the year ended December 31, 2018 compared to the prior year:

	Year Ended December 31,		Increase/ (Decrease)	Percent Change	
	2018	2017			
	(in millions, except percentages)				
Operating Expenses:					
Compensation and benefits	$ 228.8	$ 201.4	$ 27.4	13.6	%
Depreciation and amortization	204.0	192.2	11.8	6.1	%
Technology support services	47.9	42.1	5.8	13.8	%
Professional fees and outside services	68.3	66.0	2.3	3.5	%
Travel and promotional expenses	13.0	17.2	(4.2)	(24.4)	%
Facilities costs	11.5	10.3	1.2	11.7	%
Acquisition-related costs	30.0	84.4	(54.4)	(64.5)	%
Change in contingent consideration	0.1	1.0	(0.9)	(90.0)	%
Other expenses	13.9	9.1	4.8	52.7	%
Total operating expenses	$ 617.5	$ 623.7	$ (6.2)	(1.0)	%

Compensation and Benefits

Compensation and benefits increased for the year ended December 31, 2018 compared to the same period in 2017 due to two months of additional activity from the Bats acquisition that contributed $13.9 million, as well as additional bonus expense of $12.4 million in 2018 due to strong financial performance.

Depreciation and Amortization

Depreciation and amortization increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to two additional months of amortization of the Bats intangible assets in 2018, contributing an additional $31.1 million, partially offset by a decrease in 2018 amortization due to the accelerated cash flow method for the intangibles acquired in the Bats acquisition.

Technology Support Services

Technology support services costs increased for the year ended December 31, 2018 compared to the same period in 2017 primarily due to an additional two months of Bats activity in 2018 that contributed $4.7 million.

Table of Contents

Professional Fees and Outside Services

Professional and outside services fees increased for the year ended December 31, 2018 compared to the same period in 2017 primarily driven by incremental expense from the acquisition of Bats that contributed $3.3 million, partially offset by a decrease in contract services of $1.1 million.

Travel and Promotional Expenses

Travel and promotional expenses decreased for the year ended December 31, 2018 compared to the same period in 2017, primarily due to a decrease in marketing and advertising expenses of $3.4 million and a decrease in sponsorships of $0.8 million.

Acquisition-Related Costs

Acquisition-related costs decreased for the year ended December 31, 2018 compared to the same period in 2017 due to the timing of the acquisition of Bats in 2017. 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.

Other Expenses

Other expenses increased for the year ended December 31, 2018 compared to the same period in 2017, primarily due to increases in value added taxes of $0.9 million, RMC related expenses of $0.8 million, a write off of receivables of $0.7 million, and a true-up of sales taxes on fixed assets of $0.5 million. Additionally, the two months of additional activity from the Bats acquisition contributed $0.7 million.

Operating Income

As a result of the items above, operating income for the year ended December 31, 2018 was $599.4 million, compared to $371.9 million for the year ended December 31, 2017, an increase of $227.5 million, or 61.2%.

Interest Expense, Net

Net interest expense decreased in the year ended December 31, 2018 as the outstanding debt balance decreased from $1,237.9 million at December 31, 2017 to $1,215.4 million at December 31, 2018. Also contributing to the decrease was the lower interest rates resulting from debt refinancing in both June 2017 and March 2018, as well as increased interest income from treasury securities.

Other Income

Other income increased in the year ended December 31, 2018 compared to the same period in 2017 primarily due to $8.8 million of dividends recognized during 2018.

Income Before Income Tax Provision

As a result of the above, income before income tax provision for the year ended December 31, 2018 was $571.2 million compared to $334.4 million for the year ended December 31, 2017, an increase of $236.8 million, or 70.8%.

Income Tax Provision (Benefit)

For the year ended December 31, 2018, the income tax provision (benefit) was $146.0 million compared with a benefit of $(66.2) million for the year ended December 31, 2017. The effective tax rate for the year ended December 31, 2018 was 25.6%, compared to a benefit of (19.8)% for the year ended December 31, 2017.

Table of Contents

Net Income

As a result of the items above, net income for the year ended December 31, 2018 was $426.5 million, or 35.0% of revenues less cost of revenues, compared to $401.7 million, or 40.3% of revenues less cost of revenues, for the year ended December 31, 2017, an increase of $24.8 million, or 6.2%.

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.

The following summarizes our total revenues by segment:

	Year Ended December 31,		Percent Change	Percentage of Total Revenues Year Ended December 31,	
	2018	2017		2018	2017
	(in millions, except percentages)				
Options	$ 1,057.5	$ 883.5	19.7 %	38.2 %	39.6 %
U.S. Equities	1,373.1	1,072.5	28.0 %	49.6 %	48.1 %
Futures	149.8	144.6	3.6 %	5.4 %	6.6 %
European Equities	131.6	89.6	46.9 %	4.8 %	4.0 %
Global FX	56.4	38.2	47.6 %	2.0 %	1.7 %
Corporate	0.4	0.7	(42.9) %	0.0 %	0.0 %
Total revenues	$ 2,768.8	$ 2,229.1	24.2 %	100.0 %	100.0 %

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

	Year Ended December 31,		Percent Change	Percentage of Total Revenues less Cost of Revenues Year Ended December 31,	
	2018	2017		2018	2017
	(in millions, except percentages)				
Options	$ 611.2	$ 516.3	18.4 %	50.2 %	51.9 %
U.S. Equities	310.2	239.1	29.7 %	25.6 %	24.0 %
Futures	144.1	139.5	3.3 %	11.8 %	14.0 %
European Equities	94.6	61.8	53.1 %	7.8 %	6.2 %
Global FX	56.4	38.2	47.6 %	4.6 %	3.8 %

Corporate	0.4	0.7	(42.9)	%	0.0	%	0.1 %
Total revenues less cost of revenues	$ 1,216.9	$ 995.6	22.2	%	100.0	%	100.0 %

Table of Contents

Options

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

	Year Ended December 31,		Percent Change	Percentage of Total Revenues Year Ended December 31,	
	2018	2017		2018	2017
	(in millions, except percentages)				
Revenues less cost of revenues	$ 611.2	$ 516.3	18.4 %	57.8 %	58.4 %
Operating expenses	220.3	264.1	(16.6) %	20.8 %	29.9 %
Operating income	$ 390.9	$ 252.2	55.0 %	37.0 %	28.5 %
EBITDA(1)	$ 446.1	$ 306.6	45.5 %	42.2 %	34.7 %
EBITDA margin(2)	73.0 %	59.4 %	*	*	*

* Not meaningful

(1) See footnote (1) to the table under “Overview” 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.

Revenue less cost of revenues increased $94.9 million for the year ended December 31, 2018 compared to the year ended December 31, 2017, primarily due to a 22.8% increase in overall options market ADV, including a 10.0% increase in index options ADV, as well as an increase in Options revenue per contract. For the year ended December 31, 2018, the Options segment's operating income increased $138.7 million compared to the year ended December 31, 2017 due to higher revenues less cost of revenues and two additional months of activity from the Bats acquisition in 2017.

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:

	Year Ended December 31,		Percent Change	Percentage of Total Revenues Year Ended December 31,	
	2018	2017		2018	2017
	(in millions, except percentages)				
Revenues less cost of revenues	$ 310.2	$ 239.1	29.7 %	22.6 %	22.3 %
Operating expenses	169.7	135.9	24.9 %	12.4 %	12.7 %
Operating income	$ 140.5	$ 103.2	36.1 %	10.2 %	9.6 %
EBITDA(1)	$ 227.1	$ 183.9	23.5 %	16.5 %	17.1 %
EBITDA margin(2)	73.2 %	76.9 %	*	*	*

* Not meaningful

(1) See footnote (1) to the table under “Overview” 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.

Revenue less cost of revenues increased $71.1 million for the year ended December 31, 2018 compared to the year ended December 31, 2017, primarily due to an increase in transaction net revenue, as market ADV increased 12.3% over prior year, coupled with an 8.7% increase in net capture. An increase in proprietary market data also contributed to the increase over prior year. For the year ended December 31, 2018, the U.S. Equities segment's operating income increased

Table of Contents

$37.3 million compared to the year ended December 31, 2017 due to higher revenues less cost of revenues and two additional months of activity from the Bats acquisition in 2017. Operating expenses increased $33.8 million for the year ended December 31, 2018 compared to the year ended December 31, 2017, primarily due to two months of additional activity from the Bats acquisition in 2017.

Futures

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

	Year Ended December 31,		Percent Change	Percentage of Total Revenues Year Ended December 31,	
	2018	2017		2018	2017
	(in millions, except percentages)				
Revenues less cost of revenues	$ 144.1	$ 139.5	3.3 %	96.2 %	96.5 %
Operating expenses	58.4	12.7	359.8 %	39.0 %	8.8 %
Operating income	$ 85.7	$ 126.8	(32.4) %	57.2 %	87.7 %
EBITDA(1)	$ 87.7	$ 127.7	(31.3) %	58.5 %	88.3 %
EBITDA margin(2)	60.9 %	91.5 %	*	*	*

* Not meaningful

(1) See footnote (1) to the table under “Overview” 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.

Revenue less cost of revenues increased $4.6 million for the year ended December 31, 2018 compared to the year ended December 31, 2017, primarily related to increases in access fees and market data fees, offset by a 5.1% decline in revenue per contract during the year. For the year ended December 31, 2018, the Futures segment's operating income decreased $41.1 million compared to the year ended December 31, 2017 due to higher allocations for 2018 initiatives, including the CFE platform migration and new product launches.

European Equities

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

	Year Ended December 31,		Percent Change	Percentage of Total Revenues Year Ended December 31,	
	2018	2017		2018	2017
	(in millions, except percentages)				

Revenues less cost of revenues	$ 94.6		$ 61.8		53.1	%	71.9	%	69.0	%
Operating expenses	70.5		52.9		33.3	%	53.6	%	59.0	%
Operating income	$ 24.1		$ 8.9		170.8	%	18.3	%	9.9	%
EBITDA(1)	$ 55.1		$ 34.9		57.9	%	41.9	%	39.0	%
EBITDA margin(2)	58.2	%	56.5	%	*		*		*	

* Not meaningful

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

Table of Contents

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

Revenue less cost of revenues increased $32.8 million for the year ended December 31, 2018 compared to the year ended December 31, 2017, primarily due to a 15.0% increase in net capture, a 3.6% increase in total market ADNV, and a 6.2% increase in market share. For the year ended December 31, 2018, the European Equities segment's operating income increased $15.2 million compared to the year ended December 31, 2017 due to higher revenues less cost of revenues. Also contributing to the increase were two additional months of activity from the Bats acquisition in 2017. Operating expenses increased $17.6 million for the year ended December 31, 2018 compared to the year ended December 31, 2017, primarily due to two months of additional activity from the Bats acquisition in 2017, as well as increases 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:

	Year Ended December 31,		Percent Change	Percentage of Total Revenues Year Ended December 31,	
	2018	2017		2018	2017
	(in millions, except percentages)				
Revenues less cost of revenues	$ 56.4	$ 38.2	47.6 %	100.0 %	100.0 %
Operating expenses	68.1	51.0	33.5 %	120.7 %	133.5 %
Operating loss	$ (11.7)	$ (12.8)	(8.6) %	(20.7)%	(33.5)%
EBITDA(1)	$ 22.9	$ 17.5	30.9 %	40.6 %	45.8 %
EBITDA margin(2)	40.6 %	45.8 %	*	*	*

* Not meaningful

(1) See footnote (1) to the table under “Overview” 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.

Revenue less cost of revenues increased $18.2 million for the year ended December 31, 2018 compared to the year ended December 31, 2017, primarily due to a 25.5% increase in ADNV during 2018. For the year ended December 31, 2018, the Global FX segment's operating loss decreased $1.1 million compared to the year ended December 31, 2017. Also contributing to the decrease were two additional months of activity from the Bats acquisition in 2017. Operating expenses increased $17.1 million for the year ended December 31, 2018 compared to the year ended December 31, 2017, primarily due to two months of additional activity from the Bats acquisition in 2017, as well as increases in compensation and benefits and technology support services.

Table of Contents

Comparison of Years Ended December 31, 2017 and 2016

Overview

The following summarizes changes in financial performance for the year ended December 31, 2017, compared to the year ended December 31, 2016:

	Year Ended December 31, 2017		2016		Increase/ (Decrease)		Percent Change	
	(in millions, except percentages, earnings per share, and as noted below)							
Total revenues	$ 2,229.1		$ 703.1		$ 1,526.0		217.0	%
Total cost of revenues	1,233.5		136.7		1,096.8		802.3	%
Revenues less cost of revenues	995.6		566.4		429.2		75.8	%
Total operating expenses	623.7		268.2		355.5		132.6	%
Operating income	371.9		298.2		73.7		24.7	%
Income before income tax provision	334.4		306.6		27.8		9.1	%
Income tax provision	(66.2)		120.9		(187.1)		(154.8)	%
Net income	$ 400.6		$ 185.7		$ 214.9		115.7	%
Basic earnings per share	3.70		2.27		1.43		63.0	%
Diluted earnings per share	3.69		2.27		1.42		62.5	%
Organic net revenue (1)	617.4		566.4		51.0		9.0	%
EBITDA(2)	$ 564.0		$ 355.9		$ 208.1		58.5	%
EBITDA margin(3)	56.6	%	62.8	%	(6.2)	%		*
Adjusted EBITDA(2)	$ 662.3		$ 364.3		$ 298.0		81.8	%
Adjusted EBITDA margin(4)	66.5	%	64.3	%	2.2	%		*
Adjusted earnings(5)	$ 368.0		$ 197.3		$ 170.7		86.5	%
Adjusted earnings margin(6)	37.0	%	34.8	%	2.1	%		*
Diluted weighted average shares outstanding	107.5		81.4		26.1		32.1	%
Diluted Adjusted earnings per share(7)	$ 3.42		$ 2.42		$ 1.00		41.2	%

* Not meaningful

(1) Organic net revenue is defined as revenues less cost of revenues excluding revenues less cost of revenues of any acquisition for the quarter the business was acquired and the following year comparable quarter. Organic net revenue does not represent, and should not be considered as, an alternative to revenues less cost of revenues, or net revenue, as determined in accordance with GAAP. We have presented organic net revenue because we consider it an important supplemental measure of our performance and we use it as the basis for monitoring our operating financial performance before the effects of acquisitions. 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 organic net revenue differently than we do. Organic net revenue 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.

The following is a reconciliation of revenues less cost of revenues to organic net revenue:

	Year Ended December 31,	
	2017	2016
	(in millions)	
Revenue less cost of revenue (net revenue)	$ 995.6	$ 566.4
Bats revenue less cost of revenue	(378.2)	
Organic net revenue	$ 617.4	$ 566.4

(2) EBITDA is defined as income before interest, income taxes, depreciation and amortization. Adjusted EBITDA is defined as EBITDA before acquisition-related costs, accelerated stock-based compensation, and a legal settlement. 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

Table of Contents

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, 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.

The following is a reconciliation of net income (loss) allocated to common stockholders to EBITDA and Adjusted EBITDA:

	Year Ended December 31, 2017						
	Options	U.S. Equities	Futures	European Equities	Global FX	Corporate	Total
	(in millions)						
Net income (loss) allocated to common stockholders	$ 214.0	$ 23.4	$ 126.2	$ 9.9	$ (13.0)	$ 36.2	$ 396.7
Interest	—	—	—	—	—	41.3	41.3
Income tax provision (benefit)	39.4	80.0	—	(0.5)	0.2	(185.3)	(66.2)
Depreciation and amortization	53.2	80.5	1.5	25.5	30.3	1.2	192.2
EBITDA	306.6	183.9	127.7	34.9	17.5	(106.6)	564.0
Acquisition-related costs	1.6	—	—	—	—	82.8	84.4
Accelerated stock-based compensation	—	—	—	—	—	9.1	9.1
Provision for uncollectable convertible notes receivable	3.8	—	—	—	—	—	3.8
Change in fair value of contingent consideration	—	—	—	—	1.0	—	1.0
Adjusted EBITDA	$ 312.0	$ 183.9	$ 127.7	$ 34.9	$ 18.5	$ (14.7)	$ 662.3

	Year Ended December 31, 2016						
	Options	U.S. Equities	Futures	European Equities	Global FX	Corporate	Total
	(in millions)						
Net income (loss) allocated to common stockholders	$ 100.3	$ —	$ 96.4	$ —	$ —	$ (11.8)	$ 184.9
Interest	5.8	—	—	—	—	(0.1)	5.7
Income tax provision (benefit)	120.9	—	—	—	—	—	120.9
Depreciation and amortization	40.3	—	2.8	—	—	1.3	44.4
EBITDA	267.3	—	99.2	—	—	(10.6)	355.9
Acquisition-related costs	—	—	—	—	—	13.5	13.5
Accelerated stock-based compensation	—	—	—	—	—	1.5	1.5
Impairment of intangible assets	(1.4)	—	—	—	—	—	(1.4)
Legal settlement	—	—	—	—	—	(5.5)	(5.5)
Assessment of computer-based lease taxes for prior period use	—	—	—	—	—	0.3	0.3
Adjusted EBITDA	$ 265.9	$ —	$ 99.2	$ —	$ —	$ (0.8)	$ 364.3

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

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

(5) "Adjusted earnings" is defined as net income adjusted for amortization, net of tax and other items, including acquisition-related costs, accelerated stock-based compensation, assessment of computer-based lease taxes for prior period use, and impairment of intangible assets, net of tax. Adjusted earnings does not represent, and should not be considered as, an alternative to net income, as determined in accordance with U.S. 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 electronic 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

Table of Contents

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 U.S. GAAP.

The following is a reconciliation of net income allocated to common stockholders to Adjusted earnings:

	Year Ended December 31,	
	2017	2016
	(in millions)	
Net income allocated to common stockholders	$ 396.7	$ 184.9
Amortization of purchased intangibles	142.6	1.2
Acquisition-related costs	84.4	13.5
Accelerated stock-based compensation	9.1	1.5
Interest and other borrowing costs	5.2	5.7
Impairment of intangible assets	3.8	—
Change in fair value of contingent consideration	1.0	—
Legal settlement	—	(5.5)
Gain on settlement of contingent consideration	—	(1.4)
Assessment of computer-based lease taxes for prior period use	—	0.3
Change in redemption value of noncontrolling interest	1.1	1.1
Tax effect of amortization and other items	(92.3)	(4.0)
Tax effect of tax reform law	(191.1)	—
Re-measurement of deferred tax assets and liabilities as a result of corporate rate increases in Illinois	7.0	—
Net income allocated to participating securities	0.5	—
Adjusted earnings	$ 368.0	$ 197.3

(6) Adjusted earnings margin represents Adjusted earnings divided by revenues less cost of revenues.

(7) Diluted Adjusted earnings per share represents Adjusted earnings divided by diluted weighted average shares outstanding.

Table of Contents

The following summarizes changes in certain operational and financial metrics for the year ended December 31, 2017, compared to the year ended December 31, 2016:

	Year Ended December 31, 2017	2016	Increase/ (Decrease)	Percent Change
	(in millions, except percentages, trading days, and as noted below)			
Options:				
Average daily volume (ADV) (in millions of contracts):				
Total touched contracts	6.6	6.4	0.2	3.1 %
Market ADV	16.7	16.1	0.6	3.7 %
Index contract ADV	2.0	1.7	0.3	17.6 %
Number of trading days	251	252	(1)	(0.4) %
Total Options revenue per contract (RPC) (1)	$ 0.248	$ 0.322	$ (0.074)	(23.0) %
Multiply Listed Options RPC (1)	0.061	0.083	(0.022)	(26.5) %
Index Options RPC (1)	0.687	0.710	(0.023)	(3.2) %
Market share	39.7 %	27.7 %	12.0 %	*
U.S. Equities:				
ADV:				
Total touched shares (in billions)	1.3	*	*	*
Market ADV (in billions)	6.5	*	*	*
Trading days (3)	212	*	*	*
Market share	19.0 %	*	*	*
U.S. Equities (net capture per one hundred touched shares)(2)	$ 0.023	*	*	*
U.S. ETPs: launches (number of launches)	89	*	*	*
U.S. ETPs: listings (number of listings)	250	*	*	*
Futures:				
ADV (in thousands)	294.8	238.8	56.0	23.5 %
Trading days	251	252	(1)	(0.4) %
Revenue per contract	$ 1.779	$ 1.681	$ 0.098	5.8 %
European Equities:				
ADNV:				
Matched and touched ADNV (in billions)	€ 9.4	*	*	*
Market ADNV (in billions)	44.8	*	*	*
Trading days (3)	214	*	*	*
Market share	21.0 %	*	*	*
European Equities (net capture per matched notional value in basis points)(3)	0.167	*	*	*
Average Euro/British pound exchange rate	£ 0.877	*	*	*
Global FX:				
ADNV (in billions)	$ 29.8	*	*	*
Trading days (3)	217	*	*	*
Global FX (net capture per one million dollars traded)(4)	2.61	*	*	*
Average British pound/U.S. dollar exchange rate	$ 1.287	*	*	*

* Not Meaningful

(1) Revenue per contract represents transaction fees less liquidity payments and routing and clearing costs divided by total contracts traded during the period.
(2) 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, BYZ, EDGX, and EDGA and the number of trading days for the period.
(3) Trading days presented exclude the two months of 2017 prior to the Bats acquisition.
(4) Net capture per matched notional value refers to transaction fees less liquidity payments in British pounds divided by the product of matched ADNV in British pounds of shares and the number of trading days for the period.

Table of Contents

(5) Net capture per one million dollars traded refers to net transaction fees divided by the product of one-millionth of ADNV 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.

Revenues

Total revenues increased in the year ended December 31, 2017 reflecting the Bats acquisition on February 28, 2017. The following summarizes changes in revenues for the year ended December 31, 2017, compared to the year ended December 31, 2016:

	Year Ended December 31,		Increase/ (Decrease)	Percent Change	
	2017	2016			
	(in millions, except percentages)				
Transaction fees	$ 1,564.9	$ 509.3	$ 1,055.6	207.3	%
Access fees	106.8	52.4	54.4	103.8	%
Exchange services and other fees	74.8	46.3	28.5	61.6	%
Market data fees	164.5	33.2	131.3	395.5	%
Regulatory fees	291.5	48.3	243.2	503.5	%
Other revenue	26.6	13.6	13.0	95.6	%
Total revenues	$ 2,229.1	$ 703.1	$ 1,526.0	217.0	%

Transaction Fees

Transaction fees increased for the year ended December 31, 2017 compared to the prior year primarily driven by the acquisition of Bats that contributed $970.5 million. The remaining increase was primarily driven by a 50.0% increase in Futures volumes and a 17.6% increase in index options volumes.

Access Fees

Access fees increased for the year ended December 31, 2017 compared to the prior year primarily driven by the acquisition of Bats that contributed $60.1 million. This was partially offset by pricing decreases for market maker permits and floor broker permits effective in the first quarter of 2017.

Exchange Services and Other Fees

Exchange services and other fees increased for the year ended December 31, 2017 compared to the prior year. The increase was primarily a result of the Bats acquisition that contributed $25.0 million.

Market Data Fees

Market data fees increased for the year ended December 31, 2017 compared to the prior year primarily due to the Bats acquisition that contributed $60.1 million.

Regulatory Fees

Regulatory fees increased for the year ended December 31, 2017 compared to the same period in the prior year. The increase in regulatory fees is primarily due to the acquisition of Bats that contributed $246.0 million.

Other Revenue

Other revenue increased for the year ended December 31, 2017 compared to the same period in the prior year primarily due to the Bats acquisition that contributed $9.4 million.

Table of Contents

Cost of Revenues

Cost of revenues increased for the year ended December 31, 2017 compared to the year ended December 31, 2016. The increase was primarily due to the acquisition of Bats. The following summarizes changes in cost of revenues for the year ended December 31, 2017 compared to the prior year:

	Year Ended December 31, 2017	2016	Increase/ (Decrease)	Percent Change	
	(in millions, except percentages)				
Liquidity payments	$ 849.7	$ 35.8	$ 813.9	2,273.5	%
Routing and clearing	37.6	11.1	26.5	238.7	%
Section 31 fees	260.0	11.8	248.2	2,103.4	%
Royalty fees	86.2	78.0	8.2	10.5	%
Total	$ 1,233.5	$ 136.7	$ 1,096.8	802.3	%

Liquidity Payments

Liquidity payments increased for the year ended December 31, 2017 compared to the same period in the prior year primarily driven by the Bats acquisition that contributed $789.3 million.

Routing and Clearing

The increase in routing and clearing fees for the year ended December 31, 2017 compared to the same period in the prior year was primarily driven by the Bats acquisition that contributed $28.3 million.

Section 31 Fees

Section 31 fees increased for the year ended December 31, 2017 compared to the same period in the prior year primarily driven by the Bats acquisition that contributed $243.6 million.

Royalty Fees

Royalty fees for the year ended December 31, 2017 increased from the same period prior year primarily from higher trading volume in licensed products.

Revenues Less Cost of Revenues

Revenues less cost of revenues remained increased for the year ended December 31, 2017 compared to the year ended December 31, 2016 primarily due to the acquisition of Bats.

Table of Contents

The following summarizes the components of revenues less cost of revenues for the year ended December 31, 2017 and 2016, presented as a percentage of revenues less cost of revenues and compared to the prior year:

	Year Ended December 31,		Percent Change	Percentage of Revenues Less Cost of Revenues Year Ended December 31,	
	2017	2016		2017	2016
	(in millions, except percentages)				
Transaction fees less liquidity payments and routing and clearing costs	$ 677.6	$ 462.4	46.5 %	68.1 %	81.6 %
Access fees	106.8	52.4	103.8 %	10.7 %	9.3 %
Exchange services and other fees	74.8	46.3	61.6 %	7.5 %	8.2 %
Market data fees	164.5	33.2	395.5 %	16.5 %	5.9 %
Regulatory fees, less Section 31 fees	31.5	36.5	(13.7) %	3.2 %	6.4 %
Royalty fees	(86.2)	(78.0)	10.5 %	(8.7) %	(13.8) %
Other	26.6	13.6	95.6 %	2.7 %	2.4 %
Revenues less cost of revenues	$ 995.6	$ 566.4	75.8 %	100.0 %	100.0 %

Transaction Fees Less Liquidity Payments and Routing and Clearing Costs

Transaction fees less liquidity payments and routing and clearing costs increased for the year ended December 31, 2017 compared to the same period in 2016 primarily driven by the acquisition of Bats that contributed $153.0 million. The remaining increase was primarily due to higher trading volumes in index options and futures for the year ended December 31, 2017.

Access Fees

Access fees increased for the year ended December 31, 2017 compared to the same period in 2016 primarily driven by the Bats acquisition that contributed $60.1 million. This was partially offset by decreases driven by pricing decreases for market maker permits and floor broker permits effective in the first quarter of 2017.

Exchange Services and Other Fees

Exchange services and other increased for the year ended December 31, 2017 compared to the prior year primarily driven by the Bats acquisition that contributed $25.0 million.

Market Data Fees

Market data fees increased for the year ended December 31, 2017 compared to the prior year primarily due to the Bats acquisition that contributed $128.6 million.

Regulatory Fees, less Section 31 fees

Regulatory fees decreased for the year ended 2017 compared to the same period in the prior year primarily due to a decrease in options regulatory fees reflecting lower regulatory costs to oversee the options markets.

Royalty Fees

Royalty fees for the year ended December 31, 2017 increased from the prior year period primarily from higher trading volume in licensed products.

Table of Contents

Other Revenue

Other revenue increased for the year ended December 31, 2017 compared to the same period in the prior year primarily due to the Bats acquisition that contributed $9.0 million.

Operating Expenses

For the year ended December 31, 2017 compared to the year ended December 31, 2016, acquisition-related costs for the Bats acquisition drove the increase in operating expenses. Incremental operating expenses of Bats from the acquisition date to December 31, 2017 also contributed to the increase, primarily in depreciation and amortization and compensation and benefits. The following summarizes changes in operating expenses for the year ended December 31, 2017, compared to the prior year:

	Year Ended December 31,		Increase/ (Decrease)	Percent Change	
	2017	2016			
	(in millions, except percentages)				
Operating Expenses:					
Compensation and benefits	$ 201.4	$ 113.2	$ 88.2	77.9	%
Depreciation and amortization	192.2	44.4	147.8	332.9	%
Technology support services	42.1	22.5	19.6	87.1	%
Professional fees and outside services	66.0	53.1	12.9	24.3	%
Travel and promotional expenses	17.2	11.0	6.2	56.4	%
Facilities costs	10.3	5.7	4.6	80.7	%
Acquisition related costs	84.4	13.6	70.8	520.6	%
Change in contingent consideration	1.0	—	1.0	*	
Other expenses	9.1	4.7	4.4	93.6	%
Total operating expenses	$ 623.7	$ 268.2	$ 355.5	132.6	%

* Not meaningful

Compensation and Benefits

For the year ended December 31, 2017, compensation and benefits increased compared to the same period in 2016 primarily driven by the incremental costs for additional employees from the Bats acquisition of $77.4 million. The remainder of the increase during the year was due to the acceleration of stock-based compensation due to a change in the vesting terms in the first quarter of 2017.

Depreciation and Amortization

Depreciation and amortization increased for the year ended December 31, 2017 compared to the same period in 2016 primarily driven by amortization of purchased intangible assets acquired from the Bats acquisition of $152.7 million.

Technology Support Services

Technology support services costs increased for the year ended December 31, 2017 compared to the same period in the prior year primarily driven by incremental expense from the acquisition of Bats that contributed $20.1 million.

Professional Fees and Outside Services

Expenses related to professional fees and outside services increased for the year ended December 31, 2017 compared to the same period in the prior year primarily driven by incremental expense from the acquisition of Bats that contributed $14.3 million.

Table of Contents

Acquisition-Related Costs

Acquisition-related costs increased for the year ended December 31, 2017 compared to the same period in the prior year primarily driven by the timing of our acquisition of Bats. 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.

Operating Income

As a result of the items above, operating income in 2017 was $371.9 million compared to $298.2 million in 2016, an increase of $73.7 million.

Interest Expense, Net

Net interest expense increased in the year ended December 31, 2017 primarily due to $39.3 million in interest expense related to the financing of the Bats acquisition. To finance the cash required for the acquisition, we entered into a $1.0 billion term loan agreement and issued $650 million in aggregate principal amount of 3.650% senior notes. In June 2017, we issued $300 million in aggregate principal amount of 1.950% senior notes and used the net proceeds to pay down a portion of the term loan. See Note 13, Debt, to the consolidated financial statements for a discussion of debt agreements.

Other (Expense) Income

Other (expense) income decreased in 2017 compared to 2016 driven by the provision for uncollectable convertible notes receivable of $3.8 million related to our investment in Tradelegs, LLC.

Income Before Income Tax Provision

As a result of the items above, income before income taxes in 2017 was $334.4 million compared to $306.6 million in 2016, an increase of $27.8 million, or 9.1%.

Income Tax Provision (Benefit)

For the year ended December 31, 2017, the income tax provision (benefit) was $(66.2) million compared with $120.9 million for the same period in 2016. The effective tax rate was (19.8)% and 39.4% for the years ended December 31, 2017 and 2016, respectively. The lower effective tax rate in 2017 was primarily due to the tax benefit associated with re-measuring net deferred tax liabilities as a result of the Jobs Act.

Net Income

As a result of the items above, net income for the year ended December 31, 2017 was $401.7 million, or 40.3% of revenues less cost of revenues, compared to $186.8 million, or 32.6% of revenues less cost of revenues, for the year ended December 31, 2016, an increase of $214.9 million.

Segment Operating Results

We previously operated as a single reportable business segment as of December 31, 2016. As a result of the Merger, in 2017, we began reporting five segments: Options, U.S. Equities, Futures, European Equities, and Global FX. Segment performance is primarily based on operating income (loss). Prior to the Merger, the Company did not

conduct business within the current U.S. Equities, European Equities and Global FX segments, and therefore those segments are excluded from the analysis below. We have aggregated all of our 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.

Table of Contents

The following summarizes our revenues by segment:

	Year Ended December 31,		Percent Change		Percentage of Total Revenues Year Ended December 31,			
	2017	2016			2017		2016	
	(in millions, except percentages)							
Options	$ 883.5	$ 589.5	49.9	%	39.6	%	83.8	%
U.S. Equities	1,072.5	—	*		48.1	%	—	%
Futures	144.6	113.6	27.3	%	6.5	%	16.2	%
European Equities	89.6	—	*		4.0	%	—	%
Global FX	38.2	—	*		1.7	%	—	%
Corporate	0.7	—	*		0.0	%	—	%
Total revenues	$ 2,229.1	$ 703.1	217.0	%	100.0	%	100.0	%

* Not Meaningful

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

	Year Ended December 31,		Percent Change		Percentage of Total Revenues less Cost of Revenues Year Ended December 31,			
	2017	2016			2017		2016	
	(in millions, except percentages)							
Options	$ 516.3	$ 457.0	13.0	%	51.9	%	80.7	%
U.S. Equities	239.1	—	*		24.0	%	—	%
Futures	139.5	109.4	27.5	%	14.0	%	19.3	%
European Equities	61.8	—	*		6.2	%	—	%
Global FX	38.2	—	*		3.8	%	—	%
Corporate	0.7	—	*		—	%	—	%
Revenues less cost of revenues	$ 995.6	$ 566.4	75.8	%	100.0	%	100.0	%

* Not Meaningful

Options

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

Percentage

	Year Ended December 31,		Percent Change	% of Total Revenues Year Ended December 31,	
	2017	2016		2017	2016
	(in millions, except percentages)				
Revenues less cost of revenues	$ 516.3	$ 457.0	13.0 %	58.4 %	77.5 %
Operating expenses	264.1	238.6	10.7 %	29.9 %	40.5 %
Operating income	$ 252.2	$ 218.4	15.5 %	28.5 %	37.0 %
EBITDA(1)	$ 306.6	$ 267.3	14.7 %	34.7 %	45.3 %
EBITDA margin(2)	59.4 %	58.5 %	*	*	*

* Not meaningful

Table of Contents

(1) See footnote (1) to the table under “Overview” 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.

For the year ended December 31, 2017, the Options segment's operating income increased $33.8 million compared to the year ended December 31, 2016 primarily due to the acquisition of Bats, which contributed $27.2 million. Also contributing to the increase was the higher volume of index option contracts traded in 2017.

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:

	Year Ended December 31,		Percent Change	Percentage of Total Revenues Year Ended December 31,	
	2017	2016		2017	2016
	(in millions, except percentages)				
Revenues less cost of revenues	$ 239.1	$ --	*	22.3 %	*
Operating expenses	135.9	--	*	12.7 %	*
Operating income	$ 103.2	$ --	*	9.6 %	*
EBITDA(1)	$ 183.9	$ --	*	17.1 %	*
EBITDA margin(2)	76.9 %	*	*	*	*

* Not meaningful

(1) See footnote (1) to the table under “Overview” 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.

For the year ended December 31, 2017, U.S. Equities contributed revenues less costs of revenues of $239.1 million, and operating income of $103.2 million, resulting from our acquisition of Bats on February 28, 2017.

Futures

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

	Year Ended December 31,		Percent Change	Percentage of Total Revenues Year Ended December 31,	
	2017	2016		2017	2016
	(in millions, except percentages)				
Revenues less cost of revenues	$ 139.5	$ 109.4	27.5 %	96.5 %	96.3 %
Operating expenses	12.7	13.0	(2.3) %	8.8 %	11.4 %

Operating income	$ 126.8	$ 96.4	31.5 %	87.7 %	84.9 %
EBITDA(1)	$ 127.7	$ 99.2	28.7 %	88.3 %	87.3 %
EBITDA margin(2)	91.5 %	90.7 %	*	*	*

* Not meaningful

(1) See footnote (1) to the table under “Overview” 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.

Table of Contents

For the year ended December 31, 2017 compared to the same period in 2016, the net revenue and operating income increased $30.1 million and $30.4 million, respectively, primarily driven by a 50% increase in ADV, from 0.2 million contracts per day in 2016 to 0.3 million contracts per day in 2017 and a 5.3% increase in revenue per contract.

European Equities

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

	Year Ended December 31,		Percent Change	Percentage of Total Revenues Year Ended December 31,	
	2017	2016		2017	2016
	(in millions, except percentages)				
Revenues less cost of revenues	$ 61.8	$ —	*	69.0 %	*
Operating expenses	52.9	—	*	59.0 %	*
Operating income	$ 8.9	$ —	*	9.9 %	*
EBITDA(1)	$ 34.9	$ —	*	39.0 %	*
EBITDA margin(2)	56.5 %	*	*	*	*

* Not meaningful

(1) See footnote (1) to the table under “Overview” 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.

For the year ended December 31, 2017 European Equities contributed revenues less costs of revenues of $61.8 million, and operating income of $8.9 million, resulting from our acquisition of Bats on February 28, 2017.

Global FX

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

	Year Ended December 31,		Percent Change	Percentage of Total Revenues Year Ended December 31,	
	2017	2016		2017	2016
	(in millions, except percentages)				
Revenues less cost of revenues	$ 38.2	$ —	*	100.0 %	*
Operating expenses	51.0	—	*	133.5 %	*
Operating income	$ (12.8)	$ —	*	(33.5) %	*
EBITDA(1)	$ 17.5	$ —	*	45.8 %	*
EBITDA margin(2)	45.8 %	*	*	*	*

* Not meaningful

(1) See footnote (1) to the table under “Overview” 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.

For the year ended December 31, 2017 Global FX contributed revenues less costs of revenues of $38.2 million, and operating loss of $12.8 million, resulting from our acquisition of Bats on February 28, 2017.

Table of Contents

Seasonality

In the securities and FX industries, quarterly revenue fluctuations may occur primarily due to seasonal variations in trading volumes, as well as competition and technological and regulatory changes. Our business could experience seasonal fluctuations with the U.S. Equities, European Equities and Global FX segments, reflecting reduced trading activity generally during the third quarter of each year and during the last month of the year. As a result, our operating results for the third or fourth quarter of any year may not be indicative of the results we expect for the full year.

Liquidity and Capital Resources

We expect our cash on hand at December 31, 2018 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, a potential strategic acquisition, and opportunities for common stock repurchases under the previously announced program. We may also utilize excess cash on hand to pay down amounts outstanding under the Term Loan Agreement. See Note 13 “Debt” of the 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 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 December 31, 2018 increased $114.2 million from December 31, 2017 primarily driven by net income, partially offset by share repurchases of $140.9 million and distributions of $130.3 million. See “Cash Flow” below for further discussion.

Our cash and cash equivalents held outside of the United States in various foreign subsidiaries totaled $72.9 million and $44.9 million as of December 31, 2018 and December 31, 2017, respectively. The remaining balance was held in the United States and totaled $202.2 million and $98.6 million as of December 31, 2018 and December 31, 2017, respectively. 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 December 31, 2018 financial investments consisted of U.S. Treasury securities.

Cash Flow

The following table summarizes our cash flow data for the years ended December 31, 2018, 2017 and 2016:

	For the Year Ended December 31,		
	2018	2017	2016
	(in millions)		
Net cash provided by operating activities	$ 534.7	$ 374.4	$ 229.6
Net cash used in investing activities	(25.6)	(1,436.5)	(84.4)
Net cash (used in) provided by financing activities	(371.6)	1,099.7	(150.2)

Effect of foreign currency exchange rate changes on cash and cash equivalents	(5.9)	8.6	—
Increase (decrease) in cash and cash equivalents	$ 131.6	$ 46.2	$ (5.0)

Net Cash Flows Provided by Operating Activities

During the year ended December 31, 2018, net cash provided by operating activities was $109.5 million higher than net income. The primary adjustments were related to accounts receivable of $70.3 million, income tax receivable of

Table of Contents

$53.2 million, provision for deferred income taxes of $47.7 million, Section 31 fees payable of $24.5 million, partially offset by the $204.0 million in depreciation and amortization, accounts payable and accrued liabilities of $46.8 million, the recognition of stock-based compensation totaling $35.1 million, and income tax liability of $36.1 million.

Net cash provided by operating activities was $374.4 million and $229.6 million for the years ended December 31, 2017 and 2016, respectively. The increase in net cash flows provided by operating activities was primarily due to higher net income.

Net cash provided by operating activities was $26.2 million less than net income for the fiscal year ended December 31, 2017. The primary adjustments were related to provision for deferred income taxes of $238.4 million, income taxes payable of $50.5 million, Section 31 fees payable of $42.4 million, partially offset by the $192.2 million in depreciation and amortization, the recognition of stock-based compensation totaling $52.6 million, income tax receivable of $42.4 million, impairment of data processing software of $14.9 million, and accounts payable and accrued liabilities of $10.1 million.

Net Cash Flows Used in Investing Activities

Net cash flows used in investing activities for the year ended December 31, 2018 were $25.6 million. The variance is primarily attributed to purchases of property and equipment of $36.3 million.

On March 13, 2015, Bats completed the acquisition of Hotspot FX Holdings LLC (“Hotspot”). In the second quarter of 2018, we paid the Hotspot seller $56.6 million relating to a tax sharing arrangement in connection with such acquisition. The contingent consideration liability represented a tax sharing arrangement with the seller for payment of 70% of the tax benefit from the amortization resulting from the Hotspot transaction for the first three years after the Hotspot acquisition date and 50% of the tax benefit for the remaining twelve years.

Net cash flows used in investing activities totaled $1,436.5 million and $84.4 million for the years ended December 31, 2017 and 2016, respectively. Expenditures for capital and other assets totaled $37.5 million and $44.4 million for the years ended December 31, 2017 and 2016, respectively, primarily representing purchases of systems hardware and development of software to develop and enhance our trading platform and operations. In 2017, investing activities primarily represented our acquisition of Bats.

In 2016, investing activities primarily represented our majority investment in Vest, which totaled $14.3 million, and other investments totaling $23.3 million, which primarily includes our investments in CurveGlobal and Eris.

We expect to spend $50 million to $55 million in capital expenditures in 2019 primarily for the potential office relocation, Brexit, and general maintenance and ongoing enhancement of our data and telecommunications infrastructure.

Net Cash Flows Provided by (Used in) Financing Activities

For the year ended December 31, 2018, $300.0 million was received in proceeds from long-term debt, offset by $325.0 million in payments of long-term debt. Purchase of common stock totaled $140.9 million. Dividends paid totaled $130.3 million.

Net cash flows provided by financing activities totaled $1.1 billion for the year ended December 31, 2017. Net cash flows used in financing activities totaled $150.2 million for the year ended December 31, 2016. The $1.3 billion increase in net cash flows provided by financing activities resulted primarily from proceeds from long-term debt.

81

Table of Contents

Financial Assets

The following summarizes our financial assets for the years ended December 31, 2018, 2017 and 2016:

	For the Year Ended December 31,		
	2018	2017	2016
	(in millions)		
Cash and cash equivalents	$ 275.1	$ 143.5	$ 97.3
Financial investments	35.7	47.3	—
Less cash collected for Section 31 Fees	(53.1)	(70.5)	—
Adjusted Cash(1)	$ 257.7	$ 120.3	$ 97.3

(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 for the years ended December 31, 2018, 2017 and 2016:

	For the Year Ended December 31,		
	2018	2017	2016
	(in millions)		
Debt:			
Term Loan Agreement	275.0	300.0	—
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	(9.6)	(12.1)	—
Total debt	$ 1,215.4	$ 1,237.9	$ —

At December 31, 2018, we were in compliance with the covenants of our debt agreements.

In addition to the debt outstanding, as of December 31, 2018 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 $407.7 million available to fund our operations, capital expenditures, potential acquisitions, debt repayments and any dividends as of December 31, 2018.

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, 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

Table of Contents

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 year ended December 31, 2018, the Company repurchased 1,347,954 shares of common stock at an average cost per share of $104.52, totaling $140.9 million. Since inception of the program through December 31, 2018, the Company has repurchased 12,295,355 shares of common stock at an average cost per share of $52.37, totaling $643.9 million.

As of December 31, 2018, the Company had $206.1 million of availability remaining under its existing share repurchase authorizations.

OCC Capital Plan

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 exceeds OCC's capital requirements after payment of refunds to OCC's clearing members (with such customer refunds generally to constitute 50% of the portion of OCC's pre-tax income that exceeds OCC's capital requirements). On March 3, 2015, in accordance with the plan, Cboe Options contributed $30 million to OCC. That contribution has been recorded under investments in the consolidated balance sheets as of December 31, 2018 and 2017.

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, (the “Court”) 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 complies 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 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. As a result of the recency, there is uncertainty regarding next steps and potential consequences.

Table of Contents

Lease and Obligations

The Company currently leases additional office space, data centers and remote network operations center, with lease terms remaining from 1 months to 102 months as of December 31, 2018. In December 2014, we entered into an agreement with FINRA to provide certain regulatory services to the Cboe and C2 options markets. The agreement included the assignment of the office space Cboe leased for regulatory operations.

Total rent expense related to current and former lease obligations for the years ended December 31, 2018, 2017 and 2016 totaled $10.1 million, $7.6 million and $4.4 million, respectively. In addition to our lease obligations, we have contractual obligations related to certain operating leases, data and telecommunications agreements, and our long-term debt outstanding. Future minimum payments under these leases and agreements were as follows as of December 31, 2018:

	Payments Due by Period				
	Total	Less than 1 year	1-3 years	4-5 years	5 years	More than
Contractual Obligations	(in millions)					
Operating leases	$ 34.0	$ 6.1	$ 9.6	$ 9.8	$ 8.5
Principal payments of debt	1,225.0	300.0	275.0	—	650.0
Interest payments on debt	233.2	38.9	95.9	48.8	49.6
Total	$ 1,492.2	$ 345.0	$ 380.5	$ 58.6	$ 708.1

Off Balance Sheet Arrangements

As of December 31, 2018 and 2017, we did not have any off-balance sheet arrangements.

Guarantees

We use Wedbush Securities and Morgan Stanley to clear our routed cash equities transactions in our U.S. Equities segment. Wedbush Securities and Morgan Stanley guarantee the trade until one day after the trade date, after which time the NSCC provides a guarantee. In the case of failure to perform on the part of one of our clearing firms, Wedbush Securities or Morgan Stanley, we provide the guarantee to the counterparty to the trade. The OCC acts as a central counterparty on all transactions in listed equity options in our Options segment, and as such, guarantees clearance and settlement of all of our options transactions. 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. 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.

Our equity method investment, EuroCCP, has entered into a Liquidity Facility with ABN Amro Clearing Bank N.V. (“AACB”). Based on our shareholders’ agreement with EuroCCP, Cboe Europe Limited has provided a guarantee to AACB of up to €6 million. We believe that any potential requirement for us to make payments under this guarantee is remote and accordingly, have not recorded any liability in the consolidated financial statements for this guarantee.

Critical Accounting Policies

The preparation of consolidated financial statements in conformity with U.S. GAAP requires our management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of the amounts of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from those estimates. On an ongoing basis, the Company evaluates its estimates, including those related to areas that require a significant level of judgment or are otherwise subject to an inherent degree of uncertainty. The Company bases its estimates on historical experience, observance of trends in particular areas, information available from outside sources and various other assumptions that are believed to be reasonable under the circumstances. Information from these sources form the basis for making judgments about the carrying values of assets and liabilities that may not be readily apparent from other sources.

Table of Contents

We have identified the policies below as critical to our business operations and the understanding of our results of operations. The impact of, and any associated risks related to, these policies on our business operations is discussed throughout "Management's Discussion and Analysis of Financial Condition and Results of Operations." For a detailed discussion on the application of these and other accounting policies, see Note 2 to our consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K.

Revenue Recognition

For further discussion related to revenue recognition of fees, such as transaction fees and liquidity payments, access fees, exchange services and other fees, market data fees, and regulation transaction and Section 31 fees, see Note 4.

Goodwill and Other Intangible Assets

Our acquisitions of Bats, Vest, Silexx, and Livevol resulted in the recording of goodwill and other intangible assets. In accordance with ASC 350—Intangibles—Goodwill and Other, we test the carrying values of goodwill and indefinite-lived intangible assets for impairment at least annually, or more frequently when events or changes in circumstances signal indicators of impairment are present. We perform our annual impairment test of goodwill and other indefinite-lived intangible assets during the fourth quarter of our fiscal year, using the October 1 carrying values. Goodwill is tested for impairment at the reporting unit level in accordance with ASC 350-20. If the carrying value of the reporting unit exceeds its fair value, an impairment loss will be recognized in an amount equal to the excess. If the fair value of indefinite-lived intangible assets is less than their carrying value, an impairment loss will be recognized in an amount equal to the difference. We performed our annual goodwill impairment test as of October 1, 2018 and determined that no impairment existed.

The estimated fair values of our reporting units are based on the market approach and the income approach (using discounted estimated future cash flows). The estimated fair values of indefinite-lived intangibles used the income approach. The discounted cash flow analysis requires significant judgment, including judgments about the discount rate, anticipated revenue growth rate, and operating expenses, that are inherent in these fair value estimates over the estimated remaining operating period. As such, actual results may differ from these estimates and lead to a revaluation of our goodwill and indefinite-lived intangible assets. If updated estimates indicate that the fair value of goodwill or any indefinite-lived intangibles is less than the carrying value of the asset, an impairment charge is expected to be recorded in the consolidated statements of income in the period of the change in estimate.

Purchase Accounting

Tangible and intangible assets acquired and liabilities assumed in an acquired business are recorded at their estimated fair values on the date of acquisition. The difference between the purchase price amount and the net fair value of assets acquired and liabilities assumed is recognized as goodwill on the balance sheet if the purchase price exceeds the estimated net fair value or as a bargain purchase gain on the income statement if the purchase price is less than the estimated net fair value. Determining the fair value of assets acquired and liabilities assumed requires management’s judgment, often utilizes independent valuation experts and involves the use of significant estimates and assumptions with respect to the timing and amounts of future cash inflows and outflows, discount rates, market prices and asset lives, among other items. The judgments made in the determination of the estimated fair value assigned to the assets acquired and liabilities assumed, as well as the estimated useful life of each asset and the duration of each liability, could significantly impact the financial statements in periods after acquisition, such as through depreciation and amortization expense. When available, the estimated fair values of these assets and liabilities are determined based on observable inputs, such as quoted market prices, information from comparable transactions, offers made by other prospective acquirers (in such cases where we may have certain rights to acquire additional interests in existing investments) and the replacement cost of assets in the same condition or stage of usefulness (Level 1 and 2).

Unobservable inputs, such as expected future cash flows or internally developed estimates of value (Level 3), are used if observable inputs are not available. As noted in ASC 805-Business Combinations, the allocation of the purchase price may be modified up to twelve months after the acquisition date as more information is obtained about the fair value of assets acquired and liabilities assumed. The results of operations of the acquired businesses are included in our operating results from the date of acquisition. See Note 5 for additional information.

Table of Contents

Stock-Based Compensation

We have historically granted stock-based compensation to our employees in the form of restricted stock units. With the acquisition of Bats, we also assumed Bats' grants of restricted stock and stock options to certain employees. We record the related compensation expense based on the grant date fair value calculated in accordance with the authoritative guidance issued by FASB. We recognize these compensation costs on a straight-line basis over the requisite service period of the award.

We estimate the grant date fair value of stock options using the Black-Scholes valuation model. Stock-based compensation expense related to awards of restricted stock is based on the fair value at the grant date. We recognized compensation expense of approximately $35.1 million, $50.1 million, and $14.5 million for the years ended December 31, 2018, 2017 and 2016, respectively. This expense is included in the compensation and benefits expense and acquisition related costs in the consolidated statements of income. Assumptions used to estimate compensation expense are determined as follows:

- expected term is determined using the contractual term and vesting period of the award;
- expected volatility of award grants is measured using the weighted average of historical daily changes in the market price of the common stock of comparable public companies over the period equal to the expected term of the award;
- expected dividend rate is determined based on expected dividends to be declared; and
- risk-free interest rate is equivalent to the implied yield on zero-coupon U.S. Treasury bonds with a maturity equal to the expected term of the awards.

Income Taxes

Deferred taxes are provided on a liability method whereby deferred tax assets are recognized for deductible temporary differences and operating loss and tax credit carryforwards and deferred tax liabilities are recognized for taxable temporary differences. Temporary differences are the differences between the reported amounts of assets and liabilities and their tax bases. Deferred tax assets are reduced by a valuation allowance when, in our opinion, it is more likely than not that all or some portion of the deferred tax assets will not be realized. Deferred tax assets and liabilities are adjusted for the effects of changes in tax laws and rates on the date of enactment.

Foreign Currency

The functional currency of Cboe Europe and certain Cboe FX operations is the British pound. Certain Cboe FX operations also use the Singapore dollar and Hong Kong dollar as functional currency. Trades on our European Equities exchange are denominated in Euros, British pounds and other European currencies. Billing for trading revenues are primarily billed in British pounds, but customers may elect to be billed in the currency traded, including Euros, Swiss Francs, Norwegian Kroners, Swedish Kronas and Danish Kroners. The assets and liabilities of Cboe Europe and certain Cboe FX operations are translated from British pounds, Singapore dollars, and Hong Kong dollars into U.S. dollars using the relevant exchange rate in effect as of each balance sheet date. Statements of income and cash flow amounts are translated using the average exchange rate during the period. The cumulative effects of translating the balance sheet accounts from the functional currency into the U.S. dollar at the applicable exchange rates are included in accumulated other comprehensive income (loss). Foreign currency gains and losses are recorded as other income (expense) in our consolidated statements of income and have historically not been material.

Recent Accounting Pronouncements

See Note 3 "Recent Accounting Pronouncements" to the consolidated financial statements for further discussion of recently adopted and recently issued accounting pronouncements that are applicable to the Company.

86

Table of Contents

Item 7A. 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

As a result of the acquisition of Bats, we expanded our operations in Europe and Asia, and are subject to 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.

For the year ended December 31, 2018, our exposure to foreign-denominated revenues and expenses is presented by primary foreign currency in the following table:

	Year Ended December 31, 2018			
	Euro (1)		British Pound (1)	
	(in millions, except percentages)			
Foreign denominated % of:				
Revenues	1.2	%	3.3	%
Cost of revenues	0.7	%	1.5	%
Operating expenses	0.2	%	2.7	%
Impact of 10% adverse currency fluctuation on:				
Revenues	3.6		8.1	
Cost of revenues	1.3		2.0	
Operating expenses	0.1		1.3	

(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 operational results 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 balance sheet.

Our primary exposure to this equity risk as of December 31, 2018 is presented by foreign currency in the following table:

	British Pound (1)

	(in millions)
Net equity investment in Cboe Europe	$ 705.9
Impact on consolidated equity of a 10% adverse currency fluctuation	$ 70.6

(1) Converted to U.S. dollars using the foreign exchange rate of British pounds into U.S. dollars as of December 31, 2018.

Table of Contents

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 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 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.

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 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 consolidated 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, financial investments, and indebtedness. As of December 31, 2018 and 2017, our cash and cash equivalents and financial

investments were $310.8 million and $190.8 million, respectively, of which $72.9 and $44.9 million is held outside of the United States in various foreign subsidiaries in 2018 and 2017, respectively. The remaining cash and cash equivalents and financial investments 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

Table of Contents

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 investments.

As of December 31, 2018, 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 December 31, 2018 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 December 31, 2018, there were no outstanding borrowings under our Revolving Credit Agreement. See Note 13, Debt, to the consolidated financial statements for a discussion of debt agreements.

Table of Contents

Item 8. Financial Statements and Supplementary Data

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Cboe Global Markets, Inc. and Subsidiaries	
Reports of Independent Registered Public Accounting Firm	91
Consolidated Financial Statements:	
Consolidated Balance Sheets	94
Consolidated Statements of Income	95
Consolidated Statements of Comprehensive Income	96
Consolidated Statements of Changes in Stockholders' Equity	97
Consolidated Statements of Cash Flows	98
Notes to Consolidated Financial Statements	99

Table of Contents

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Cboe Global Markets, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Cboe Global Markets, Inc. and subsidiaries (the "Company") as of December 31, 2018 and 2017, the related consolidated statements of income, comprehensive income, changes in stockholders' equity, and cash flows, for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 22, 2019, expressed an unqualified opinion on the Company's internal control over financial reporting.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ DELOITTE & TOUCHE LLP
Chicago, Illinois
February 22, 2019

We have served as the Company's auditor since 1973.

Table of Contents

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Cboe Global Markets, Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Cboe Global Markets, Inc. and subsidiaries (the "Company") as of December 31, 2018, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control — Integrated Framework (2013) issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2018, of the Company and our report dated February 22, 2019, expressed an unqualified opinion on those financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Table of Contents

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ DELOITTE & TOUCHE LLP
Chicago, Illinois
February 22, 2019

Table of Contents

Cboe Global Markets, Inc. and Subsidiaries

Consolidated Balance Sheets

December 31, 2018 and 2017

(In millions, except share and per share data)

	December 31, 2018	December 31, 2017
Assets		
Current Assets:		
Cash and cash equivalents	$ 275.1	$ 143.5
Financial investments	35.7	47.3
Accounts receivables, net	287.3	217.3
Income taxes receivable	70.4	17.2
Other current assets	15.2	9.4
Total Current Assets	683.7	434.7
Investments	86.2	82.7
Land	4.9	4.9
Property and equipment, net	71.7	73.9
Goodwill	2,691.4	2,707.4
Intangible assets, net	1,720.2	1,902.6
Other assets, net	62.9	59.5
Total Assets	$ 5,321.0	$ 5,265.7
Liabilities, Redeemable Noncontrolling Interests and Stockholders' Equity		
Current Liabilities:		
Accounts payable and accrued liabilities	$ 198.5	$ 153.8
Section 31 fees payable	81.1	105.6
Deferred revenue	8.5	15.4
Income taxes payable	4.1	2.6
Current portion of long-term debt	299.8	—
Contingent consideration liability	3.9	56.6
Total Current Liabilities	595.9	334.0
Long-term debt	915.6	1,237.9
Income tax liability	114.9	78.8
Deferred income taxes	436.8	488.2
Other non-current liabilities	7.4	6.8
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 December 31, 2018 and December 31, 2017	—	—
Common stock, $0.01 par value: 325,000,000 shares authorized, 125,080,496 and 111,601,976 shares issued and outstanding, respectively at December 31, 2018 and	1.2	1.2

124,705,786 and 112,741,217 shares issued and outstanding, respectively at December 31, 2017		
Common stock in treasury, at cost, 13,478,520 shares at December 31, 2018 and 11,964,569 shares at December 31, 2017	(720.1)	(558.3)
Additional paid-in capital	2,660.2	2,623.7
Retained earnings	1,288.2	993.3
Accumulated other comprehensive income, net	11.5	50.7
Total stockholders' equity	3,241.0	3,110.6
Total liabilities, redeemable noncontrolling interest, and stockholders' equity	$ 5,321.0	$ 5,265.7

See accompanying notes to consolidated financial statements.

Table of Contents

Cboe Global Markets, Inc. and Subsidiaries

Consolidated Statements of Income

Years ended December 31, 2018, 2017 and 2016

(In millions, except per share data)

	2018	2017	2016
Revenues:			
Transaction fees	$ 1,986.9	$ 1,564.9	$ 509.3
Access fees	127.9	106.8	52.4
Exchange services and other fees	83.1	74.8	46.3
Market data fees	204.0	164.5	33.2
Regulatory fees	333.9	291.5	48.3
Other revenue	33.0	26.6	13.6
Total revenues	2,768.8	2,229.1	703.1
Cost of revenues:			
Liquidity payments	1,113.0	849.7	35.8
Routing and clearing	39.1	37.6	11.1
Section 31 fees	302.4	260.0	11.8
Royalty fees	97.4	86.2	78.0
Total cost of revenues	1,551.9	1,233.5	136.7
Revenues less cost of revenues	1,216.9	995.6	566.4
Operating expenses:			
Compensation and benefits	228.8	201.4	113.2
Depreciation and amortization	204.0	192.2	44.4
Technology support services	47.9	42.1	22.5
Professional fees and outside services	68.3	66.0	53.1
Travel and promotional expenses	13.0	17.2	11.0
Facilities costs	11.5	10.3	5.7
Acquisition-related costs	30.0	84.4	13.6
Other expenses	14.0	10.1	4.7
Total operating expenses	617.5	623.7	268.2
Operating income	599.4	371.9	298.2
Non-operating (expenses) income:			
Interest expense, net	(38.2)	(41.3)	(5.7)
Other income	10.0	3.8	14.1
Income before income tax provision (benefit)	571.2	334.4	306.6
Income tax provision (benefit)	146.0	(66.2)	120.9
Net income	425.2	400.6	185.7
Net loss attributable to noncontrolling interests	1.3	1.1	1.1
Net income excluding noncontrolling interests	426.5	401.7	186.8
Change in redemption value of noncontrolling interests	(1.3)	(1.1)	(1.1)
Net income allocated to participating securities	(3.1)	(3.9)	(0.8)
Net income allocated to common stockholders	$ 422.1	$ 396.7	$ 184.9
Basic earnings per share	$ 3.78	$ 3.70	$ 2.27
Diluted earnings per share	$ 3.76	$ 3.69	$ 2.27

Basic weighted average shares outstanding	111.8	107.2	81.4
Diluted weighted average shares outstanding	112.2	107.5	81.4

See accompanying notes to consolidated financial statements.

Table of Contents

Cboe Global Markets, Inc. and Subsidiaries

Consolidated Statements of Comprehensive Income

Years ended December 31, 2018, 2017 and 2016

(In millions)

	2018	2017	2016
Net income	$ 425.2	$ 400.6	$ 185.7
Other comprehensive (loss) income, before tax:			
Foreign currency translation adjustments	(39.2)	51.3	—
Unrealized holding gains on available-for-sale investments	—	0.2	—
Comprehensive income	386.0	452.1	185.7
Comprehensive loss attributable to noncontrolling interests	1.3	1.1	1.1
Comprehensive income excluding noncontrolling interest	387.3	453.2	186.8
Change in redemption value of noncontrolling interests	(1.3)	(1.1)	(1.1)
Comprehensive income allocated to participating securities	(3.1)	(3.9)	(0.8)
Comprehensive income allocated to common stockholders, net of tax	$ 382.9	$ 448.2	$ 184.9

See accompanying notes to consolidated financial statements.

Table of Contents

Cboe Global Markets, Inc. and Subsidiaries

Consolidated Statements of Changes in Stockholders' Equity

Years ended December 31, 2018, 2017 and 2016

(In millions)

	Preferred Stock	Common Stock	Treasury Stock	Additional paid-in capital	Retained earnings	Accumulated other comprehensive income (loss), net	Total stockholders' equity	Redeemable Noncontrolling Interest
Balance at December 31, 2015	$ —	$ 0.9	$ (467.6)	$ 123.6	$ 603.6	$ (0.8)	$ 259.7	$ —
Cash dividends on common stock of $0.96 per share	—	—	—	—	(78.5)	—	(78.5)	—
Stock-based compensation	—	—	—	14.5	—	—	14.5	—
Excess tax benefits from stock-based compensation plan	—	—	—	1.1	—	—	1.1	—
Purchase of common stock	—	—	(64.6)	—	—	—	(64.6)	—
Net Income excluding noncontrolling interests	—	—	—	—	186.8	—	186.8	—
Increase due to acquiring majority of outstanding equity of Vest	—	—	—	—	—	—	—	12.6
Net loss attributable to redeemable noncontrolling interest	—	—	—	—	—	—	—	(1.1)
Redemption value adjustment	—	—	—	—	(1.1)	—	(1.1)	1.1

Balance at December 31, 2016	$ —	$ 0.9	$ (532.2)	$ 139.2	$ 710.8	$ (0.8)	$ 317.9	$ 12.6
Cash dividends on common stock of $1.04 per share	—	—	—	—	(118.1)	—	(118.1)	—
Stock-based compensation	—	—	—	52.6	—	—	52.6	—
Exercise of common stock options	—	—	—	4.0	—	—	4.0	—
Issuance of vested restricted stock granted to employees	—	—	—	0.3	—	—	0.3	—
Issuance of stock for acquisition of Bats Global Markets, Inc.	—	0.3	—	2,424.4	—	—	2,424.7	—
Common stock issued from employee stock plans	—	—	(26.1)	—	—	—	(26.1)	—
Net income excluding noncontrolling interest	—	—	—	—	401.7	—	401.7	—
Purchase of additional equity interest from noncontrolling interest	—	—	—	3.2	—	—	3.2	(3.2)
Other comprehensive income	—	—	—	—	—	51.5	51.5	—
Net loss attributable to redeemable noncontrolling interest	—	—	—	—	—	—	—	(1.1)
Redemption value adjustment	—	—	—	—	(1.1)	—	(1.1)	1.1
Balance at December 31, 2017	$ —	$ 1.2	$ (558.3)	$ 2,623.7	$ 993.3	$ 50.7	$ 3,110.6	$ 9.4
	—	—	—	—	(130.3)	—	(130.3)	—

Cash dividends on common stock of $1.16 per share								
Stock-based compensation	—	—	—	35.1	—	—	35.1	—
Common stock repurchased from employee stock plans	—	—	(20.9)	1.4	—	—	(19.5)	—
Purchase of common stock	—	—	(140.9)	—	—	—	(140.9)	—
Net income excluding noncontrolling interest	—	—	—	—	426.5	—	426.5	—
Other comprehensive loss	—	—	—	—	—	(39.2)	(39.2)	—
Net loss attributable to redeemable noncontrolling interest	—	—	—	—	—	—	—	(1.3)
Redemption value adjustment of redeemable noncontrolling interest	—	—	—	—	(1.3)	—	(1.3)	1.3
Balance at December 31, 2018	$ —	$ 1.2	$ (720.1)	$ 2,660.2	$ 1,288.2	$ 11.5	$ 3,241.0	$ 9.4

See accompanying notes to consolidated financial statements.

Table of Contents

Cboe Global Markets, Inc. and Subsidiaries

Consolidated Statements of Cash Flows

Years ended December 31, 2018, 2017 and 2016

(In millions)

	2018	2017	2016
Cash Flows from Operating Activities:			
Net income	$ 425.2	$ 400.6	$ 185.7
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	204.0	192.2	44.4
Amortization of debt issuance cost	2.5	3.6	—
Change in fair value of contingent consideration	3.9	1.0	—
Gain on settlement of contingent consideration	—	—	(1.4)
Realized gain on available-for-sale securities	(1.4)	(0.4)	—
Provision for uncollectable convertible notes receivable	—	3.8	—
Provision for deferred income taxes	(47.7)	(238.4)	(8.8)
Stock-based compensation expense	35.1	52.6	14.5
Loss on disposition of property	1.0	—	—
Impairment of data processing software	—	14.9	—
Equity in investments	(1.1)	(1.4)	(1.2)
Changes in assets and liabilities:			
Accounts receivable	(70.3)	(20.6)	(8.4)
Income taxes receivable	(53.2)	42.0	(25.8)
Other prepaid expenses	(15.8)	(7.3)	(0.2)
Other current assets	—	—	0.5
Accounts payable and accrued liabilities	46.8	10.3	21.0
Section 31 fees payable	(24.5)	(42.4)	—
Deferred revenue	(7.0)	7.8	(1.5)
Income taxes payable	0.4	(50.5)	(1.6)
Income tax liability	36.1	6.3	12.4
Other liabilities	0.7	0.3	—
Net Cash Flows provided by Operating Activities	534.7	374.4	229.6
Cash Flows from Investing Activities:			
Acquisitions, net of cash acquired	—	(1,414.1)	(14.3)
Purchases of available-for-sale financial investments	(166.2)	(136.0)	—
Proceeds from maturities of available-for-sale financial investments	178.7	155.1	—
Purchases of investments	(1.8)	(4.0)	(23.7)
Payment of contingent consideration from acquisition	—	—	(2.0)
Purchases of property and equipment	(36.3)	(37.5)	(44.4)
Net Cash Flows used in Investing Activities	(25.6)	(1,436.5)	(84.4)
Cash Flows from Financing Activities:			
Proceeds from long-term debt	300.0	1,943.9	—
Principal payments of long term debt	(325.0)	(700.0)	—
Proceeds from credit facility	39.0	—	—

Payments of credit facility	(39.0)	—	—
Debt issuance costs	—	(2.0)	(8.2)
Dividends paid	(130.3)	(118.1)	(78.5)
Purchase of unrestricted stock from employees	(20.9)	(26.1)	(4.1)
Proceeds from exercise of stock-based compensation	2.1	2.0	—
Excess tax benefit from stock based compensation	—	—	1.1
Payment of contingent consideration in conjunction with acquisition of a business	(56.6)	—	—
Purchase of common stock under announced program	(140.9)	—	(60.5)
Net Cash Flows (used in) provided by Financing Activities	(371.6)	1,099.7	(150.2)
Effect of Foreign Currency Exchange Rate Changes on Cash and Cash equivalents	(5.9)	8.6	
Increase (Decrease) in Cash and Cash Equivalents	131.6	46.2	(5.0)
Cash and Cash Equivalents:			
Beginning of Period	143.5	97.3	102.3
End of Period	$ 275.1	$ 143.5	$ 97.3
Supplemental disclosure of cash transactions:			
Cash paid for income taxes	$ 213.4	$ 177.4	$ 142.1
Interest paid	38.7	27.0	—
Supplemental disclosure of noncash transactions:			
Forfeiture of common stock for payment of exercise of stock options	—	3.7	—
Supplemental disclosure of noncash investing activities:			
Change in post-retirement benefit obligation	—	—	(0.1)
Accounts receivable acquired	—	117.8	—
Financial investments acquired	—	66.0	—
Property and equipment acquired	—	21.8	—
Goodwill acquired	—	2,653.3	—
Intangible assets acquired	—	2,000.0	—
Other assets acquired	—	32.8	—
Accounts payable and accrued expenses assumed	—	(59.9)	—
Section 31 fees payable acquired	—	(143.6)	—
Deferred tax liability acquired	—	(722.6)	—
Other liabilities assumed	—	(135.5)	—
Issuance of common stock related to acquisition	—	(2,424.7)	—

See accompanying notes to consolidated financial statements

Table of Contents

Cboe Global Markets, Inc. and Subsidiaries

Notes to Consolidated Financial Statements

As of December 31, 2018 and 2017 and for the
Years ended December 31, 2018, 2017 and 2016

(1) Nature of Operations

Cboe Global Markets, Inc.(“Cboe” or “the Company”) 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, global foreign exchange and multi-asset volatility products based on the VIX, 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, Singapore, Hong Kong, and Ecuador.

(2) Summary of Significant Accounting Policies

(a)Principles of Accounting

These consolidated financial statements are prepared in conformity with accounting principles generally accepted in the United States (“GAAP”) as established by FASB.

(b)Basis of Presentation

The accompanying financial statements are presented on a consolidated basis to include the accounts and transactions of Cboe Global Markets, Inc. and its majority owned subsidiaries and all significant intercompany accounts and transactions have been eliminated.

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 interests 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.

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 are shown as non-controlling interests.

Segment information

The Company has 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 17). This change has been reflected in all periods presented.

Table of Contents

(c)Use of Estimates

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 as well as disclosure of the amounts of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from those estimates. Material estimates that are particularly susceptible to significant change in the near term include the valuation of goodwill, indefinite-lived intangible assets, and unrecognized tax benefits.

(d)Cash and Cash Equivalents

The Company's cash and cash equivalents are exposed to concentrations of credit risk. The Company maintains cash at various financial institutions and brokerage firms which, at times, may be in excess of the federal depository insurance limit. The Company's management regularly monitors these institutions and believes that the potential for future loss is remote. The Company considers all liquid investments with original or acquired maturities of three months or less to be cash equivalents.

(e)Financial Investments

Financial investments are classified as trading or available-for-sale.

Trading financial investments represent financial investments held by the Company's broker dealer subsidiary that retain the industry specific accounting classification required for broker dealers. These investments are recorded at fair value with changes in unrealized gains and losses reflected within interest expense, net in the consolidated statements of income.

Available-for-sale financial investments are comprised of the financial investments not held by the broker-dealer subsidiary. Unrealized gains and losses, net of income taxes, are included as a component of accumulated other comprehensive income in the accompanying consolidated balance sheets.

Interest on financial investments, including amortization of premiums and accretion of discounts, is recognized as income when earned. Realized gains and losses on financial investments are calculated using the specific identification method and are included in interest expense, net in the accompanying consolidated statements of income.

A decline in the fair value of any available-for-sale investment below carrying amount that is deemed to be other than temporary results in an impairment to reduce the carrying amount to realizable value. To determine whether an impairment is other than temporary, the Company considers all available information relevant to the collectability of the investment, including past events, current conditions, and reasonable and supportable forecasts when developing estimate of cash flows expected to be collected. Evidence considered in this assessment includes the reasons for the impairment, the severity and duration of the impairment, changes in value subsequent to year end, forecasted performance of the investee, and the general market condition in the geographic area or industry in which the investee operates.

(f)Accounts Receivable, Net

Accounts receivable are concentrated with the Company's member firms and market data distributors and are carried at cost. The Company nets transaction fees and liquidity payments for each member firm on a monthly basis and recognizes the total owed from a member firm as an asset and the total owed to a member firm as a liability. On a

periodic basis, management evaluates the Company's receivables and determines an appropriate allowance for uncollectible accounts receivable based on anticipated collections. In circumstances where a specific customer's inability to meet its financial obligations is probable, the Company records a specific provision for uncollectible accounts against amounts due to reduce the receivable to the amount the Company estimates will be collected. Once the Company determines an allowance for an uncollectible account is necessary, interest on the receivable ceases to be accrued.

Table of Contents

(g)Property and Equipment, Net

Property and equipment, net is stated at cost less accumulated depreciation. Depreciation is computed using the straight line method over the estimated lives of the assets, generally ranging from three to seven years. Expenditures for repairs and maintenance are charged to expense as incurred. Depreciation of leasehold improvements is calculated using the straight line method over the shorter of the related lease term or the estimated useful life of the assets.

Long lived assets to be held and used are reviewed to determine whether any events or changes in circumstances indicate that the carrying amounts of the assets may not be recoverable. The Company bases this evaluation on such impairment indicators as the nature of the assets, the future economic benefit of the assets, any historical or future profitability measurements, as well as other external market conditions or factors that may be present. If such impairment indicators are present that would indicate that the carrying amount of any asset may not be recoverable, the Company determines whether an impairment has occurred through the use of an undiscounted cash flow analysis of the asset at the lowest level for which identifiable cash flows exist. In the event of impairment, the Company recognizes a loss for the difference between the carrying amount and the estimated value of the asset as measured using quoted market prices or, in the absence of quoted market prices, a discounted cash flow analysis.

The Company expenses software development costs as incurred during the preliminary project stage, while capitalizing costs incurred during the application development stage, which includes design, coding, installation and testing activities.

(h)Goodwill and Intangible Assets, Net

Goodwill represents the excess of purchase price over the value assigned to the net tangible and identifiable intangible assets of a business acquired. Goodwill is allocated to the Company’s reporting units based on the assignment of the fair values of each reporting unit of the acquired company. The Company tests goodwill for impairment at the reporting unit level annually, or in interim periods if certain events occur indicating that the carrying value may be impaired. The impairment test is performed during the fourth quarter using October 1st carrying values, and if the fair value of the reporting unit is found to be less than the carrying value, an impairment loss is recorded. The Company performed its 2018 annual goodwill impairment test and determined that no impairment existed.

Intangible assets, net, primarily include acquired trademarks and trade names, customer relationships, strategic alliance agreements, licenses and registrations and non compete agreements. Intangible assets with finite lives are amortized based on the discounted cash flow method applied over the estimated useful lives of the intangible assets.

Intangible assets deemed to have indefinite useful lives are not amortized, but instead are tested for impairment at least annually, usually concurrently with goodwill. Impairment exists if the fair value of the asset is less than the carrying amount, and in that case, an impairment loss is recorded. The Company performed its 2018 annual intangible assets impairment test using October 1, 2018 carrying values and determined that no impairment existed.

(i)Foreign Currency

The financial statements of foreign subsidiaries where the functional currency is not the U.S. dollar are translated into U.S. dollars using the exchange rate in effect as of each balance sheet date. Statements of income and cash flow amounts are translated using the average exchange rate during the period. The cumulative effects of translating the balance sheet accounts from the functional currency into the U.S. dollar at the applicable exchange rates are included in accumulated other comprehensive income (loss), net in the balance sheet. Foreign currency gains and losses are recorded as other income, net in the consolidated statements of income. The Company’s operations in the United Kingdom, Singapore, and Hong Kong are recorded in Pounds sterling, Singapore dollars, and Hong Kong dollars,

respectively.

(j)Income Taxes

Deferred taxes are recorded on a liability method whereby deferred tax assets are recognized for deductible temporary differences and operating loss and tax credit carryforwards, and deferred tax liabilities are recognized for

Table of Contents

taxable temporary differences. Temporary differences are the differences between the reported amounts of assets and liabilities and their tax bases. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized. Deferred tax assets and liabilities are adjusted for the effects of changes in tax laws and rates on the date of enactment.

The Company recognizes the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based upon the technical merits of the position. The tax benefit recognized in the consolidated financial statements from such a position is measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement. Also, interest and penalties expense is recognized on the full amount of deferred benefits for uncertain tax positions. The Company's policy is to include interest and penalties related to unrecognized tax benefits in the income tax provision within the consolidated statements of income.

We have elected to account for global intangible low-taxed income ("GILTI") in the period in which it is incurred, and therefore, have not provided any deferred tax impacts of GILTI in our consolidated financial statements.

(k)Revenue Recognition

For further discussion related to revenue recognition of fees, such as transaction fees and liquidity payments, access fees, exchange services and other fees, market data fees, and regulation transaction and Section 31 fees, see Note 4.

Concentrations of Revenue and Liquidity Payments

For the years ended December 31, 2018, 2017, and 2016, two members accounted for 23%, 17% and 42%, respectively, of the Company's transaction fees. No member accounted for more than 10% of the Company's total revenue during the years ended December 31, 2018, 2017, and 2016. For the years ended December 31, 2018, 2017, and 2016, no member accounted for more than 10% of the Company's liquidity payments.

No member is contractually or otherwise obligated to continue to use the Company's services. The loss of, or a significant reduction of, participation by these members may have a material adverse effect on the Company's business, financial position, results of operations and cash flows. The two largest clearing members mentioned above clear the majority of the market-maker sides of transactions at all of the Company's U.S. options exchanges. If either of these clearing members were to withdraw from the business of market-maker clearing and market-makers were unable to transfer to another clearing member, this could create significant disruption to the U.S. options markets, including ours.

(l)Earnings Per Share

Basic earnings per share is calculated using the two-class method and is computed by dividing net income by the weighted average number of common shares outstanding during the period. Diluted earnings per share is computed by dividing net income by the sum of the weighted average number of common shares and dilutive common share equivalents outstanding. The dilutive effect is calculated using the more dilutive of the two-class or treasury stock method.

(m)Stock Based Compensation

The Company grants stock based compensation to its employees through awards of restricted stock units. In connection with the acquisition of Bats, Bats previously awarded stock options and restricted stock awards. The Company records stock based compensation expense for all stock based compensation granted based on the grant date

fair value. The Company recognizes compensation expense related to stock based compensation awards with graded vesting that have a service condition on a straight line basis over the requisite service period of the entire award.

In connection with the acquisition of Bats, as discussed in Note 20 in further detail, each outstanding Bats stock option (defined below) granted under any of the Bats Plans (defined below) that was outstanding immediately prior to the effective time of the acquisition of Bats was converted into an option to purchase our common stock, on the same

Table of Contents

terms and conditions (including vesting schedule) as were applicable to such Bats stock option. In addition, each award of Bats restricted shares (defined below) granted under any of the Bats Plans that was unvested immediately prior to the effective time of the acquisition of Bats was assumed by the Company and converted into an award of restricted shares of our common stock, subject to the same terms and conditions (including vesting schedule) that applied to the applicable Bats restricted shares.

The amount of stock based compensation expense related to awards of restricted stock and restricted stock units is based on the fair value of Cboe Global Markets, Inc. common stock at the date of grant. The fair value is based on a current market based transaction of the Company's common stock. If a market based transaction of the Company's common stock is not available, then the fair value is based on an independent third party valuation using equal weighting of two valuation analysis techniques, discounted cash flows and valuation multiples observed from publicly traded companies in a similar industry.

The amount of future stock based compensation expense related to awards of stock options is based on the Black Scholes valuation model. Assumptions used to estimate the grant date fair value of stock options are determined as follows:

- Expected term is determined using the simplified method, using the average between the contractual term and vesting period of the award. The simplified method was used due to the lack of historical information;
- Expected volatility of award grants made under the Company's plan is measured using the weighted average of historical daily changes in the market price of the common stock of comparable public companies over the period equal to the expected term of the award;
- Expected dividend rate is determined based on expected dividends to be declared; and
- Risk free interest rate is equivalent to the implied yield on zero coupon U.S. Treasury bonds with a maturity equal to the expected term of the awards.

(n)Business Combinations

The Company records identifiable assets, liabilities and goodwill acquired in a business combination at fair value at the acquisition date. Additionally, transaction related costs are expensed in the period incurred.

(o)Debt Issuance Costs

All costs incurred to issue debt are capitalized as a contra-liability and amortized over the life of the loan using the interest method.

(p)Cost and Equity Method Investments

The Company uses the cost method to account for a non-marketable equity investment in an entity that it does not control and for which it does not have the ability to exercise significant influence over an entity's operating and financial policies. When it does not have a controlling financial interest in an entity but can exercise significant influence over the entity's operating and financial policies, such investment is accounted for using the equity method. The Company recognizes dividend income when declared.

In general, the equity method of accounting is used when the Company owns 20% to 50% of the outstanding voting stock of a company and when it is able to exercise significant influence over the operating and financial policies of a company. The Company has an investment where it has significant influence and as such accounts for the investments under the equity method of accounting. For equity method investments, the Company records the pro rata share of earnings or losses each period and records any dividends received as a reduction in the investment balance. The equity method investment is evaluated for other than temporary declines in value by considering a variety of factors such as

the

103

Table of Contents

earnings capacity of the investment and the fair value of the investment compared to its carrying amount. If the estimated fair value of the investment is less than the carrying amount and the decline in value is considered to be other than temporary, the excess of the carrying amount over the estimated fair value is recognized in the financial statements as an impairment.

(3) Recent Accounting Pronouncements

Recent Accounting Pronouncements – Adopted

In the first quarter of 2018, the Company adopted ASU 2017 09, Compensation - Stock Compensation (Topic 718). This ASU provides additional guidance as to which changes to a share-based payment award require an entity to apply modification accounting. The Company's application of the pronouncement, on a prospective basis, did not result in a material impact to the consolidated financial statements.

In the first quarter of 2018, the Company adopted ASU 2017 07, Compensation - Retirement Benefits (Topic 715). This ASU requires an employer to report the service cost component in the same line item or items as other compensation costs arising from services rendered by the pertinent employees during the period. The other components are required to be presented in the income statement separately from the service cost component and outside a subtotal of income from operations. The Company applied the full retrospective application of the pronouncement, which did not result in a material impact to the consolidated financial statements.

In the first quarter of 2018, the Company adopted ASU 2016 15, Statement of Cash Flows (Topic 230) — Classification of Certain Cash Receipts and Cash Payments (a consensus of the FASB Emerging Issues Task Force). ASU 2016 15 addresses eight specific cash flow issues in an effort to reduce diversity in practice: (1) debt prepayment or debt extinguishment costs; (2) settlement of zero-coupon bonds; (3) contingent consideration payments made after a business combination; (4) proceeds from the settlement of insurance claims; (5) proceeds from the settlement of corporate-owned life insurance policies, including bank-owned life insurance policies; (6) distributions received from equity method investees; (7) beneficial interests in securitization transactions; and (8) separately identifiable cash flows and application of the predominance principle. The Company's application of the pronouncement did not result in a material impact to the consolidated financial statements.

In the first quarter of 2018, the Company adopted ASU 2017 01, Business Combinations (Topic 805) - Clarifying the Definition of a Business. ASU 2017 01 clarifies the definition of a business with the objective of adding guidance to assist entities with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. There are three elements of a business: inputs, processes, and outputs. While an integrated set of assets and activities (collectively, a "set") that is a business usually has outputs, outputs are not required to be present. Additionally, all of the inputs and processes that a seller uses in operating a set are not required if market participants can acquire the set and continue to produce outputs. ASU 2017 01 provides a screen to determine when a set is not a business. The screen requires that when substantially all of the fair value of the gross assets acquired (or disposed of) is concentrated in a single identifiable asset or a group of similar identifiable assets, the set is not a business. This screen reduces the number of transactions that need to be further evaluated. If, however, the screen is not met, then the amendments in this ASU (1) require that to be considered a business, a set must include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create output and (2) remove the evaluation of whether a market participant could replace missing elements. Finally, the amendments in this ASU narrow the definition of the term "output" so that it is consistent with the manner in which outputs are described in Topic 606 - Revenue from Contracts with Customers. The Company will apply the pronouncement, on a prospective basis, for any business combination.

In the first quarter of 2018, the Company adopted ASU 2016-01, Financial Instruments – Overall (Subtopic 825-10) – Recognition and Measurement of Financial Assets and Financial Liabilities. ASU 2016-01 addresses certain aspects of recognition, measurement, presentation, and disclosure of financial instruments. The changes primarily relate to equity investments, financial liabilities measured using the fair value option, and updated disclosure requirements. The Company applied the full retrospective application of the pronouncement, which did not result in a material impact to the consolidated financial statements.

Table of Contents

In the first quarter of 2018, the Company adopted ASU 2018-02, Income Statement - Reporting Comprehensive Income (Topic 220) - Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income. This update addresses the reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the tax reform legislation commonly referred to as the Tax Cuts and Jobs Act ("Jobs Act"). The guidance eliminates the stranded tax effects resulting from the Jobs Act as well as improves the usefulness of information reported to financial statement users by requiring certain disclosures about stranded tax effects. As the amendment only relates to reclassification of the income tax effects of the Jobs Act, the underlying guidance that requires that the effect of a change in tax laws or rates be included in income from continuing operations is not affected. The Company's application of the pronouncement did not result in a material impact to the consolidated financial statements.

In January 2017, the FASB issued ASU 2017-04, Intangibles-Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment. This ASU simplifies the manner in which an entity is required to test goodwill for impairment by eliminating Step 2 from the goodwill impairment test. Step 2 measures a goodwill impairment loss by comparing the implied fair value of a reporting unit's goodwill with the carrying amount of that goodwill. In computing the implied fair value of goodwill under Step 2, an entity, prior to the amendments in ASU 2017-04, had to perform procedures to determine the fair value at the impairment testing date of its assets and liabilities, including unrecognized assets and liabilities, in accordance with the procedure that would be required in determining the fair value of assets acquired and liabilities assumed in a business combination. However, under this ASU, an entity should (1) perform its annual or interim goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount, and (2) recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value, with the understanding that the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. Additionally, ASU 2017-04 removes the requirements for any reporting unit with a zero or negative carrying amount to perform a qualitative assessment and, if it fails such qualitative test, to perform Step 2 of the goodwill impairment test. For public entities, the update is effective for annual or any interim goodwill impairment tests in fiscal years beginning after December 15, 2019. Early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. The Company elected to early adopt ASU 2017-04 during the fourth quarter of 2018 in connection with its goodwill assessment performed as of October 1, 2018. The adoption of this ASU did not have an impact to the financial statements as there was no goodwill impairment recorded during the year ended December 31, 2018.

Recent Accounting Pronouncements - Issued, not yet 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 right-of-use asset ("ROU"). 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 No. 2018-10, Codification Improvements to Topic 842, Leases to clarify the implementation guidance and ASU No. 2018-11, Leases (Topic 842) Targeted Improvements. 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. We will elect the package of practical expedients permitted under the transition guidance within the new standard, which among other things, allows us to carryforward the historical lease classification. Based on our portfolio of leases as of January 1, 2019, approximately $45M of both ROU assets and liabilities are expected to be recognized on our balance sheet upon adoption, primarily relating to operating leases of real estate. We do not expect the new standard to have a material impact on our consolidated income statements and statements of cash flows.

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

Table of Contents

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.

(4) Revenue Recognition

The 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 fees - Access fees represent fees assessed for the opportunity to trade, including fees for trading-related functionality and connectivity across all segments. 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. There is no remaining performance obligation after revenue is recognized.
- Exchange services and other fees - To facilitate trading, the Company offers technology services, terminal and other equipment rights, maintenance services, trading floor space, trading floor connectivity, and telecommunications services. Trading floor and equipment rights are generally on a month-to-month basis. 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.
- 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 includes the options regulatory fee (ORF) 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 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.

Table of Contents

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
Year Ended December 31, 2018							
Transaction fees	$ 835.5	$ 876.4	$ 128.0	$ 97.4	$ 49.6	$ —	$ 1,986.9
Access fees	61.8	46.6	6.8	8.8	3.9	—	127.9
Exchange services and other fees	37.6	29.0	8.3	5.9	2.3	—	83.1
Market data fees	42.9	140.9	6.6	13.1	0.5	—	204.0
Regulatory fees	60.0	273.8	0.1	—	—	—	333.9
Other revenue	19.7	6.4	—	6.4	0.1	0.4	33.0
	1,057.5	1,373.1	149.8	131.6	56.4	0.4	2,768.8
Timing of revenue recognition							
Services transferred at a point in time	$ 915.2	$ 1,156.6	$ 128.1	$ 103.8	$ 49.7	$ 0.4	$ 2,353.8
Services transferred over time	142.3	216.5	21.7	27.8	6.7	—	415.0
	1,057.5	1,373.1	149.8	131.6	56.4	0.4	2,768.8
Year Ended December 31, 2017							
Transaction fees	$ 673.8	$ 659.4	$ 131.7	$ 66.2	$ 33.8	$ —	$ 1,564.9
Access fees	54.7	41.3	1.9	6.4	2.5	—	106.8
Exchange services and other fees	42.6	19.2	7.2	4.2	1.6	—	74.8
Market data fees	41.1	111.0	2.5	9.6	0.3	—	164.5
Regulatory fees	55.4	236.1	—	—	—	—	291.5
Other revenue	15.9	5.5	1.3	3.2	—	0.7	26.6
	883.5	1,072.5	144.6	89.6	38.2	0.7	2,229.1
Timing of revenue recognition							
Services transferred at a point in time	$ 745.1	$ 901.0	$ 133.0	$ 69.4	$ 33.8	$ 0.7	$ 1,883.0
Services transferred over time	138.4	171.5	11.6	20.2	4.4	—	346.1
	883.5	1,072.5	144.6	89.6	38.2	0.7	2,229.1
Year Ended December 31, 2016							
Transaction fees	$ 408.2	$ —	$ 101.1	$ —	$ —	$ —	$ 509.3
Access fees	51.6	—	0.8	—	—	—	52.4
Exchange services and other fees	38.4	—	7.9	—	—	—	46.3

Market data fees	30.1	—	3.1	—	—	—	33.2
Regulatory fees	48.3	—	—	—	—	—	48.3
Other revenue	12.9	—	0.7	—	—	—	13.6
	589.5	—	113.6	—	—	—	703.1
Timing of revenue recognition							
Services transferred at a point in time	$ 469.4	$ —	$ 101.8	$ —	$ —	$ —	$ 571.2
Services transferred over time	120.1	—	11.8	—	—	—	131.9
	589.5	—	113.6	—	—	—	703.1

Table of Contents

Contract liabilities for the year ended December 31, 2018 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):

	Balance at January 1, 2018	Cash Additions	Revenue Recognition	Balance at December 31, 2018
Liquidity provider sliding scale (1)	$ 4.8	$ 4.8	$ (9.6)	$ -
Other, net	10.6	11.0	(13.1)	8.5
Total deferred revenue	$ 15.4	$ 15.8	$ (22.7)	$ 8.5

(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 received are amortized and recorded as revenue ratably as the transactions occur over the period.

(5) 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 acquisition-date fair value of the consideration transferred totaled $4.0 billion, which consisted of the following (in millions):

Cash consideration for Bats outstanding common stock	$ 955.5
Common stock issued	2,387.3
Equity awards issued	37.4
	3,380.2
Debt extinguished	580.0
Total consideration	$ 3,960.2

As a result of the Merger, each share of voting common stock of Bats, par value of $0.01 per share (“Bats Voting Common Stock”), and each share of non-voting common stock of Bats, par value of $0.01 per share (“Bats Non-Voting Common Stock” and, together with the Bats Voting Common Stock, “Bats Common Stock”), issued and outstanding immediately prior to the effective time of the Merger (the “Effective Time”) (other than shares held by Cboe, Bats or any of their respective subsidiaries, shares held by any holder of Bats Common Stock who was entitled to demand and properly demanded appraisal of such shares under Delaware law and unvested restricted shares of Bats Common Stock granted under any Bats equity incentive plan (all such shares described in this parenthetical, “Excluded Shares”)) was converted into, at the election of the holder of such share, either (i) 0.3201 of a share of common stock, par value

of $0.01 per share, of Cboe ("Cboe Common Stock") and $10.00 in cash (the "Mixed Consideration"), (ii) $14.99 in cash and 0.2577 of a share of Cboe Common Stock (the "Cash Election Consideration") or (iii) 0.4452 of a share of Cboe Common Stock (the "Stock Election Consideration"). Pursuant to the terms of the Merger Agreement, the Cash Election Consideration and Stock Election Consideration payable in the Merger were calculated based on the volume-weighted average price (rounded to four decimal places) of shares of Cboe Common Stock on The Nasdaq Stock Market LLC for the period of ten consecutive trading days ended on February 24, 2017, which was $79.9289. The Cash Election Consideration and the Stock Election Consideration were subject to automatic adjustment, as described in the Merger Agreement and in the definitive joint proxy statement/prospectus dated December 9, 2016, filed by Cboe with the SEC on December 12, 2016, as amended and supplemented from time to time (the "Prospectus"), to ensure that the total

Table of Contents

amount of cash paid and the total number of shares of Cboe Common Stock issued in the Merger were the same as what would have been paid and issued if all holders of Bats Common Stock received the Mixed Consideration at the Effective Time.

The amounts in the table below represent the allocation of the purchase price. The following table summarizes the estimated fair values of the assets acquired and liabilities assumed at the acquisition date (in millions):

Cash and cash equivalents	$ 130.1
Accounts receivable	117.8
Financial investments	66.0
Property and equipment	21.8
Other assets	32.8
Goodwill	2,653.3
Intangibles	2,000.0
Accounts payable	(33.7)
Accrued expenses	(26.2)
Section 31 fees	(143.6)
Income tax payable	(52.9)
Deferred tax liability	(722.6)
Other liabilities	(82.6)
	$ 3,960.2

For tax purposes, no tax deductible goodwill was generated as a result of this acquisition. Goodwill was assigned to the Options, U.S. Equities, European Equities, and Global FX segments as further described in Note 17 and is attributable to the expansion of asset classes, broadening of geographic reach, and expected synergies of the combined workforce, products and technologies of the Company and Bats. The intangible assets were assigned to the Options, U.S. Equities, European Equities, and Global FX segments in the following manner and will be amortized over the following useful lives:

	Options	U.S. Equities	European Equities	Global FX	Useful life
Trading registrations and licenses	$ 95.5	$ 572.7	$ 171.8	$ —	indefinite
Customer relationships	37.1	222.9	160.0	140.0	20 years
Market data customer relationships	53.6	322.0	60.0	64.4	15 years
Technology	22.5	22.5	22.5	22.5	7 years
Trademarks and tradenames	1.0	6.0	1.8	1.2	2 years
Goodwill	226.4	1,738.1	419.3	267.2	
	$ 436.1	$ 2,884.2	$ 835.4	$ 495.3	

There were no goodwill or intangible assets assigned to the Futures segment as a result of this transaction as Bats did not operate a Futures business and no synergies are attributable to this segment.

The fair value of accounts receivable acquired was $117.8 million. The gross amount of accounts receivable was $118.0 million of which $0.2 million was deemed uncollectable.

The Company expensed $30.0 million of acquisition-related costs during the year ended December 31, 2018 that included $23.6 million of compensation-related costs, $2.7 million of stock based compensation, $3.0 million of professional fees, and $0.6 million of general and administrative expenses. These expenses are included in acquisition-related costs in the consolidated statements of income.

Table of Contents

The amounts of revenue, operating income and net income of Bats are included in the Company's consolidated statements of income from after acquisition date for the year ended December 31, 2017 are as follows (in millions):

Revenue	$ 1,439.8
Revenue less cost of revenues	378.2
Operating income	73.4
Net income	88.4

The unaudited financial information in the table below summarizes the combined results of operations of the Company and Bats, on a pro forma basis, as though the companies had been combined as of January 1, 2017. The unaudited pro forma financial information is presented for informational purposes only and is not indicative of the results of operations that would have been achieved if the acquisition had taken place at the beginning of the period presented. Such pro forma financial information is based on the historical financial statements of the Company and Bats. This pro forma financial information is based on estimates and assumptions that have been made solely for purposes of developing such pro forma information, including, without limitation, preliminary purchase accounting adjustments. The pro forma financial information does not reflect any synergies or operating cost reductions that may be achieved from the combined operations. The unaudited pro forma financial information combines the historical results for the Company and Bats for the year ended December 31, 2017 in the following table (in millions, except per share amounts):

Revenue	$ 2,502.0
Revenue less cost of revenues	1,434.5
Operating income	471.9
Net income	271.1
Earnings per share:	
Basic	$ 2.41
Diluted	2.41

The supplemental 2017 pro forma amounts have been calculated after applying the Company's accounting policies and adjusting the results to reflect the additional amortization that would have been charged assuming the adjusted fair values of acquired intangible assets had been applied on January 1, 2017. The supplemental 2017 pro forma financial information includes pro forma adjustments of $107.8 million for acquisition-related costs, such as fees to investment bankers, attorneys, accountants and other professional advisors, as well as severance to employees.

Silexx Financial Systems

In November 2017, the Company completed the acquisition of assets of Silexx Financial Systems, LLC (Silexx) for $9.0 million in cash. Silexx is a developer and operator of a multi-asset order and execution management system. Of the purchase price, $6.7 million was allocated to goodwill, $2.1 million was allocated to intangible assets, and $0.2 million was allocated to working capital. Silexx is included in the Options segment.

(6) 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.

In July 2018, the Company established a voluntary separation plan (“VSP”) for select associates. Associates who elected to participate in the VSP received financial benefits commensurate with their tenure and position, along with vacation payout and medical benefits. The irrevocable acceptance period for most VSP associates has ended.

Table of Contents

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

	Employee Termination Benefits
Balance at December 31, 2017	$ 4.8
Termination benefits accrued	15.3
Termination payments made	(14.0)
Balance at December 31, 2018	$ 6.1

(7) Investments

As of December 31, 2018 and 2017, the Company's investments were comprised of the following (in millions):

	Year Ended December 31,	
	2018	2017
Equity Method Investments:		
Investment in Signal Trading Systems, LLC	$ 12.4	$ 12.5
Investment in EuroCCP	9.3	9.6
Total equity method investments	21.7	22.1
Cost Method Investments:		
Investment in OCC	30.3	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	8.3	4.4
Total cost method investments	64.5	60.6
Total investments	$ 86.2	$ 82.7

Equity Method Investments

Equity method investments include investments in Signal Trading Systems, LLC ("Signal"), a joint entity 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 Equities' markets. Cboe Europe Equities 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 $64.5 million and $60.6 million as of December 31, 2018 and 2017, respectively, and is included in investments in the 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. As of December 31, 2018, cost method 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'

Table of Contents

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 exceeds OCC's capital requirements after payment of refunds to OCC's clearing members (with such customer refunds generally to constitute 50% of the portion of OCC's pre-tax income that exceeds OCC's capital requirements). On March 3, 2015, in accordance with the plan, Cboe Options contributed $30 million to OCC. That contribution has been recorded under investments in the consolidated balance sheets as of December 31, 2018 and December 31, 2017, respectively.

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 (the “Court”) 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 complies 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. As a result of the recency, there is uncertainty regarding next steps and potential consequences.

(8) 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 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):

	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

	December 31, 2017			
	Cost basis	Unrealized gains	Unrealized losses	Fair Value
U.S. Treasury securities	$ 47.3	$ —	$ —	$ 47.3
Money market funds	2.5	—	—	2.5
Total financial investments	$ 49.8	$ —	$ —	$ 49.8

Table of Contents

(9) Property and Equipment, Net

Property and equipment consisted of the following as of December 31, 2018 and 2017 (in millions):

	December 31, 2018	December 31, 2017
Construction in progress	$ 0.1	$ 5.9
Building	81.7	77.4
Furniture and Equipment	161.6	139.7
Total property and equipment	243.4	223.0
Less accumulated depreciation	(171.7)	(149.1)
Property and equipment, net	$ 71.7	$ 73.9

Depreciation expense using the straight-line method was $25.1 million, $31.3 million and $24.0 million for the years ended December 31, 2018, 2017 and 2016, respectively.

(10) Other Assets, Net

Other assets, net consisted of the following as of December 31, 2018 and 2017 (in millions):

	December 31, 2018	December 31, 2017
Software development work in progress	$ 8.7	$ 10.2
Data processing software	219.0	220.0
Less accumulated depreciation and amortization	(193.2)	(189.6)
Data processing software, net	34.5	40.6
Other assets (1)	28.4	18.9
Data processing software and other assets, net	$ 62.9	$ 59.5

(1) At December 31, 2018 and December 31, 2017, the majority of the balance included long-term prepaid assets and notes receivable.

Amortization expense related to data processing software was $18.9 million, $17.9 million, and $18.7 million for the years ended December 31, 2018, 2017, and 2016.

(11) 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, 2016	$ 7.7	$ —	$ —	$ —	$ 18.8	$ 26.5
Additions	233.1	1,740.4	419.3	267.2	—	2,660.0
Dispositions	(1.4)	—	—	—	—	(1.4)
	—	—	22.3	—	—	22.3

Changes in foreign currency exchange rates						
Balance as of December 31, 2017	$ 239.4	$ 1,740.4	$ 441.6	$ 267.2	$ 18.8	$ 2,707.4
Additions	—	—	—	—	—	—
Dispositions	—	—	—	—	—	—
Changes in foreign currency exchange rates	—	—	(16.0)	—	—	(16.0)
Balance as of December 31, 2018	$ 239.4	$ 1,740.4	$ 425.6	$ 267.2	$ 18.8	$ 2,691.4

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 and intangible asset annual

Table of Contents

impairment testing was performed as of October 1, 2018 and did not result in any impairment of goodwill or intangible assets. The allocation of the new goodwill did not impact the existing goodwill assignment to reporting units and there are no aggregate impairments of goodwill.

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, 2016	$ 2.0	$ —	$ —	$ —	$ 6.7	$ 8.7
Additions	212.0	1,146.1	416.1	228.1	—	2,002.3
Dispositions	(0.2)	—	—	—	—	(0.2)
Amortization	(15.1)	(74.3)	(23.8)	(28.5)	(1.2)	(142.9)
Changes in foreign currency exchange rates	—	—	34.7	—	—	34.7
Balance as of December 31, 2017	$ 198.7	$ 1,071.8	$ 427.0	$ 199.6	$ 5.5	$ 1,902.6
Additions	—	—	—	—	—	—
Dispositions	—	—	—	—	—	—
Amortization	(16.8)	(81.5)	(27.7)	(32.7)	(1.3)	(160.0)
Changes in foreign currency exchange rates	—	—	(22.4)	—	—	(22.4)
Balance as of December 31, 2018	$ 181.9	$ 990.3	$ 376.9	$ 166.9	$ 4.2	$ 1,720.2

For the years ended December 31, 2018, 2017 and 2016, amortization expense was $160.0 million, $142.9 million and $1.7 million, respectively. The estimated future amortization expense is $138.4 million for 2019, $122.0 million for 2020, $106.6 million for 2021, $94.1 million for 2022 and $83.2 million for 2023.

The following table presents the categories of intangible assets at December 31, 2018 and 2017 (in millions):

	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	

	December 31, 2017					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	$ 186.5	$ —	$ —	Indefinite
Customer relationships	38.8	222.9	173.7	140.0	3.0	19
Market data customer relationships	53.6	322.0	65.1	64.4	—	14
Technology	24.6	22.5	24.4	22.5	4.0	6
Trademarks and tradenames	1.7	6.0	2.0	1.2	1.0	2
Other	0.2	—	—	—	—	2
Accumulated amortization	(15.7)	(74.3)	(24.7)	(28.5)	(2.5)	
	$ 198.7	$ 1,071.8	$ 427.0	$ 199.6	$ 5.5	

Table of Contents

(12) Accounts Payable and Accrued Liabilities

Accounts payable and accrued liabilities consisted of the following as of December 31, 2018 and 2017 (in millions):

	December 31, 2018	December 31, 2017
Compensation and benefit related liabilities	$ 52.4	$ 18.0
Termination benefits	6.1	4.8
Royalties	25.0	20.3
Accrued liabilities	91.8	59.1
Marketing fee payable	10.4	8.4
Accounts payable	12.8	43.2
Total accounts payable and accrued liabilities	$ 198.5	$ 153.8

(13) Debt

The Company's debt consisted of the following as of December 31, 2018 and 2017 (in millions):

Debt:	December 31, 2018	December 31, 2017
Term Loan Agreement	$ 271.1	$ —
Prior Term Loan Agreement	—	294.9
3.650% Senior Notes	644.5	643.8
1.950% Senior Notes	299.8	299.2
Revolving Credit Agreement	—	—
Total Debt	$ 1,215.4	$ 1,237.9

In connection with the Merger, on December 15, 2016, the Company entered into the Prior Term Loan Agreement (as defined below) providing for a $1.0 billion senior unsecured delayed draw term loan facility and on January 12, 2017, the Company issued $650 million aggregate principal amount of 3.650% Senior Notes due 2027 ("3.650% Senior Notes"). The proceeds from this delayed draw term loan facility and issuance of our senior notes, in addition to using cash on hand at Cboe and Bats, were used to finance a portion of the cash component of the Merger consideration, to refinance existing indebtedness of Bats and its subsidiaries and to pay related fees and expenses. In addition, on December 15, 2016, the Company entered into a $150 million revolving credit facility to be used for working capital and other general corporate purposes.

On June 29, 2017, Cboe refinanced approximately $300 million of the amounts outstanding under the Term Loan Agreement through the issuance of $300 million in aggregate principal amount of 1.950% Senior Notes due 2019 ("1.950% Senior Notes" and, together with the 3.650% Senior Notes, the "Notes").

On March 22, 2018, the Company repaid $300 million of outstanding indebtedness under the Prior Term Loan Agreement by using proceeds from a new Term Loan Agreement (as defined below) providing for a $300 million senior unsecured term loan facility.

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 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.

Table of Contents

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 December 31, 2018, the Company was in compliance with these covenants.

Prior Term Loan Agreement

On December 15, 2016, the Company, as borrower, entered into a Term Loan Credit Agreement (the "Prior Term Loan Agreement") with Bank of America, as administrative agent, certain lenders named therein (the "Prior Term Lenders"), Merrill Lynch, Pierce, Fenner & Smith Incorporated, as sole lead arranger and sole bookrunner, Morgan Stanley MUFG Loan Partners, LLC, as syndication agent, and Citibank, N.A., PNC Bank, National Association and JPMorgan Chase Bank, N.A., as co-documentation agents. The Prior Term Loan Agreement provided for a senior unsecured delayed draw term loan facility (the "Prior Term Loan Facility") in an aggregate principal amount of $1.0 billion.

The commercial terms of the Prior Term Loan Agreement are substantially similar to the Term Loan Agreement, other than interest rates and the maturity date.

Loans under the Prior Term Loan Agreement, which was to mature on February 28, 2022, bore 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 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 0.75 percent per annum. The Company was required to pay a ticking fee to the agent for the account of the Prior Term Lenders which initially accrued at a rate (based on our public debt ratings) ranging from 0.10 percent per annum to 0.30 percent per annum multiplied by the undrawn aggregate commitments of the Prior Term Lenders in respect of the Prior Term Loan Facility, accruing during the period commencing on December 15, 2016 and ending on the earliest of the dates on which the loans are drawn.

On February 28, 2017, Cboe made a draw under the Prior Term Loan Agreement in the amount of $1.0 billion. Cboe used the proceeds to finance a portion of the cash component of the aggregate consideration for the Merger, repaid certain existing indebtedness of Bats, paid fees and expenses incurred in connection with the transactions contemplated by the Merger Agreement, funded working capital needs, and for other general corporate purposes.

1.950% Senior Notes due 2019

On June 29, 2017, the Company issued $300 million aggregate principal amount of 1.950% 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 (as defined below). Underwriter fees of $0.8 million were also capitalized and netted against long-term debt in the consolidated balance sheet, while other issuance fees of $0.9 million were expensed and are included in debt issuance costs within interest expense on the consolidated statement of income for the year ended December 31, 2017.

Table of Contents

The Company used the net proceeds from the 1.950% Senior Notes to repay amounts under the Prior Term Loan Agreement. 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 1.950% 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 1.950% Senior Notes, at any time in whole or from time to time in part, at the redemption prices set forth in the Officer's Certificate. The Company may also be required to offer to repurchase the 1.950% Senior Notes upon the occurrence of a Change of Control Triggering Event (as such term is defined in the Officer's Certificate) at a repurchase price equal to 101% of the aggregate principal amount of 1.950% Senior Notes to be repurchased.

3.650% Senior Notes due 2027

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. 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. The 3.650% 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 3.650% Senior Notes, at any time in whole or from time to time in part, at the redemption prices set forth in the Officer's Certificate. The Company may also be required to offer to repurchase the 3.650% Senior Notes upon the occurrence of a Change of Control Triggering Event (as such term is defined in the Officer's Certificate) at a repurchase price equal to 101% of the aggregate principal amount of 3.650% Senior Notes to be repurchased.

Indenture

Under the Indenture, the Company may issue debt securities, which includes the 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 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 December 31, 2018, 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"), Merrill Lynch, Pierce, Fenner & Smith Incorporated, as sole lead arranger and sole

bookrunner, Morgan Stanley MUFG Loan Partners, LLC, as syndication agent, and Citibank, N.A., PNC Bank, National Association and JPMorgan Chase Bank, N.A., as co-documentation agents.

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

Table of Contents

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 it guarantees all borrowings and other obligations of any such subsidiaries. As of December 31, 2018, 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 December 31, 2018, no borrowings were outstanding under the Revolving Credit Agreement. Accordingly, at December 31, 2018, $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 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 December 31, 2018, 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 December 31, 2018 is as follows (in millions):

2019	$ 300.0
2020	—
2021	275.0
2022	—
Thereafter	650.0
Principal amounts repayable	1,225.0
Debt issuance costs	(4.9)
Unamortized discounts on notes	(4.7)
Total debt outstanding	$ 1,215.4

Table of Contents

Interest expense recognized on the Term Loan Agreement and the Notes is included in interest expense, net in the consolidated statements of income, for the years ended December 31, 2018, 2017 and 2016 are as follows (in millions):

	Year Ended December 31, 2018	Year Ended December 31, 2017	Year Ended December 31, 2016
Components of interest expense:			
Contractual interest	$ 38.0	$ 39.0	$ 5.7
Amortization of debt discount	0.7	0.6	—
Amortization of debt issuance costs	1.8	3.0	—
Interest expense	$ 40.5	$ 42.6	$ 5.7
Interest income	(2.3)	(1.3)	—
Interest expense, net	$ 38.2	$ 41.3	$ 5.7

(14) Accumulated Other Comprehensive Income (Loss)

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

	Foreign currency translation adjustment	Unrealized Investment Gain	Post-Retirement Benefits	Total Other Comprehensive Income
Balance at December 31, 2016	$ —	$ —	$ (0.8)	$ (0.8)
Other comprehensive income	51.3	0.2	—	51.5
Tax effect on other comprehensive income	—	—	—	—
Balance at December 31, 2017	$ 51.3	$ 0.2	$ (0.8)	$ 50.7
Other comprehensive loss	(39.2)	—	—	(39.2)
Tax effect on other comprehensive loss	—	—	—	—
Balance at December 31, 2018	$ 12.1	$ 0.2	$ (0.8)	$ 11.5

(15) Fair Value Measurement

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.

Table of Contents

The Company has included a tabular disclosure for financial assets and liabilities that are measured at fair value on a recurring basis in the consolidated balance sheet as of December 31, 2018 and 2017, respectively.

Instruments Measured at Fair Value on a Recurring Basis

The following tables presents the Company's fair value hierarchy for those assets measured at fair value on a recurring basis as of December 31, 2018 and 2017 (in millions):

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

	December 31, 2017			
	Total	Level 1	Level 2	Level 3
Assets:				
U.S. Treasury securities	$ 47.3	$ 47.3	$ —	$ —
Money market funds	2.5	2.5	—	—
Total assets	$ 49.8	$ 49.8	$ —	$ —
Liabilities:				
Contingent consideration liability to related party	$ 56.6	$ —	$ —	$ 56.6
Total Liabilities	$ 56.6	$ —	$ —	$ 56.6

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

Assets Measured at a Fair Value on a Recurring Basis

Assets measured at a fair value on a recurring basis consist of U.S. Treasury securities and money market funds. 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 Liabilities

In connection with the acquisition of Silexx Financial Systems, LLC ("Silexx"), the Company acquired a contingent consideration arrangement with the former owners of Silexx. The fair value of this liability at December 31, 2018 was $3.9 million. That value is based on estimates of discounted future cash payments, a significant unobservable input, and is considered a Level 3 measurement.

In connection with the acquisition of Bats, the Company acquired a contingent consideration arrangement with the former owners of Cboe FX. The fair value of this liability at December 31, 2017 was $56.6 million. That value is

based on estimates of discounted future cash payments, a significant unobservable input, and is considered a Level 3 measurement.

Instruments Measured at Fair Value on a Nonrecurring Basis

Certain assets, such as goodwill and intangible assets, are measured at fair value on a non recurring basis. For goodwill, the process involves using a market approach and income approach (using discounted estimated cash flows) to determine the fair value of each reporting unit on a stand alone basis. That fair value is compared to the carrying amount of the reporting unit, including its recorded goodwill. Impairment is considered to have occurred if the fair value of the

Table of Contents

reporting unit is lower than the carrying amount of the reporting unit. For the intangible assets, the process also involves using a discounted cash flow method to determine the fair value of each intangible asset. Impairment is considered to have occurred if the fair value of the intangible asset is lower than the carrying amount. These measurements are considered Level 3 and these assets are recognized at fair value if they are deemed to be impaired. As of December 31, 2018 and 2017, none of these assets were required to be recorded at fair value since no impairment indicators were present.

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 December 31, 2018 and 2017 (in millions):

	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	$ —
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

	December 31, 2017			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash and cash equivalents	$ 143.5	$ 143.5	$ —	$ —
Financial investments	47.3	47.3	—	—
Accounts receivable	217.3	217.3	—	—
Income tax receivable	17.2	17.2	—	—
Total assets	$ 425.3	$ 425.3	$ —	$ —
Liabilities:				
Accounts payable	$ 43.2	$ —	$ 43.2	$ —
Section 31 fees payable	105.6	—	105.6	—
Contingent consideration liability to related party	56.6	—	—	56.6
Debt	1,237.9	—	1,237.9	—
Total liabilities	$ 1,443.3	$ —	$ 1,386.7	$ 56.6

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.

Long term debt

The carrying amount of long term debt approximates its fair value based on quoted LIBOR or using a fixed rate at December 31, 2018 and 2017 and is considered a Level 2 measurement.

Table of Contents

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 year ended December 31, 2018 and 2017:

	Level 3 Financial Liabilities for the Year Ended December 31, 2018				
	Balance at Beginning of Period	Realized (gains) losses during period	Additions	Settlements	Balance at End of Period
Liabilities					
Contingent consideration liabilities to related parties	$ 56.6	$ 3.9	$ —	$ (56.6)	$ 3.9
Total Liabilities	$ 56.6	$ 3.9	$ —	$ (56.6)	$ 3.9

	Level 3 Financial Liabilities for the Year Ended December 31, 2017				
	Balance at Beginning of Period	Realized (gains) losses during period	Additions	Settlements	Balances at End of Period
Liabilities					
Contingent consideration liability to related party	$ —	$ —	$ 56.6	$ —	$ 56.6
Total Liabilities	$ —	$ —	$ 56.6	$ —	$ 56.6

(16) 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 year ended December 31, 2018, the following reflects changes in our redeemable noncontrolling interest (in millions):

	Redeemable Noncontrolling Interest

Balance as of December 31, 2017	$ 9.4
Net loss attributable to redeemable noncontrolling interest	(1.3)
Redemption value adjustment of redeemable noncontrolling interest	1.3
Balance as of December 31, 2018	$ 9.4

(17) 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 2). Segment performance review 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; 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 our 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

Table of Contents

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 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, 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 Equities. It also includes the listed cash equities and ETPs routed transaction services that occurred on Cboe Chi-X Europe, as well as the listings business where ETPs can be listed on Cboe Europe Equities.

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
Year ended December 31, 2018							
Revenues	$ 1,057.5	$ 1,373.1	$ 149.8	$ 131.6	$ 56.4	$ 0.4	$ 2,768.8
Operating income (loss)	390.9	140.5	85.7	24.1	(11.7)	(30.1)	599.4
Year ended December 31, 2017							
Revenues	$ 883.5	$ 1,072.5	$ 144.6	$ 89.6	$ 38.2	$ 0.7	$ 2,229.1
Operating income (loss)	252.2	103.2	126.8	8.9	(12.8)	(106.4)	371.9
Year ended December 31, 2016							
Revenues	$ 589.5	$ —	$ 113.6	$ —	$ —	$ —	$ 703.1
Operating income (loss)	218.4	—	96.4	—	—	(16.6)	298.2

(18) Employee Benefit Plan

Cboe 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). The 401(k) retirement plan eligible to legacy Bats U.S. employees merged into the SMART Plan as of January 1, 2018. 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 consolidated statement of income. The Company contributed $12.4 million, $7.7 million, and $5.5 million to the defined contribution plans for the years ended December 31, 2018, 2017 and 2016, respectively.

The Company also assumed the Cboe Europe Equities employee selected stakeholder contribution plan upon completion of the Merger. The Company's contribution amounted to $0.4 million and $0.5 million for the years ended December 31, 2018, and 2017, respectively. This expense is included in compensation and benefits in the consolidated statements of income.

Table of Contents

(19) 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.

As of December 31, 2018, 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 December 31, 2018, Cboe Trading had net capital of $10.7 million, which was $10.2 million in excess of its required net capital of $0.5 million.

As entities regulated by the FCA, Cboe Europe Equities 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 Equities computes its FRR in accordance with its Financial Risk Assessment, as agreed by the FCA. This FRR was $21.6 million at December 31, 2018. At December 31, 2018, Cboe Europe Equities had capital in excess of its required FRR of $40.3 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 December 31, 2018, or the summation of the credit risk, market risk and fixed overheads requirements, as defined. At December 31, 2018, Cboe Chi X Europe had capital in excess of its required CRR of $0.5 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 or line of credit must be equal to at least six months of its projected operating costs. As of December 31, 2018, CFE had annual projected operating expenses of $56.6 million and had financial resources that exceeded this amount. Additionally, as of December 31, 2018, CFE had projected operating expenses for six months of $24.0 million and had unencumbered, liquid financial assets and line of credit 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 December 31, 2018, Cboe SEF had annual operating expenses of $1.3 million and had financial resources that exceeded this amount. Additionally, as of December 31, 2018, 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.

(20) 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.

On February 19, 2018, the Company granted 147,017 restricted stock units ("RSUs"), each of which entitles the holder to one share of common stock upon vesting, to certain officers and employees at a fair value of $111.45 per share. The RSUs vest ratably over three years, with one-third vesting on each anniversary of the grant date, and vesting accelerates upon the occurrence of a change in control. 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.

In addition, on February 19, 2018, the Company granted 41,868 RSUs, contingent on the achievement of performance conditions including 20,934 RSUs, at a fair value of $115.90 per RSU, related to earnings per share during the performance period and 20,934 RSUs, at a fair value of $122.00 per RSU, related to total shareholder return during

Table of Contents

the performance period. The Company used the Monte Carlo valuation model method to estimate the fair value of the total shareholder return RSUs which incorporated the following assumptions: risk-free interest rate (2.36)%, three-year volatility (19.2)% and three year correlation with S&P 500 Index (0.30). 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 RSUs contingent on the achievement of performance is three years. For each of the performance awards, the RSUs will be settled in shares of our common stock following vesting of the RSU 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 in the event of a participant's earlier death or disability. Participants have no voting rights with respect to the RSUs until the issuance of the shares of stock. Dividends are accrued by the Company and will be paid once the RSUs contingent on the achievement of performance conditions vest.

On May 15, 2018, the Company granted 92 RSUs, each of which entitles the holder to one share of common stock upon vesting, to certain officers and employees at a fair value of $108.11 per share. The RSUs vest ratably over three-years, with one-third vesting on each anniversary of the grant date, and vesting accelerates upon the occurrence of a change in control. 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.

On May 17, 2018, the Company granted 13,296 shares of restricted stock, at a fair value of $108.38 per share, to non-employee members of the board of directors. The shares have a one-year vesting period and vesting accelerates upon the occurrence of a change in control of the Company. Unvested portions of the stock will be forfeited if the director leaves the Company prior to the applicable vesting date.

On May 17, 2018, the Company granted 1,107 RSUs, each of which entitles the holder to one share of common stock upon vesting, to certain officers and employees at a fair value of $108.38 per share. The RSUs vest ratably over three-years, with one-third vesting on each anniversary of the grant date, and vesting accelerates upon the occurrence of a change in control. 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.

On May 17, 2018, the Company granted 6,459 RSUs, each of which entitles the holder to one share of common stock upon vesting, to certain officers and employees at a fair value of $108.38 per share. The RSUs vest on either February 19, 2021 or the third anniversary of the grant date, and vesting accelerates upon the occurrence of a change in control. 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.

On August 15, 2018, the Company granted 990 RSUs, each of which entitles the holder to one share of common stock upon vesting, to certain officers and employees at a fair value of $94.65 per share. The RSUs vest ratably over three-years, with one-third vesting on each anniversary of the grant date, and vesting accelerates upon the occurrence of a change in control. 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.

On November 15, 2018, the Company granted 182 RSUs, each of which entitles the holder to one share of common stock upon vesting, to certain officers and employees at a fair value of $109.71 per share. The RSUs vest ratably over three-years, with one-third vesting on each anniversary of the grant date, and vesting accelerates upon the occurrence of a change in control. 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.

On November 15, 2018, the Company granted 684 RSUs, each of which entitles the holder to one share of common stock upon vesting, to certain officers and employees at a fair value of $109.71 per share. The RSUs vest on the third

Table of Contents

anniversary of the grant date, and vesting accelerates upon the occurrence of a change in control. 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.

The Company recognized stock-based compensation expense of $35.1 million, $52.6 million, and $14.5 million for the years ended December 31, 2018, 2017, and 2016 respectively. Stock-based compensation expense is included in compensation and benefits and acquisition-related costs in the consolidated statements of income.

The activity in the Company's stock options, restricted stock and restricted stock units for the years ended December 31, 2018, 2017 and 2016 was as follows:

Stock Options

Pursuant to the Merger Agreement, each outstanding option to purchase Bats common stock (each, a “Bats stock option”) granted under any of the Bats Global Markets, Inc. 2009 Stock Option Plan, the Bats Global Markets, Inc. Third Amended and Restated 2012 Equity Incentive Plan and the Bats Global Markets, Inc. 2016 Omnibus Incentive Plan (collectively, the “Bats Plans”) that was outstanding immediately prior to the Effective Time was converted into an option to purchase Common Stock, on the same terms and conditions (including vesting schedule) as were applicable to such Bats stock option (but taking into account any changes, including any acceleration of vesting of such Bats stock option occurring by reason of the transactions contemplated by the Merger Agreement).

Summary stock option activity is presented below:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value (in millions)
Outstanding, December 31, 2016	—	$ —	—	$ —
Granted	683,390	22.45	—	—
Exercised	(241,348)	17.13		
Outstanding, December 31, 2017	442,042	$ 25.36	1.0	$ 17.5
Granted	—	—	—	—
Exercised	(72,559)	20.08		
Outstanding and expected to vest at December 31, 2018	369,483	$ 26.40	—	$ —
Exercisable at December 31, 2018	369,483	$ 26.40	—	$ 6.4

The Company estimated the grant date fair value of options awarded during 2017 using the Black Scholes valuation model with the following assumptions:

	2017
Expected term (in years)	4.2
Expected volatility	19.8 %

Expected dividend yield	1.3	%
Risk-free rate	1.78	%
Forfeiture rate	—	%

Table of Contents

Summary of the status of nonvested options is presented below:

Nonvested options	Options	Weighted Average Grant-Date Fair Value
December 31, 2016—Nonvested	—	$ —
Granted	81,068	49.17
Vested	—	—
Forfeited	—	—
December 31, 2017—Nonvested	81,068	$ 49.17
Granted	—	—
Vested	(81,068)	49.17
Forfeited	—	—
December 31, 2018—Nonvested	—	$ —

In the year ended December 31, 2018, to satisfy employee's tax obligations and cash exercise payment due upon the election to exercise 72,559 stock options, the Company purchased 8,772 shares at a cost of $1.0 million.

Restricted Stock and Restricted Stock Units

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 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 (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).

Summary restricted stock activity is presented below:

	Number of shares	Weighted average grant date fair value
Nonvested stock at December 31, 2016	480,595	$ 63.64
Granted	1,091,843	78.94
Vested	(498,540)	67.83
Forfeited	(5,506)	71.68
Nonvested stock at December 31, 2017	1,068,392	$ 77.19
Granted	211,696	112.55
Vested	(478,692)	75.57
Forfeited	(16,220)	93.38
Nonvested stock at December 31, 2018	785,176	$ 87.38

In the year ended December 31, 2018, to satisfy employees' tax obligations upon the vesting of restricted stock, the Company purchased 193,988 shares totaling $22.5 million as the result of the vesting of 478,692 shares of restricted stock.

As of December 31, 2018, there were $31.3 million in total unrecognized compensation costs related to restricted stock and restricted stock units. These costs are expected to be recognized over a weighted average period of 1.4 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

Table of Contents

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 year ended December 31, 2018. As of December 31, 2018, 750,000 shares were reserved for future issuance under the ESPP.

(21) Income Taxes

Net deferred tax assets and liabilities consist of the following as of December 31, 2018 and 2017 (in millions):

	2018	2017
Deferred tax assets:		
Accrued compensation and benefits	$ 17.1	$ 14.1
Property, equipment and technology, net	2.6	2.4
Other	20.7	20.2
Subtotal	40.4	36.7
Valuation allowance	(2.0)	(1.6)
Total deferred tax assets	38.4	35.1
Deferred tax liabilities:		
Intangibles	(380.2)	(429.6)
Property, equipment and technology, net	(17.4)	(17.1)
Investments	(75.3)	(75.0)
Prepaid expenses or assets	(2.3)	(1.6)
Total deferred tax liabilities	(475.2)	(523.3)
Net deferred tax assets/(liabilities)	$ (436.8)	$ (488.2)

The Company provides a valuation allowance against deferred tax assets if, based on management’s assessment of historical and projected future operating results and other available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized. A valuation allowance of $2.0 million was recorded against gross deferred tax assets for net operating losses as of December 31, 2018.

As of December 31, 2018 and 2017, we have state net operating loss carryforwards of $18.8 million and $24.9 million, respectively, which, if unused, will expire beginning in 2029.

Table of Contents

The provision for income taxes for the years ended December 31, 2018, 2017 and 2016 consists of the following (in millions):

	Year Ended December 31		
	2018	2017	2016
Current tax expense:			
Federal	$ 125.1	$ 141.0	$ 107.1
State	58.7	25.8	22.6
Foreign	9.9	5.4	—
Total current tax expense	193.7	172.2	129.7
Deferred income tax expense:			
Federal	(18.4)	(227.5)	(7.6)
State	(23.7)	(6.5)	(1.2)
Foreign	(5.6)	(4.4)	—
Total deferred income tax expense	(47.7)	(238.4)	(8.8)
Total	$ 146.0	$ (66.2)	$ 120.9

The Company considers a portion of its non-U.S. earnings to be indefinitely reinvested outside of the U.S. to the extent these earnings are not subject to U.S. income tax under an anti-deferral tax regime.

For the years ended December 31, 2018, 2017, and 2016, income from continuing operations before taxes consists of the following (in millions):

	2018	2017	2016
U.S. operations	$ 548.3	$ 326.7	$ 306.6
Foreign operations	22.9	7.7	—
	$ 571.2	$ 334.4	$ 306.6

A reconciliation of the statutory federal income tax rate to the effective income tax rate for the years ended December 31, 2018, 2017, and 2016 is as follows:

	2018	2017	2016
Statutory U.S. federal income tax rate	21.0 %	35.0 %	35.0 %
Impact of federal, state and local tax law & rate changes, net	(3.5) %	(55.1) %	- %
State taxes, net of federal benefit	5.0 %	4.3 %	4.5 %
Uncertain tax positions	6.1 %	- %	- %
Section 199 deduction	- %	(2.6) %	(2.6) %
Other, net	(3.0) %	(1.4) %	2.5 %
Effective income tax rate	25.6 %	(19.8) %	39.4 %

The effective tax rate decreased from 2016 to 2017 primarily due to the tax benefit associated with re-measuring net deferred tax liabilities as a result of the Jobs Act and increased from 2017 to 2018 primarily due to the tax benefit associated with re-measuring net deferred tax liabilities as a result of the Jobs Act in 2017.

129

Table of Contents

A reconciliation of the beginning and ending uncertain tax positions, excluding interest and penalties, is as follows (in thousands):

	2018	2017	2016
Balance as of January 1	$ 67.8	$ 41.9	$ 31.9
Acquired unrecognized tax benefits		23.2	—
Gross increases on tax positions in prior period	35.0	6.2	8.8
Gross decreases on tax positions in prior period	(19.0)	(14.7)	(0.6)
Gross increases on tax positions in current period	19.0	12.7	3.6
Lapse of statute of limitations	(0.5)	(1.5)	(1.8)
Balance as of December 31	$ 102.3	$ 67.8	$ 41.9

As of December 31, 2018, 2017 and 2016, the Company had $99.5 million, $68.2 million, and $40.5 million, respectively, of uncertain tax positions, net of federal benefit, which, if recognized in the future, would affect the effective income tax rate. Reductions to uncertain tax positions from the lapse of the applicable statutes of limitations and potential audit settlements during the next twelve months are estimated to be approximately $0.9 million.

Estimated interest costs and penalties are classified as part of the provision for income taxes in the Company's consolidated statements of income and were $1.1 million, $(1.5) million, and $2.5 million for the periods ended December 31, 2018, 2017 and 2016, respectively. Accrued interest and penalties were $12.6 million, $11.1 million and $10.2 million as of December 31, 2018, 2017 and 2016, respectively.

The following table summarizes the tax years that are either currently under audit or remain open and subject to examination by the tax authorities in the most significant jurisdictions in which Cboe operates:

U.S. Federal	2008-2018
Illinois	2015-2018
New York	2011-2018
New York City	2011-2018
United Kingdom	2016-2018

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 December 31, 2018, we have not resolved these matters, and proceedings continue in Tax Court and the Court of Federal Claims.

On December 22, 2017 the U.S. enacted the Tax Cuts and Jobs Act (the “Jobs Act”). The Jobs Act significantly changed U.S. corporate income tax laws by, among other things, reducing the U.S. corporate income tax rate to 21% starting in 2018 and creating a territorial tax system with a one-time mandatory tax on previously deferred foreign earnings of U.S. subsidiaries. We were able to reasonably estimate the impact of the Jobs Act and recorded a $191.3 million net tax benefit for the year ended December 31, 2017, primarily due to the tax benefit associated with re-measuring net deferred tax liabilities. Upon completing our tax reporting obligations in the fourth quarter of 2018, the impact of the

Jobs Act has been determined to be complete. The Company recognized a favorable adjustment of $3.2 million in 2018, resulting in a total net tax benefit of $194.5 million from the enactment of the Jobs Act.

Table of Contents

(22) 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.

Net income and diluted earnings per share for the year ended December 31, 2017 include a substantial benefit associated with the enactment of the Jobs Act. The enactment of the Jobs Act resulted in an estimated net income increase of $191.3 million primarily due to a one-time revaluation of our net deferred tax liability based on a U.S. federal tax rate of 21 percent.

The following table sets forth the computation of basic and diluted earnings per share (in millions, except per share data):

	Year Ended December 31,		
(in millions, except per share amounts)	2018	2017	2016
Basic EPS Numerator:			
Net Income	$ 425.2	$ 400.6	$ 185.7
Loss attributable to noncontrolling interests	1.3	1.1	1.1
Net Income excluding noncontrolling interests	426.5	401.7	186.8
Change in redemption value of noncontrolling interests	(1.3)	(1.1)	(1.1)
Earnings allocated to participating securities	(3.1)	(3.9)	(0.8)
Net Income allocated to common stockholders	$ 422.1	$ 396.7	$ 184.9
Basic EPS Denominator:			
Weighted average shares outstanding	111.8	107.2	81.4
Basic Net Income Per Common Share	$ 3.78	$ 3.70	$ 2.27
Diluted EPS Numerator:			
Net Income	$ 425.2	$ 400.6	$ 185.7
Loss attributable to noncontrolling interests	1.3	1.1	1.1
Net Income excluding noncontrolling interests	426.5	401.7	186.8
Change in redemption value of noncontrolling interests	(1.3)	(1.1)	(1.1)
Earnings allocated to participating securities	(3.1)	(3.9)	(0.8)
Net Income allocated to common stockholders	$ 422.1	$ 396.7	$ 184.9
Diluted EPS Denominator:			
Weighted average shares outstanding	111.8	107.2	81.4
Dilutive common shares issued under stock program	0.4	0.3	—
Total dilutive weighted average shares	112.2	107.5	81.4

Diluted Net Income Per Common Share	$ 3.76	$ 3.69	$ 2.27

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

Table of Contents

(23) Commitments, Contingencies and Guarantees

Legal Proceedings

As of December 31, 2018, 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 December 31, 2018, 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.

City of Providence

On April 18, 2014, the City of Providence, Rhode Island filed a securities class action lawsuit in the Southern District of New York against Bats and Direct Edge Holdings LLC, as well as 14 other securities exchanges. The action purports to be brought on behalf of all public investors who purchased and/or sold shares of stock in the United States since April 18, 2009 on a registered public stock exchange (“Exchange Defendants”) or a U.S.-based alternate trading venue and were injured as a result of the alleged misconduct detailed in the complaint, which includes allegations that the Exchange Defendants committed fraud through a variety of business practices associated with, among other things, what is commonly referred to as high frequency trading. On May 2, 2014 and May 20, 2014, American European Insurance Company and Harel Insurance Co., Ltd. each filed substantially similar class action lawsuits against the Exchange Defendants which were ultimately consolidated with the City of Providence, Rhode Island securities class action lawsuit. On June 18, 2015, the Southern District of New York (the “Lower Court”) held oral argument on the pending Motion to Dismiss and thereafter, on August 26, 2015, the Lower Court issued an Opinion and Order granting Exchange Defendants’ Motion to Dismiss, dismissing the complaint in full. Plaintiff filed a Notice of Appeal of the dismissal on September 24, 2015 and its appeal brief on January 7, 2016. Respondent's brief was filed on April 7, 2016 and oral argument was held on August 24, 2016. Following oral argument, the Court of Appeals issued an order requesting that the SEC submit an amicus brief on whether the Lower Court had jurisdiction and whether the Exchange Defendants have immunity in the claims alleged. The SEC filed its amicus brief with the Court of Appeals on November 28, 2016 and Plaintiff and the Exchange Defendants filed their respective supplemental response briefs on December 12, 2016. On December 19, 2017, the Court of Appeals reversed the Lower Court’s dismissal and remanded the case back to the Lower Court. On March 13, 2018, the Court of Appeals denied the Exchange Defendants’ motion for re-hearing. The Exchange Defendants filed their opening brief for their motion to dismiss May 18, 2018, Plaintiffs’ response was filed June 15, 2018 and the Exchange Defendants’ reply was filed June 29, 2018. Given the preliminary nature of the proceedings, the Company is unable to estimate what, if any, liability

may result from this litigation. However, the Company believes that the claims are without merit and intends to litigate the matter vigorously.

Table of Contents

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 on October 16, 2018, on a separate SIFMA denial of access application held before an SEC's administrative law judge regarding fees proposed by Nasdaq and the NYSE for their respective market data products. The Order also applied to NYSE, Nasdaq, MIAX and CTA. 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 motion for stay of the Order, which was filed on November 20, 2018. On December 3, 2018, SIFMA filed a response to NYSE's motion for stay, which the Exchanges joined. 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 Washington D.C. Court of Appeals (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, 2018 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 before the D.C. Circuit. 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.

VIX Litigation

On March 20, 2018, a putative class action complaint captioned Tomasulo v. Cboe Exchange, Inc., et al., No. 18-cv-02025 was filed in federal district court for the Northern District of Illinois alleging that the Company intentionally designed its products, operated its platforms, and formulated the method for calculating VIX and the Special Opening Quotation, (i.e., the special VIX value designed by the Company and calculated on the settlement date of VIX derivatives prior to the opening of trading), in a manner that could be collusively manipulated by a group of entities named as John Doe defendants. A number of similar putative class actions, some of which do not name the Company as a party, were filed in federal court in Illinois and New York on behalf of investors in certain volatility-related products. On June 14, 2018, the Judicial Panel on Multidistrict Litigation centralized the putative class actions in the federal district court for the Northern District of Illinois. On September 28, 2018, plaintiffs filed a master, consolidated complaint that is a putative class action alleging various claims against the Company and John Doe defendants in the federal district court for the Northern District of Illinois. The claims asserted against the Company consist of a Securities Exchange Act fraud claim, three Commodity Exchange Act claims and a state law negligence claim. Plaintiffs request a judgment awarding class damages in an unspecified amount, as well as punitive or exemplary damages in an unspecified amount, prejudgment interest, costs including attorneys' and experts' fees and expenses and such other relief as the court may deem just and proper. On November 19, 2018, the Company filed a motion to dismiss the master consolidated complaint and the plaintiffs filed their response on January 7, 2019. The Company filed its reply on January 28, 2019. Given the preliminary nature of the proceedings, the Company is still evaluating the facts underlying the complaints, however, the Company currently believes that the claims are without merit and intends to litigate the matter vigorously. The Company is unable to estimate what, if any, liability may result from this litigation.

133

Table of Contents

Transaction Fee Pilot

In December 2018, the SEC approved a transaction fee pilot in national market system (“NMS”) stocks (the “transaction fee 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 Washington, D.C. Court of Appeals on the transaction fee pilot. The transaction fee 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.

Other

As self-regulatory organizations under the jurisdiction of the SEC, Cboe Options, C2, BZX, BYX, EDGX and EDGA are subject to routine reviews and inspections by the SEC. As a designated contract market under the jurisdiction of the CFTC, CFE is subject to routine reviews and inspections by the CFTC. Cboe SEF, LLC is a swap execution facility registered with the CFTC and subject to routine reviews and inspections by the CFTC. Cboe Trading is subject to reviews and inspections by FINRA. The Company has from time to time received inquiries and investigative requests from the SEC's Office of Compliance Inspections and Examinations as well as the Division of Enforcement seeking information about our compliance with our obligations as a self-regulatory organization, the federal securities laws as well as our members’ compliance with the federal securities laws. In addition, while Cboe Europe Limited and Cboe Chi-X Europe have not been the subject of any material litigation or regulatory investigation in the past, there is always the possibility of such action in the future. As both companies are domiciled in the U.K., it is likely that any action would be taken in the U.K. courts in relation to litigation or by the FCA in relation to any regulatory enforcement action.

The Company is also currently a party to various other legal proceedings in addition to those already mentioned. Management does not believe that the outcome of any of these other reviews, inspections, investigations or other legal proceedings will have a material impact on our consolidated financial position, results of operations or cash flows.

See also Note 21 (“Income Taxes”).

Contractual Obligations

The Company currently leases office space, data centers and remote network operations centers, with lease terms remaining ranging from three months to one hundred months as of December 31, 2018. Total rent expense related to these lease obligations, reflected in technology support services and facilities costs line items on the consolidated statements of income, for the years ended December 31, 2018, 2017, and 2016 were $10.1 million, $7.6 million and $4.4 million, respectively.

(24) Quarterly Data (unaudited)

Year ended December 31, 2018 (in millions, except per share data)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Revenue less cost of revenues	$ 328.5	$ 283.5	$ 270.5	$ 334.4

Operating income	167.7	129.1	126.1	176.5
Net income	118.1	83.0	85.7	138.4
Net income allocated to common stockholders	117.3	82.4	85.0	137.4
Basic earnings per share	$ 1.04	$ 0.74	$ 0.76	$ 1.23
Diluted earnings per share	$ 1.04	$ 0.73	$ 0.76	$ 1.23

Table of Contents

Year ended December 31, 2017 (in millions, except per share data)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Revenue less cost of revenues	$ 193.4	$ 266.9	$ 269.7	$ 265.6
Operating income	26.1	117.8	119.3	108.7
Net income	15.2	68.0	60.3	257.1
Net income allocated to common stockholders	15.1	67.3	59.7	254.6
Basic earnings per share	$ 0.16	$ 0.60	$ 0.53	$ 2.41
Diluted earnings per share	$ 0.16	$ 0.60	$ 0.53	$ 2.40

(25) Subsequent Events

On February 13, 2019, the Company's board of directors declared a quarterly cash dividend of $0.31 per share. The dividend is payable on March 15, 2019 to stockholders of record at the close of business on March 1, 2019.

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. As a result of the recency, there is uncertainty regarding next steps and potential consequences. Based on the information known as of February 22, 2019, an estimate of the impact on the financial statements cannot be reasonably estimated. See Note 7 (“Investments”) for additional information.

On February 19, 2019, the Company granted 192,733 RSUs and 51,448 PSUs to certain officers and employees at a fair value of $94.16 per share, the closing price of the Company's stock on the grant date. The shares have a three year vesting period based on achievement of certain service, performance and/or market conditions and vesting accelerates upon the occurrence of a change in control of the Company or in the event of earlier death, disability or qualified retirement.

Table of Contents

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Not applicable.

Item 9A. Controls and Procedures

(a) Evaluation of 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 Securities Exchange Act of 1934 (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) Management's Annual Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting. The Company’s internal control system has been designed to provide reasonable assurance to management and the board of directors regarding the preparation and fair presentation of published financial statements.

Management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2018. Management based its assessment on criteria for effective internal control over financial reporting described in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Management's assessment included evaluating the design of our internal control over financial reporting and testing the operational effectiveness of our internal control over financial reporting. The results of its assessment were reviewed with the audit committee of the board of directors.

Implementation of Internal Controls with respect to Bats. As of March 31, 2018, the Company has integrated the acquired Bats Global Markets, Inc. operations into its overall internal controls over financial reporting.

During the second quarter ended June 30, 2018, the Company implemented various process and information enhancements, principally related to the implementation of new general ledger, payroll and accounts payable software. These process and information enhancements have resulted in modifications to the internal controls over general ledger and accounts payable systems. Management has taken the necessary steps to monitor and maintain appropriate internal control over financial reporting during this period of system change.

No changes occurred in the Company’s internal control over financial reporting during fourth quarter 2018 that have materially affected, or are reasonably likely to materially affect, the Company’s internal control over financial reporting. Based on its assessment of the Company’s internal control over financial reporting, management believes that, as of December 31, 2018, internal control over financial reporting is effective.

The effectiveness of the Company’s internal control over financial reporting as of December 31, 2018 has been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report on page 92.

Item 9B. Other Information

Not applicable.

Table of Contents

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Information relating to our directors, including our audit committee and audit committee financial experts and the procedures by which stockholders can recommend director nominees, and our executive officers will be in our definitive Proxy Statement for our 2019 Annual Meeting of Stockholders planned to be held on May 16, 2019, which will be filed within 120 days of the end of our fiscal year ended December 31, 2018 ("2019 Proxy Statement") and is incorporated herein by reference. Information relating to our executive officers is included on pages 24 and 25 of this Annual Report on Form 10-K.

Code of Ethics

We have adopted a Code of Business Conduct and Ethics that applies to our Chief Executive Officer, Chief Financial Officer and Chief Accounting Officer, as well as all other employees and directors. Our Code of Business Conduct and Ethics is available on our website at http://ir.cboe.com/governance.cfm. We will also provide a copy of the Code of Business Conduct and Ethics to stockholders at no charge upon written request.

Item 11. Executive Compensation

Information relating to our executive officer and director compensation and the compensation committee of our board of directors will be in the 2019 Proxy Statement and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Information relating to security ownership of certain beneficial owners of our common stock and information relating to the security ownership of our management will be in the 2019 Proxy Statement and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

Information regarding certain relationships and related transactions and director independence will be in the 2019 Proxy Statement and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

Information regarding principal accountant fees and services will be in the 2019 Proxy Statement and is incorporated herein by reference.

Table of Contents

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) Documents filed as part of this report

(1) Financial Statements

Our consolidated financial statements and the related reports of management and our independent registered public accounting firm which are required to be filed as part of this report are included in this Annual Report on Form 10-K beginning at page 91. These consolidated financial statements are as follows:

- Consolidated Balance Sheets as of December 31, 2018 and 2017
- Consolidated Statements of Income for the years ended December 31, 2018, 2017 and 2016
- Consolidated Statements of Comprehensive Income for the years ended December 31, 2018, 2017 and 2016
- Consolidated Statements of Cash Flows for the years ended December 31, 2018, 2017 and 2016
- Consolidated Statements of Stockholders' Equity for the years ended December 31, 2018, 2017 and 2016
- Notes to Consolidated Financial Statements

(2) Financial Statement Schedules

The Company has not included any financial statement schedules because they are not applicable or the required information is included in the consolidated financial statements or notes thereto.

(3) List of Exhibits

See (b) Exhibits below

(b) Exhibits

Exhibit

No.	Description of Exhibit
2.1	Agreement and Plan of Merger, dated as of September 25, 2016, by and among Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.), CBOE Corporation, CBOE V, LLC and Bats Global Markets, Inc., incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on September 28, 2016.**
3.1	Third Amended and Restated Certificate of Incorporation, incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on October 17, 2017.
3.2	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.
4.1	Indenture, dated as of January 12, 2017, by and between the Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.) and Wells Fargo Bank National Association, as trustee, incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on January 12, 2017.
4.2	Officer's Certificate, dated as of January 12, 2017, establishing the 3.650% Senior Notes due 2027 of Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.), incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on January 12, 2017.

Table of Contents

4.3	Form of 3.650% Senior Notes due 2027 (included in Exhibit 4.2 hereto).
4.4	Officer's Certificate, dated as of June 29, 2017, establishing the 1.950% Senior Notes due 2019 of Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.), incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on June 29, 2017.
4.5	Form of 1.950% Senior Notes due 2019 (included in Exhibit 4.4 hereto).
10.1	Term Loan Credit Agreement, dated as of December 15, 2016, by and among Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.), Bank of America, N.A., as Administrative Agent, certain lenders named therein, Merrill Lynch, Pierce, Fenner & Smith Incorporated, as Sole Lead Arranger and Sole Bookrunner, Morgan Stanley MUFG Loan Partners, LLC, as Syndication Agent, and Citibank, N.A., PNC Bank, National Association and JPMorgan Chase Bank, N.A., as Co-Documentation Agents, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on December 20, 2016.
10.2	Term Loan Credit Agreement, dated as of March 22, 2018, by and among Cboe Global Markets, Inc., Bank of America, N.A., as administrative agent, and the lender parties thereto, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on March 23, 2018.
10.3	Credit Agreement, dated as of December 15, 2016, by and among Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.), Bank of America, N.A., as Administrative Agent and as Swing Line Lender, certain lenders named therein, Merrill Lynch, Pierce, Fenner & Smith Incorporated, as Sole Lead Arranger and Sole Bookrunner, Morgan Stanley MUFG Loan Partners, LLC, as Syndication Agent, and Citibank, N.A., PNC Bank, National Association and JPMorgan Chase Bank, N.A., as Co-Documentation Agents, incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on December 20, 2016.
10.4	Restated License Agreement, dated November 1, 1994, by and between Standard & Poor's Financial Services LLC (as successor-in-interest to Standard & Poor's, a division of McGraw-Hill, Inc.) and Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) (the "S&P License Agreement"), incorporated by reference to Exhibit 10.1 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
10.5	Amendment No. 1 to the S&P License Agreement, dated January 15, 1995, incorporated by reference to Exhibit 10.2 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
10.6	Amendment No. 2 to the S&P License Agreement, dated April 1, 1998, incorporated by reference to Exhibit 10.3 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
10.7	Amendment No. 3 to the S&P License Agreement, dated July 28, 2000, incorporated by reference to Exhibit 10.4 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
10.8	Amendment No. 4 to the S&P License Agreement, dated October 27, 2000, incorporated by reference to Exhibit 10.5 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
10.9	Amendment No. 5 to the S&P License Agreement, dated March 1, 2003, incorporated by reference to Exhibit 10.6 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
10.10	Amended and Restated Amendment No. 6 to the S&P License Agreement, dated February 24, 2009, incorporated by reference to Exhibit 10.7 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+

Table of Contents

10.11	Amended and Restated Amendment No. 7 to the S&P License Agreement, dated February 24, 2009, incorporated by reference to Exhibit 10.8 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
10.12	Amendment No. 8 to the S&P License Agreement, dated January 9, 2005, incorporated by reference to Exhibit 10.9 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
10.13	Amendment No. 10 to the S&P License Agreement, dated June 19, 2009, incorporated by reference to Exhibit 10.10 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
10.14	Amendment No. 11 to the S&P License Agreement, dated as of April 29, 2010, incorporated by reference to Exhibit 10 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on May 11, 2010.
10.15	Amendment No. 12 to the S&P License Agreement, dated March 9, 2013, incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-34774) filed on May 7, 2013. +
10.16	Amendment No. 13 to the S&P License Agreement, dated as of December 21, 2017, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on December 22, 2017.+
10.17	Amendment No. 14 to the S&P License Agreement, dated December 20, 2018 (filed herewith).
10.18	Amendment No. 15 to the S&P License Agreement, dated January 25, 2019 (filed herewith).
10.19	Form of Amended and Restated Director Indemnification Agreement, incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2017 (File No. 001-34774) filed on August 4, 2017.
10.20	Employment Agreement, by and among Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.), Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated), Cboe C2 Exchange, Inc. (f/k/a C2 Options Exchange, Incorporated) and Edward Tilly, dated February 27, 2017, incorporated by reference to Exhibit 10.10 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 (File No. 001-34774) filed on May 11, 2017.*
10.21	Employment Agreement, by and among Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.), Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated), Cboe C2 Exchange, Inc. (f/k/a C2 Options Exchange, Incorporated) and Christopher Concannon, dated February 27, 2017, incorporated by reference to Exhibit 10.11 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 (File No. 001-34774) filed on May 11, 2017.*
10.22	Offer Letter Agreement, by and between Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.) and Christopher Isaacson, dated September 25, 2016, incorporated by reference to Exhibit 10.12 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 (File No. 001-34774) filed on May 11, 2017.*
10.23	Offer Letter Agreement, by and between Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.) and Mark Hemsley, dated September 25, 2016, incorporated by reference to Exhibit 10.13 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 (File No. 001-34774) filed on May 11, 2017.*
10.24	Offer Letter Agreement, by and between Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.) and Brian N. Schell, dated February 27, 2017, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on November 7, 2017.*
10.25	Amendments to Relocation Assistance Summary for Brian N. Schell, incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on November 7, 2017.*

Table of Contents

10.26	Release Agreement, by and among Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.), Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated), Cboe C2 Exchange, Inc. (f/k/a C2 Options Exchange, Incorporated) and Joanne Moffic-Silver, dated February 28, 2018, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on March 2, 2018.*
10.27	Retirement Agreement, by and among Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.), Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated), Cboe C2 Exchange, Inc. (f/k/a C2 Options Exchange, Incorporated) and Edward Provost, dated February 28, 2017, incorporated by reference to Exhibit 10.14 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 (File No. 001-34774) filed on May 11, 2017.*
10.28	Retirement Agreement, by and among Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.), Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated), Cboe C2 Exchange, Inc. (f/k/a C2 Options Exchange, Incorporated) and Gerald O'Connell, dated February 27, 2017, incorporated by reference to Exhibit 10.15 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 (File No. 001-34774) filed on May 11, 2017.*
10.29	Termination Agreement, by and among Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.), Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated), Cboe C2 Exchange, Inc. (f/k/a C2 Options Exchange, Incorporated) and Alan J. Dean, dated December 31, 2017, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on January 3, 2018.*
10.30	Form of U.S. Executive Employment Agreement between Bats Global Markets, Inc. and certain executive officers, incorporated by reference to Exhibit 10.15 to Amendment No. 3 to Bats Global Markets, Inc.'s Registration Statement on Form S-1 (File No. 333-208565) filed on April 4, 2016.*
10.31	Form of U.K. Executive Employment Agreement between Bats Global Markets, Inc. and certain executive officers, incorporated by reference to Exhibit 10.16 to Amendment No. 3 to Bats Global Markets, Inc.'s Registration Statement on Form S-1 (File No. 333-208565) filed on April 4, 2016.*
10.32	Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Executive Retirement Plan, incorporated by reference to Exhibit 10.13 to Amendment No. 4 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on August 14, 2009.*
10.33	Amendments to the Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Executive Retirement Plan, incorporated by reference to Exhibit 10.13 to the Company's Annual Report on Form 10-K for the year ended December 31, 2016 (File No. 001-34774) filed on February 22, 2017.*
10.34	Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Supplemental Retirement Plan, incorporated by reference to Exhibit 10.14 to Amendment No. 4 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on August 14, 2009.*
10.35	Amendment No. 1 to the Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Supplemental Retirement Plan, incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2010 (File No. 001-34774) filed on November 12, 2010.*
10.36	Amendments to the Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Supplemental Retirement Plan, incorporated by reference to Exhibit 10.18 to the Company's Annual Report on Form 10-K for the year ended December 31, 2016 (File No. 001-34774) filed on February 22, 2017.*
10.37	Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Deferred Compensation Plan for Officers, incorporated by reference to Exhibit 10.15 to Amendment No. 4 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on August 14, 2009.*
10.38	Amendments to the Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Deferred Compensation Plan for Officers, incorporated by reference to Exhibit 10.16 to the Company's Annual Report on Form 10-K for the year ended December 31, 2016 (File No. 001-34774) filed on February 22, 2017.*

Table of Contents

10.39	Amended and Restated Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.) Executive Severance Plan, incorporated by reference to Exhibit 10.16 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 (File No. 001-34774) filed on May 11, 2017.*
10.40	Cboe Global Markets, Inc. Executive Severance Plan, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on August 2, 2018.*
10.41	Bats Global Markets, Inc. 2009 Stock Option Plan, incorporated by reference to Exhibit 10.1 to Bats Global Markets, Inc.'s Registration Statement on Form S-1 (File No. 333-208565) filed on December 16, 2015.*
10.42	Bats Global Markets, Inc. Third Amended and Restated 2012 Equity Incentive Plan, incorporated by reference to Exhibit 10.2 to Bats Global Markets, Inc.'s Registration Statement on Form S-1 (File No. 333-208565) filed on December 16, 2015.*
10.43	Form of Stock Option Award Agreement pursuant to the Bats Global Markets, Inc. 2009 Stock Option Plan, incorporated by reference to Exhibit 10.3 to Bats Global Markets, Inc.'s Registration Statement on Form S-1 (File No. 333-208565) filed on December 16, 2015.*
10.44	Form of Stock Option Award Agreement pursuant to the Bats Global Markets, Inc. Third Amended and Restated 2012 Equity Incentive Plan, incorporated by reference to Exhibit 10.4 to Bats Global Markets, Inc.'s Registration Statement on Form S-1 (File No. 333-208565) filed on December 16, 2015.*
10.45	Form of Restricted Stock Award Agreement pursuant to the Bats Global Markets, Inc. Third Amended and Restated 2012 Equity Incentive Plan, incorporated by reference to Exhibit 10.5 to Bats Global Markets, Inc.'s Registration Statement on Form S-1 (File No. 333-208565) filed on December 16, 2015.*
10.46	Bats Global Markets, Inc. 2016 Omnibus Incentive Plan, incorporated by reference to Exhibit 99.3 to Bats Global Markets, Inc.'s Registration Statement on Form S-8 (File No. 333-210841) filed on April 20, 2016.*
10.47	Form of Restricted Stock Award Agreement under Bats Global Markets, Inc. 2016 Omnibus Incentive Plan, incorporated by reference to Exhibit 10.7 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 (File No. 001-34774) filed on May 11, 2017.*
10.48	Cboe Global Markets, Inc. Employee Stock Purchase Plan, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on May 18, 2018.*
10.49	Second Amended and Restated Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.) Long-Term Incentive Plan, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on May 24, 2016.*
10.50	Form of Restricted Stock Award Agreement (for Non-employee Directors), incorporated by reference to Exhibit 10.17 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 (File No. 001-34774) filed on May 11, 2017.*
10.51	Form of Restricted Stock Unit Award Agreement (for Executive Officers), incorporated by reference to Exhibit 10.27 to the Company's Annual Report on Form 10-K for the year ended December 31, 2013 (File No. 001-34774) filed on February 21, 2014.*
10.52	Form of Restricted Stock Unit Award Agreement (relative total shareholder return), incorporated by reference to Exhibit 10.28 to the Company's Annual Report on Form 10-K for the year ended December 31, 2013 (File No. 001-34774) filed on February 21, 2014.*
10.53	Form of Restricted Stock Unit Award Agreement (earnings per share), incorporated by reference to Exhibit 10.29 to the Company's Annual Report on Form 10-K for the year ended December 31, 2013 (File No. 001-34774) filed on February 21, 2014.*
10.54	Form of 2016 Restricted Stock Unit Award Agreement (for Executive Officers), incorporated by reference to Exhibit 10.30 to the Company's Annual Report on Form 10-K for the year ended December 31, 2015 (File No. 001-34774) filed on February 19, 2016.*

Table of Contents

10.55	Form of 2016 Restricted Stock Unit Award Agreement (relative total shareholder return), incorporated by reference to Exhibit 10.31 to the Company's Annual Report on Form 10-K for the year ended December 31, 2015 (File No. 001-34774) filed on February 19, 2016.*
10.56	Form of 2016 Restricted Stock Unit Award Agreement (earnings per share), incorporated by reference to Exhibit 10.32 to the Company's Annual Report on Form 10-K for the year ended December 31, 2015 (File No. 001-34774) filed on February 19, 2016.*
10.57	Form of 2017 Restricted Stock Unit Award Agreement (for Executive Officers), incorporated by reference to Exhibit 10.34 to the Company's Annual Report on Form 10-K for the year ended December 31, 2016 (File No. 001-34774) filed on February 22, 2017.*
10.58	Form of 2017 Restricted Stock Unit Award Agreement (relative total shareholder return), incorporated by reference to Exhibit 10.35 to the Company's Annual Report on Form 10-K for the year ended December 31, 2016 (File No. 001-34774) filed on February 22, 2017.*
10.59	Form of Restricted Stock Unit Award Agreement (3 Year Cliff Vest), incorporated by reference to Exhibit 10.36 to the Company's Annual Report on Form 10-K for the year ended December 31, 2016 (File No. 001-34774) filed on February 22, 2017.*
10.60	Form of 2018 Restricted Stock Unit Award Agreement (for Executive Officers), incorporated by reference to Exhibit 10.58 to the Company's Annual Report on Form 10-K for the year ended December 31, 2017 (File No. 001-34774) filed on February 22, 2018.*
10.61	Form of 2018 Restricted Stock Unit Award Agreement (relative total shareholder return), incorporated by reference to Exhibit 10.59 to the Company's Annual Report on Form 10-K for the year ended December 31, 2017 (File No. 001-34774) filed on February 22, 2018.*
10.62	Form of 2018 Restricted Stock Unit Award Agreement (earnings per share), incorporated by reference to Exhibit 10.60 to the Company's Annual Report on Form 10-K for the year ended December 31, 2017 (File No. 001-34774) filed on February 22, 2018.*
10.63	Form of Restricted Stock Unit Award Agreement (3 Year Cliff Vest), incorporated by reference to Exhibit 10.2 to the Company’s Current Report on Form 8-K (File No. 001-34774) filed on May 18, 2018.*
10.64	Form of 2019 Restricted Stock Unit Award Agreement (for Executive Officers) (filed herewith).*
10.65	Form of 2019 Restricted Stock Unit Award Agreement (relative total shareholder return) (filed herewith).*
10.66	Form of 2019 Restricted Stock Unit Award Agreement (earnings per share) (filed herewith).*
10.67	Form of 2019 Restricted Stock Unit Award Agreement (3 Year Cliff Vest) (filed herewith).*
21.1	Subsidiaries of Cboe Global Markets, Inc. (filed herewith).
23.1	Consent of Independent Registered Public Accounting Firm (filed herewith).
24.1	Powers of Attorney (incorporated by reference to the signature page of this Annual Report on Form 10-K).
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14 (filed herewith).
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14 (filed herewith).
32.1	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).
32.2	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).
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).

Table of Contents

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).

*Indicates Management Compensatory Plan, Contract or Arrangement.

**Schedules have been omitted pursuant to Item 601(b)(2) of Regulation S-K. A copy of any omitted schedule will be furnished supplementally to the Securities and Exchange Commission upon request.

+Confidential treatment has been previously requested or granted to portions of these exhibits by the SEC.

Item 16. Form 10-K Summary

None.

Table of Contents

SIGNATURES

Pursuant to the requirements of the Securities 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)
Date: February 22, 2019	By:	/s/ Brian N. Schell
	Name:	Brian N. Schell
	Title:	Executive Vice President and Chief Financial Officer (Principal Financial Officer)

POWERS OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Edward T. Tilly, as attorney-in-fact and agent, with full power of substitution and re-substitution, to sign on his or her behalf, individually and in any and all capacities, including the capacities stated below, any and all amendments to this Annual Report on Form 10-K for the year ended December 31, 2018 and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting to said attorney-in-fact and agent, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities on the dates indicated.

SIGNATURE	TITLE	DATE
/s/ EDWARD T. TILLY Edward T. Tilly	Chairman, President, and Chief Executive Officer (Principal Executive Officer)	February 22, 2019
/s/ BRIAN N. SCHELL Brian N. Schell	Executive Vice President, Chief Financial Officer and Treasurer (Principal Financial Officer)	February 22, 2019

/s/ JILL M. GRIEBENOW Jill M. Griebenow	Senior Vice President and Chief Accounting Officer (Principal Accounting Officer)	February 22, 2019
/s/ FRANK E. ENGLISH, JR. Frank E. English, Jr.	Director	February 22, 2019
/s/ WILLIAM M. FARROW III William M. Farrow III	Director	February 22, 2019
/s/ EDWARD J. FITZPATRICK Edward J. Fitzpatrick	Director	February 22, 2019

Table of Contents

SIGNATURE	TITLE	DATE
/s/ JANET P. FROETSCHER Janet P. Froetscher	Director	February 22, 2019
/s/ JILL R. GOODMAN Jill R. Goodman	Director	February 22, 2019
/s/ JAMES E. PARISI James E. Parisi	Director	February 22, 2019
/s/ RODERICK A. PALMORE Roderick A. Palmore	Director	February 22, 2019
/s/ JOSEPH P. RATTERMAN Joseph P. Ratterman	Director	February 22, 2019
/s/ MICHAEL L. RICHTER Michael L. Richter	Director	February 22, 2019
/s/ JILL E. SOMMERS Jill E. Sommers	Director	February 22, 2019
/s/ CAROLE E. STONE Carole E. Stone	Director	February 22, 2019
/s/ EUGENE S. SUNSHINE Eugene S. Sunshine	Director	February 22, 2019