

Cboe Global Markets Reports Record 2018 Fourth Quarter and Full Year Results

Fourth Quarter and Full Year Highlights*

- Diluted EPS for the Fourth Quarter and the Year of \$1.23 and \$3.76, Respectively
- Adjusted Diluted EPS¹ for the Fourth Quarter of \$1.54 and \$5.02 for the Year, up 77 Percent and 47 Percent, Respectively
- Net Revenue for the Fourth Quarter of \$334.4 Million, up 26 Percent; Full Year up 22 Percent
- Operating Margin for the Fourth Quarter of 52.8 Percent and Adjusted Operating Margin¹ of 66.6 Percent
- Operating Margin for the Year of 49.3 Percent and Adjusted Operating Margin¹ of 64.9 Percent
- EBITDA Margin¹ of 69.8 Percent and Adjusted EBITDA Margin¹ of 71.8 Percent for the Quarter
- Exited 2018 With Run-Rate Synergies of \$57 Million; On Track to Achieve 2020 Run-Rate Synergy Target of \$85 Million
- Set New Annual ADV Highs for Trading in Options, Index Options, SPX Options, VIX Futures and FX

CHICAGO, IL – February 8, 2019 - Cboe Global Markets, Inc. (Cboe: CBOE) today reported financial results for the 2018 fourth quarter and full year.

Consolidated results for the year ended December 31, 2017 include Bats Global Markets, Inc. (Bats) for the period March 1 through December 31, 2017. Cboe completed its acquisition of Bats on February 28, 2017.

“Our record results were fueled by growth across all of our business segments and, most notably, in our suite of proprietary products,” said Edward T. Tilly, Cboe Global Markets Chairman, President and Chief Executive Officer. “Additionally, we continued to make steady progress towards achieving our synergy targets while remaining focused on executing our strategic initiatives and defining markets to serve investors globally, as demonstrated by our announced rollout of Cboe Select Sector Index Options on 11 industry sectors that comprise the S&P 500 index. We are well-positioned to continue to deliver value to our customers and shareholders. A tremendous team effort made 2018’s record results possible and we are very excited about all that we can accomplish in 2019, including the final phase of our multi-year technology migration, which we plan to complete in October,” Mr. Tilly added.

“Our record financial results for the fourth quarter and the year underscore the operating leverage inherent in our business model when top-line growth is coupled with consistent expense discipline. Our net revenue grew by 26 percent and 22 percent for the fourth quarter and the year, respectively, accompanied by an adjusted operating margin of 66.6 percent for the fourth quarter and 64.9 percent for the year, reflecting growth of six percentage points and nearly four percentage points, respectively,” said Brian Schell, Cboe Global Markets Executive Vice President, Chief Financial Officer and Treasurer. “Additionally, our strong operating results allowed us to strengthen our balance sheet while still returning \$271.2 million to shareholders through dividends and share repurchases in 2018,” Mr. Schell added.

**All comparisons are fourth quarter or the year 2018 compared to the same period in 2017.*

⁽¹⁾A full reconciliation of our non-GAAP results to our GAAP results is included in the attached tables. See “Non-GAAP Information” in the accompanying financial tables.

Consolidated Fourth Quarter Results - Table 1

Table 1 below presents summary selected unaudited condensed consolidated financial information for the company as reported and on an adjusted basis for the three months ended December 31, 2018 and 2017.

Table 1						
Consolidated Fourth Quarter Results (\$ in millions except per share data)	4Q18	4Q17	Change	4Q18 Adjusted¹	4Q17 Adjusted¹	Change
Total Revenues Less Cost of Revenues	\$ 334.4	\$ 265.6	26 %	\$ 334.4	\$ 265.6	26 %
Total Operating Expenses	\$ 158.0	\$ 156.9	1 %	\$ 111.8	\$ 105.0	6 %
Operating Income	\$ 176.4	\$ 108.7	62 %	\$ 222.6	\$ 160.6	39 %
Operating Margin %	52.8 %	40.9 %	1190 bps	66.6 %	60.5 %	610 bps
Net Income Allocated to Common Stockholders	\$ 137.3	\$ 254.6	(46)%	\$ 171.6	\$ 97.7	76 %
Diluted EPS	\$ 1.23	\$ 2.26	(46)%	\$ 1.54	\$ 0.87	77 %
EBITDA	\$ 233.4	\$ 167.9	39 %	\$ 240.2	\$ 176.8	36 %
EBITDA Margin %	69.8 %	63.2 %	660 bps	71.8 %	66.6 %	520 bps

- Total revenues less cost of revenues (referred to as "net revenue") were \$334.4 million, up 26 percent from \$265.6 million in the prior-year period, reflecting growth in each business segment.
- Total operating expenses were \$158.0 million versus \$156.9 million in the fourth quarter of 2017. Adjusted operating expenses¹ were \$111.8 million versus \$105.0 million in the fourth quarter of 2017, primarily reflecting an increase in compensation and benefits as a result of increased financial performance.
- Operating income grew by 62 percent to \$176.4 million and adjusted operating income¹ grew by 39 percent to \$222.6 million.
- The operating margin for the fourth quarter was 52.8 percent. The adjusted operating margin¹ increased to 66.6 percent from 60.5 percent in the fourth quarter of 2017, reflecting increased operating leverage from a higher revenue base.
- Income tax expense of \$37.3 million for the fourth quarter was \$190.3 million higher than last year primarily due to the tax benefits recognized from the enactment of corporate tax reform in 2017.
- Diluted EPS for the fourth quarter of 2018 was \$1.23. Adjusted diluted EPS¹ was \$1.54, up 77 percent compared to 2017's fourth quarter.

Business Segment Information:

Table 2			
Total Revenues Less Cost of Revenues by Business Segment (in millions)	4Q18	4Q17	Change
Options	\$ 174.5	\$ 130.0	34 %
U.S. Equities	81.5	69.0	18 %
Futures	40.4	35.6	13 %
European Equities	24.3	18.8	29 %
Global FX	13.7	12.0	14 %
Corporate	0.0	0.2	(100)%
Total	\$ 334.4	\$ 265.6	26 %

⁽¹⁾A full reconciliation of our non-GAAP results to our GAAP results is included in the attached tables. See "Non-GAAP Information" in the accompanying financial tables.

- More -

Discussion of Results by Business Segment:

Options:

- Options net revenue of \$174.5 million was up \$44.5 million or 34 percent from the fourth quarter of 2017, primarily due to growth in net transaction fees driven by higher trading volume and revenue per contract (RPC) in both index options and multiply-listed options, with SPX options setting a new quarterly trading record.
- Net transaction fees¹ increased \$46.1 million or 44 percent, as total options average daily volume (ADV) grew 23 percent and the RPC increased 17 percent for the fourth quarter. The RPC increase reflects RPC growth in multiply-listed options and index options of 48 percent and 10 percent, respectively.
- Cboe's Options business had market share of 38.4 percent for the fourth quarter of 2018 compared to 40.5 percent in the fourth quarter of 2017.

U.S. Equities:

- U.S. Equities net revenue of \$81.5 million was up \$12.5 million or 18 percent, primarily due to higher net transaction fees, driven by a 33 percent increase in ADV and a 24 percent increase in net capture.
- Cboe's U.S. Equities business had market share of 17.8 percent for the fourth quarter of 2018 compared to 18.5 percent in the fourth quarter of 2017.

Futures:

- Futures net revenue of \$40.4 million increased \$4.8 million or 13 percent, primarily due to higher net transaction fees.
- Net transaction fees¹ increased \$4.0 million or 12 percent, due to an 18 percent increase in VIX futures ADV, offset somewhat by a 6 percent decline in futures RPC, primarily resulting from a shift in the mix of trading volume.

European Equities:

- Net revenue of \$24.3 million for European Equities increased 29 percent, reflecting growth in both net transaction fees and non-transaction revenue. Average daily notional value (ADNV) traded during the quarter was €10.6 billion, up 19 percent from last year's fourth quarter, with net capture up 13 percent, reflecting a higher mix of periodic auctions volume and Cboe LIS (Large in Scale) trading.
- For the fourth quarter of 2018, Cboe Europe Equities retained its position as the largest Pan-European stock exchange with 22.7 percent market share, up from 20.3 percent in the fourth quarter of 2017.

Global FX:

- Global FX net revenue of \$13.7 million increased \$1.7 million or 14 percent, primarily due to higher net transaction fees compared with the fourth quarter of 2017. ADNV traded on the Cboe FX platform was \$35.1 billion for the quarter, up 8 percent from last year's fourth quarter.
- Cboe FX market share increased to 15.3 percent from 14.9 percent in the fourth quarter of 2017.

⁽¹⁾A full reconciliation of our non-GAAP results to our GAAP results is included in the attached tables. See "Non-GAAP Information" in the accompanying financial tables.

2019 Fiscal Year Financial Guidance

The company provided the following guidance for the 2019 fiscal year:

- Adjusted operating expenses are expected to be in a range of \$420 to \$428 million, representing a projected decline of 2 percent to a nominal increase compared to 2018's adjusted operating expenses of \$426.8 million. The guidance excludes the amortization of acquired intangible assets of \$138 million, which the company plans to include in its non-GAAP reconciliation.²
- Depreciation and amortization expense, which is included in adjusted operating expenses above, is expected to be in the range of \$35 to \$40 million, excluding the amortization of acquired intangible assets of \$138 million.
- The effective tax rate² on adjusted earnings for the full year is expected to be in the range of 27 to 29 percent. Significant changes in trading volume, expenses, federal, state and local tax laws or rates and other items could materially impact this expectation.
- Capital expenditures are expected to be in the range of \$50 to \$55 million.

⁽²⁾Specific quantifications of the amounts that would be required to reconcile the company's adjusted operating expenses guidance and the effective tax rate on adjusted earnings guidance are not available. The company believes that there is uncertainty and unpredictability with respect to certain of its GAAP measures, primarily related to acquisition-related expenses that would be required to reconcile to GAAP operating expenses and GAAP effective tax rate, which preclude the company from providing accurate guidance on certain forward-looking GAAP to non-GAAP reconciliations. The company believes that providing estimates of the amounts that would be required to reconcile the range of the company's adjusted operating expenses and the effective tax rate on adjusted earnings would imply a degree of precision that would be confusing or misleading to investors for the reasons identified above.

Capital Management

The company paid cash dividends of \$34.7 million, or \$0.31 per share, during the fourth quarter of 2018. For the full year 2018, the company paid cash dividends of \$130.3 million and utilized \$140.9 million to repurchase 1.3 million shares of its common stock under its share repurchase program at an average price of \$104.52 per share. As of December 31, 2018, the company had approximately \$206.1 million of availability remaining under its existing share repurchase authorizations.

At December 31, 2018, the company had adjusted cash and financial investments¹ of \$257.7 million. Total debt as of December 31, 2018 was \$1.2 billion.

Earnings Conference Call

Executives of Cboe Global Markets will host a conference call to review its fourth-quarter financial results today, February 8, 2019, at 8:30 a.m. ET/7:30 a.m. CT. The conference call and any accompanying slides will be publicly available via live webcast from the Investor Relations section of the company's website at www.cboe.com under Events & Presentations. Participants may also listen via telephone by dialing (877) 255-4313 from the United States, (866) 450-4696 from Canada or (412) 317-5466 for international callers. Telephone participants should place calls 10 minutes prior to the start of the call. The webcast will be archived on the company's website for replay. A telephone replay of the earnings call also will be available from approximately 11:00 a.m. CT, February 8, 2019, through 11:00 p.m. CT, February 15, 2019, by calling (877) 344-7529 from the U.S., (855) 669-9658 from Canada or (412) 317-0088 for international callers, using replay code 10126940.

⁽¹⁾A full reconciliation of our non-GAAP results to our GAAP results is included in the attached tables. See "Non-GAAP Information" in the accompanying financial tables.

About Cboe Global Markets

Cboe Global Markets, Inc. (Cboe: CBOE) 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 Cboe Volatility Index (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 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. For more information, visit www.cboe.com.

Cautionary Statements Regarding Forward-Looking Information

This press release 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. 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.

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; increasing competition by foreign and domestic entities; our dependence on and exposure to risk from third parties; 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; our ability to protect our systems and communication networks from security risks, including cyber-attacks and unauthorized disclosure of confidential information; 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; unanticipated difficulties or expenditures relating to the acquisition of Bats Global Markets, Inc., including, without limitation, difficulties that result in the failure to realize expected synergies, accretion, efficiencies and cost savings from the acquisition within the expected time period (if at all), whether in connection with integration, migrating trading platforms, broadening distribution of product offerings or otherwise; restrictions imposed by our debt obligations; our ability to maintain an investment grade credit rating; potential difficulties in our migration of trading platforms and our ability to retain employees as a result of the acquisition; and the accuracy of our estimates and expectations. More detailed information about factors that may affect our actual results to differ may be found in our filings with the SEC, including in our Annual Report on Form 10-K for the year ended December 31, 2017 and other filings made from time to time with the SEC.

We do not undertake, and we 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. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof.

The condensed consolidated statements of income and balance sheets are unaudited and subject to reclassification.

Cboe Media Contacts:

Suzanne Cosgrove

(312) 786-7123

cosgrove@cboe.com

Stacie Fleming

44-20-7012-8950

sfleming@cboe.com

Analyst Contact:

Debbie Koopman

(312) 786-7136

koopman@cboe.com

CBOE-F

Trademarks:

Cboe®, Bats®, BZX®, BYX®, EDGX®, EDGA®, Cboe Volatility Index® and VIX® are registered trademarks and Cboe Global MarketsSM and SPXSM are service marks of Cboe Global Markets, Inc. and its subsidiaries. All other trademarks and service marks are the property of their respective owners.

- More -

**Cboe Global Markets, Inc.
Key Performance Statistics by Business Segment**

	4Q 2018	3Q 2018	2Q 2018	1Q 2018	4Q 2017
Options (ADV in thousands)					
Total industry ADV	22,450	18,292	18,807	22,407	17,347
Total company Options ADV	8,610	6,733	7,095	9,092	7,029
Multiply-listed options	6,067	4,965	5,264	6,286	4,971
Index options	2,543	1,768	1,831	2,806	2,058
Total Options Market Share	38.4 %	36.8 %	37.7 %	40.6 %	40.5 %
Total Options RPC:	\$ 0.280	\$ 0.244	\$ 0.241	\$ 0.261	\$ 0.239
Multiply-listed options	\$ 0.083	\$ 0.068	\$ 0.063	\$ 0.061	\$ 0.056
Index options	\$ 0.750	\$ 0.737	\$ 0.753	\$ 0.710	\$ 0.682
U.S. Equities					
Total industry ADV (shares in billions)	8.5	6.3	6.9	7.6	6.4
Market share %	17.8 %	17.5 %	18.9 %	19.4 %	18.5 %
Net capture (per 100 touched shares)	\$ 0.027	\$ 0.026	\$ 0.023	\$ 0.023	\$ 0.022
Futures					
ADV (in thousands)	338	239	258	368	285
RPC	\$ 1.686	\$ 1.704	\$ 1.633	\$ 1.727	\$ 1.799
European Equities					
Total industry ADVN (Euros - in billions)	€ 46.7	€ 41.4	€ 47.4	€ 50.8	€ 43.8
Market share %	22.7 %	23.1 %	22.2 %	21.2 %	20.3 %
Net capture (bps)	0.200	0.195	0.183	0.190	0.177
Global FX					
Market share %	15.3 %	14.8 %	14.9 %	15.3 %	14.9 %
ADNV (\$ in billions)	\$ 35.1	\$ 34.6	\$ 38.4	\$ 41.6	\$ 32.4
Net revenue (per one million dollars traded)	\$ 2.63	\$ 2.63	\$ 2.56	\$ 2.45	\$ 2.57

ADV = average daily volume; ADVN = average daily notional value.

RPC, average revenue per contract, for options and futures represents total net transaction fees recognized for the period divided by total contracts traded during the period.

U.S. Equities, "net capture per 100 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.

European Equities, "net capture per matched notional value" refers to transaction fees less liquidity payments in British pounds divided by the product of matched ADVN in British pounds and the number of trading days.

Global FX, "net capture per one million dollars traded" refers to net transaction fees divided by the product of one-millionth of ADVN 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. Market Share represents Cboe FX volume divided by the total volume of publicly reporting spot FX venues (Cboe FX, EBS, Refinitiv, and FastMatch).

Average transaction fees per contract can be affected by various factors, including exchange fee rates, volume-based discounts and transaction mix by contract type and product type.

- More -

Cboe Global Markets, Inc. and Subsidiaries
Consolidated Statements of Income (Unaudited)
Three Months and Twelve Months Ended December 31, 2018 and 2017

(in millions, except per share amounts)	Three Months Ended December 31,		Twelve Months Ended December 31,	
	2018	2017	2018	*2017
Revenue:				
Transaction fees	\$ 563.2	\$ 431.3	\$ 1,986.9	\$ 1,564.9
Access fees	33.8	29.2	127.9	106.8
Exchange services and other fees	20.8	19.5	83.1	74.8
Market data fees	49.7	47.2	204.0	164.5
Regulatory fees	73.1	86.4	333.9	291.5
Other revenue	7.1	7.1	33.0	26.6
Total Revenues	747.7	620.7	2,768.8	2,229.1
Cost of Revenue				
Liquidity payments	309.8	243.6	1,113.0	849.7
Routing and clearing	10.3	9.7	39.1	37.6
Section 31 fees	65.7	79.5	302.4	260.0
Royalty fees	27.5	22.3	97.4	86.2
Total Cost of Revenue	413.3	355.1	1,551.9	1,233.5
Revenues Less Cost of Revenues	334.4	265.6	1,216.9	995.6
Operating Expenses:				
Compensation and benefits	60.8	53.2	228.8	201.4
Depreciation and amortization	49.1	55.9	204.0	192.2
Technology support services	13.4	11.2	47.9	42.1
Professional fees and outside services	16.4	17.1	68.3	66.0
Travel and promotional expenses	3.2	5.2	13.0	17.2
Facilities costs	2.9	2.6	11.5	10.3
Acquisition-related costs	6.7	9.0	30.0	84.4
Change in contingent consideration	0.1	(0.1)	0.1	1.0
Other expenses	5.4	2.8	13.9	9.1
Total Operating Expenses	158.0	156.9	617.5	623.7
Operating Income	176.4	108.7	599.4	371.9
Other Income/(Expense):				
Interest expense, net	(9.7)	(10.4)	(38.2)	(41.3)
Other (expense)/ income	8.9	5.8	10.0	3.8
Total Other Income	(0.8)	(4.6)	(28.2)	(37.5)
Income Before Income (Benefit) Taxes	175.6	104.1	571.2	334.4
Income tax (benefit) provision	37.3	(153.0)	146.0	(66.2)
Net Income	138.3	257.1	425.2	400.6
Net income attributable to noncontrolling interests	0.4	0.3	1.3	1.1
Net Income Excluding Noncontrolling Interests	138.7	257.4	426.5	401.7
Change in redemption value of noncontrolling interests	(0.4)	(0.3)	(1.3)	(1.1)
Net income allocated to participating securities	(1.0)	(2.5)	(3.1)	(3.9)
Net Income Allocated to Common Stockholders	\$ 137.3	\$ 254.6	\$ 422.1	\$ 396.7
Net Income Per Share Allocated to Common Stockholders:				
Basic earnings per share	\$ 1.23	\$ 2.27	\$ 3.78	\$ 3.70
Diluted earnings per share	1.23	2.26	3.76	3.69
Weighted average shares used in computing income per share:				
Basic	111.3	112.3	111.8	107.2
Diluted	111.6	112.6	112.2	107.5

(*) Includes Bats for the period March 1 through December 31, 2017.

- More -

Cboe Global Markets, Inc. and Subsidiaries
Condensed Consolidated Balance Sheets (Unaudited)
December 31, 2018 and 2017

(in millions)	December 31, 2018	December 31, 2017
Assets		
Current Assets:		
Cash and cash equivalents	\$ 275.1	\$ 143.5
Financial investments	35.7	47.3
Accounts receivable, 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	\$ 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
Current portion of long-term debt	299.8	—
Deferred revenue	8.5	15.4
Income taxes payable	4.1	2.6
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
Total Liabilities	2,070.6	2,145.7
Redeemable Noncontrolling Interests	9.4	9.4
Stockholders' Equity:		
Preferred stock	—	—
Common stock	1.2	1.2
Treasury stock at cost	(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	\$ 5,321.0	\$ 5,265.7

- More -

Non-GAAP Information

In addition to disclosing results determined in accordance with GAAP, Cboe Global Markets has disclosed certain non-GAAP measures of operating performance. These measures are not in accordance with, or a substitute for, GAAP, and may be different from or inconsistent with non-GAAP financial measures used by other companies. The non-GAAP measures provided in this press release include net transaction fees, adjusted operating expenses, adjusted operating income, adjusted operating margin, adjusted net income allocated to common stockholders and adjusted diluted earnings per share, effective tax rate on adjusted earnings, adjusted cash and financial investments, EBITDA, EBITDA margin, adjusted EBITDA and adjusted EBITDA margin.

Management believes that the non-GAAP financial measures presented in this press release, including adjusted operating income and adjusted operating expenses, provide additional and comparative information to assess trends in our core operations and a means to evaluate period-to-period comparisons. Non-GAAP financial measures disclosed by management are provided as additional information to investors in order to provide them with an alternative method for assessing our financial condition and operating results.

Amortization expense of acquired intangible assets: We amortize intangible assets acquired in connection with various acquisitions. Amortization of intangible assets is inconsistent in amount and frequency and is significantly affected by the timing and size of our acquisitions. As such, if intangible asset amortization is included in performance measures, it is more difficult to assess the day-to-day operating performance of the businesses, the relative operating performance of the businesses between periods and the earnings power of the company. Therefore, we believe performance measures excluding intangible asset amortization expense provide investors with an additional basis for comparison across accounting periods.

Acquisition-related expenses: From time to time, we have pursued small bolt-on acquisitions and in 2017 completed a larger transformative acquisition, which have resulted in expenses which would not otherwise have been incurred in the normal course of the company's business operations. These expenses include integration costs, as well as legal, due diligence and other third party transaction costs. The frequency and the amount of such expenses vary significantly based on the size, timing and complexity of the transaction. Accordingly, we exclude these costs for purposes of calculating non-GAAP measures which provide an additional analysis of Cboe's ongoing operating performance or comparisons in Cboe's performance between periods.

Other significant items: We have excluded certain other charges that are the result of other non-comparable events to measure operating performance. For 2017, other significant items primarily included interest and other borrowing costs incurred prior to the close of the Bats transaction and accelerated stock-based compensation that was incurred due to a change in the vesting schedule for equity award grants.

The tables below show the reconciliation of each financial measure from GAAP to non-GAAP. The non-GAAP financial measures exclude the impact of those items detailed below and are referred to as adjusted financial measures.

Reconciliation of GAAP and non-GAAP Information

Table 3

(in millions, except per share amounts)

Reconciliation of Net Income Allocated to Common Stockholders to Non-GAAP (As shown on Table 1)

	Three Months Ended December 31,		Twelve Months Ended December 31,	
	2018	2017	2018	*2017
Net income allocated to common stockholders	\$ 137.3	\$ 254.6	\$ 422.1	\$ 396.7
Non-GAAP adjustments				
Compensation and benefits (1)	—	—	—	9.1
Acquisition-related expenses (2)	6.7	9.0	30.0	84.4
Amortization of acquired intangible assets (3)	39.4	43.0	160.6	142.6
Change in contingent consideration	0.1	(0.1)	0.1	1.0
Debt issuance costs	—	—	—	5.2
Provision for uncollectable convertible notes receivable	—	—	—	3.8
Change in redemption value of noncontrolling interests	0.4	0.3	1.3	1.1
Total Non-GAAP adjustments	46.6	52.2	192.0	247.2
Income tax expense related to the items above	(11.7)	(19.2)	(49.4)	(92.3)
Re-measurement of deferred tax assets and liabilities as a result of corporate rate increase in Illinois	—	—	—	7.4
Effect of tax reform law	—	(191.5)	—	(191.5)
Tax provision re-measurements	(0.4)	—	(0.4)	—
Net income allocated to participating securities - effect on reconciling items	(0.2)	1.6	(0.9)	0.5
Adjusted net income allocated to common stockholders	\$ 171.6	\$ 97.7	\$ 563.4	\$ 368.0

Reconciliation of Diluted EPS to Non-GAAP

Diluted earnings per common share	\$ 1.23	\$ 2.26	\$ 3.76	\$ 3.69
Per share impact of non-GAAP adjustments noted above	0.31	(1.39)	1.26	(0.27)
Adjusted diluted earnings per common share	\$ 1.54	\$ 0.87	\$ 5.02	\$ 3.42

Reconciliation of Operating Margin to Non-GAAP

Revenue less cost of revenue	\$ 334.4	\$ 265.6	\$ 1,216.9	\$ 995.6
Non-GAAP adjustments noted above	—	—	—	—
Adjusted revenue less cost of revenue	\$ 334.4	\$ 265.6	\$ 1,216.9	\$ 995.6
Operating expenses	\$ 158.0	\$ 156.9	\$ 617.5	\$ 623.7
Non-GAAP adjustments noted above	46.2	51.9	190.7	237.1
Adjusted operating expenses	\$ 111.8	\$ 105.0	\$ 426.8	\$ 386.6
Operating income	\$ 176.4	\$ 108.7	\$ 599.4	\$ 371.9
Non-GAAP adjustments noted above	46.2	51.9	190.7	237.1
Adjusted operating income	\$ 222.6	\$ 160.6	\$ 790.1	\$ 609.0
Adjusted operating margin (4)	66.6 %	60.5 %	64.9 %	61.2 %

Reconciliation of Income Tax Rate to Non-GAAP

Income before income taxes	175.6	104.1	571.2	334.4
Non-GAAP adjustments noted above	46.6	52.2	192.0	247.2
Adjusted income before income taxes	\$ 222.2	\$ 156.3	\$ 763.2	\$ 581.6
Income tax (benefit) expense	37.3	(153.0)	146.0	(66.2)
Non-GAAP adjustments noted above	11.7	210.7	49.4	276.4
Adjusted income tax (benefit) expense	\$ 49.0	\$ 57.7	\$ 195.4	\$ 210.2
Adjusted income tax rate	22.1 %	37.0 %	25.6 %	36.3 %

(*) Includes Bats for the period March 1 through December 31, 2017.

(1) For the twelve months ended December 31, 2017, this amount includes \$9.1 million for accelerated stock-based compensation expense.

(2) This amount includes professional fees and outside services, severance, and other costs related to the company's acquisition of Bats.

(3) This amount represents the amortization of acquired intangible assets for Bats.

(4) Adjusted operating margin represents adjusted operating income divided by adjusted revenue less cost of revenue.

- More -

EBITDA Reconciliations

EBITDA (earnings before interest, income taxes, depreciation and amortization) is a widely used non-GAAP financial measure of operating performance. EBITDA margin represents EBITDA divided by revenues less cost of revenues (net revenue). It is presented as supplemental information that the company believes is useful to investors to evaluate its results because it excludes certain items that are not directly related to the company's core operating performance. EBITDA is calculated by adding back to net income interest expense, income tax expense, depreciation and amortization. EBITDA should not be considered as substitutes either for net income, as an indicator of the company's operating performance, or for cash flow, as a measure of the company's liquidity. In addition, because EBITDA may not be calculated identically by all companies, the presentation here may not be comparable to other similarly titled measures of other companies. EBITDA margin represents EBITDA divided by net revenue.

Table 4

	Three Months Ended December 31,		Twelve Months Ended December 31,	
	2018	2017	2018	2017
(in millions)				
Reconciliation of Net Income Allocated to Common Stockholders to EBITDA and Adjusted EBITDA				
(Per Table 1)				
Net income allocated to common stockholders	\$ 137.3	\$ 254.6	\$ 422.1	\$ 396.7
Interest, net	9.7	10.4	38.2	41.3
Income tax provision (benefit)	37.3	(153.0)	146.0	(66.2)
Depreciation and amortization	49.1	55.9	204.0	192.2
EBITDA	\$ 233.4	\$ 167.9	\$ 810.3	\$ 564.0
EBITDA Margin¹	69.8 %	63.2 %	66.6 %	56.6 %
Non-GAAP adjustments not included in above line items				
Compensation and benefits (accelerated stock-based compensation)	—	—	—	9.1
Acquisition-related expenses	6.7	9.0	30.0	84.4
Provision for uncollectable convertible notes receivable	—	—	—	3.8
Other	0.1	(0.1)	0.1	1.0
Adjusted EBITDA	\$ 240.2	\$ 176.8	\$ 840.4	\$ 662.3
Adjusted EBITDA Margin¹	71.8 %	66.6 %	69.1 %	66.5 %
Adjusted Cash				
	December 31,		December 31,	
	2018		2017	
(in millions)				
Cash and cash equivalents	\$ 275.1	\$ 143.5		
Financial investments	35.7	47.3		
Less cash collected for Section 31 Fees	(53.1)	(70.5)		
Adjusted Cash	\$ 257.7	\$ 120.3		

¹EBITDA margin represents the respective EBITDA divided by the respective net revenue as shown in the non-GAAP reconciliations provided.

Reconciliation of Net Transaction Fees – Three Months Ended December 31, 2018 and 2017 - Table 5

	Consolidated		Options Segment		U.S. Equities Segment		Futures Segment		European Equities Segment		Global FX Segment	
	Three Months Ended December 31, 2018	Three Months Ended December 31, 2017	Three Months Ended December 31, 2018	Three Months Ended December 31, 2017	Three Months Ended December 31, 2018	Three Months Ended December 31, 2017	Three Months Ended December 31, 2018	Three Months Ended December 31, 2017	Three Months Ended December 31, 2018	Three Months Ended December 31, 2017	Three Months Ended December 31, 2018	Three Months Ended December 31, 2017
Transaction fees	\$ 563.2	\$ 431.3	\$ 235.5	\$ 180.1	\$ 254.0	\$ 188.9	\$ 36.6	\$ 32.4	\$ 25.1	\$ 19.2	\$ 12.0	\$ 10.7
Liquidity payments	(309.8)	(243.6)	(80.7)	(71.9)	(219.5)	(164.1)	(0.2)	—	(9.4)	(7.6)	—	—
Routing and clearing	(10.3)	(9.7)	(2.8)	(2.3)	(7.5)	(7.4)	—	—	—	—	—	—
Net transaction fees	\$ 243.1	\$ 178.0	\$ 152.0	\$ 105.9	\$ 27.0	\$ 17.4	\$ 36.4	\$ 32.4	\$ 15.7	\$ 11.6	\$ 12.0	\$ 10.7

###