

# Fourth Quarter 2018 Earnings Presentation

February 8, 2019



## **Strategic Review**

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*Chairman, President and Chief Executive Officer*

## **Financial Review**

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*Executive Vice President, CFO and Treasurer*

## **Questions and Answers**

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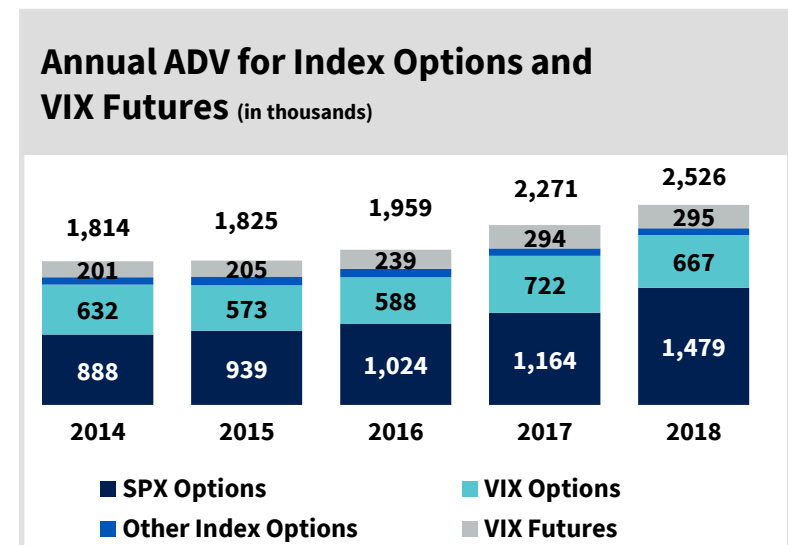
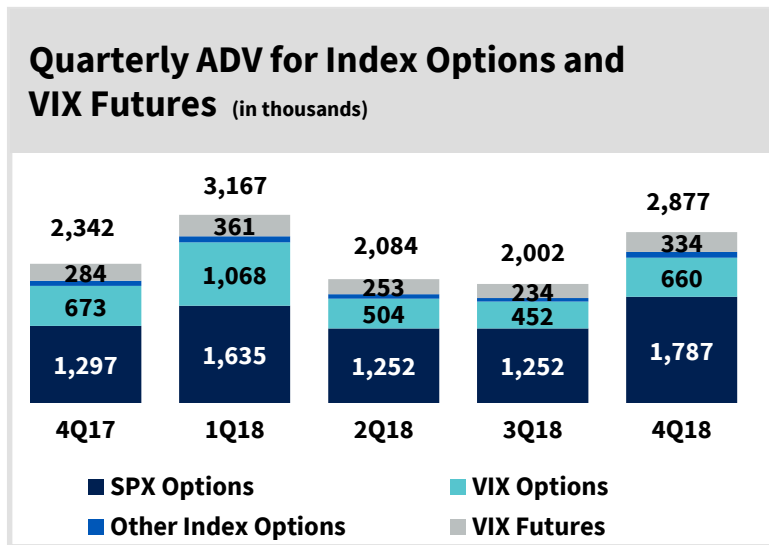
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**Strategic Review**  
**Edward Tilly**  
**Chairman, President and CEO**

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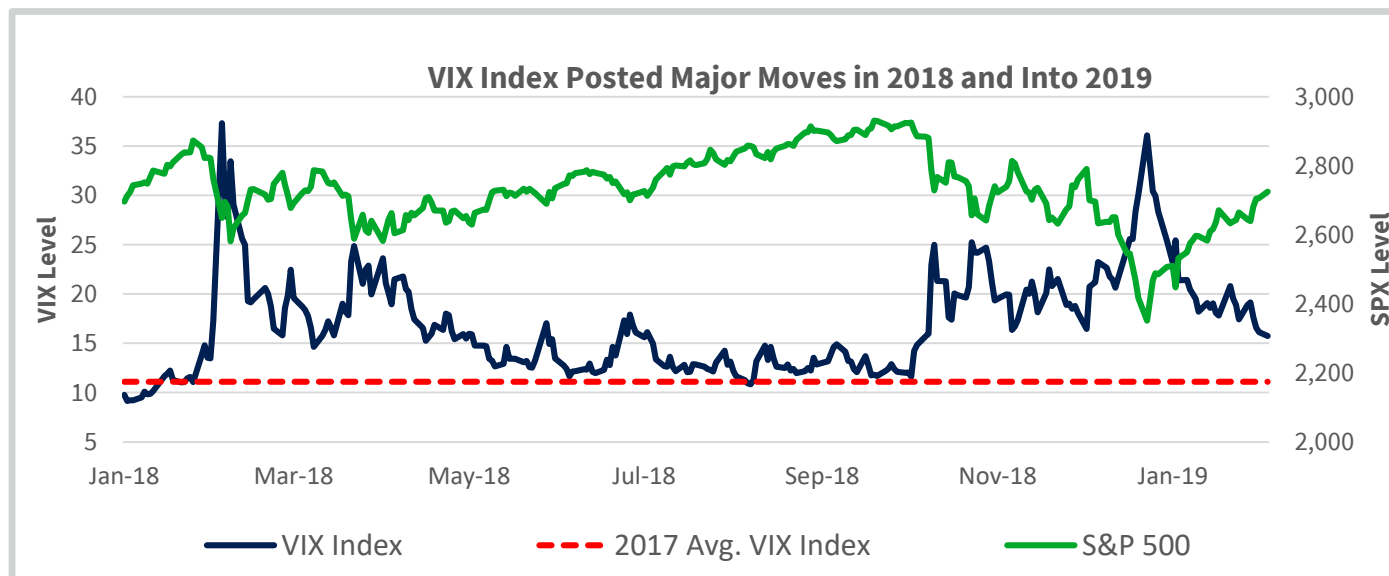
# Record Financial Results for Fourth Quarter and Full Year

- ❖ Increased trading across business lines
- ❖ Record trading in our proprietary products
- ❖ 2018 results demonstrated our ability to effectively leverage our increased global reach and expanded product line



# 2018: The Return of Volatility to the Market

- ❖ Expect same concerns that fueled the market correction in 2018 to persist in 2019, creating demand for equity hedges using SPX, and VIX options and futures
  - Uncertain path of U.S. interest rates
  - Escalating trade tensions
  - Risk of a global recession

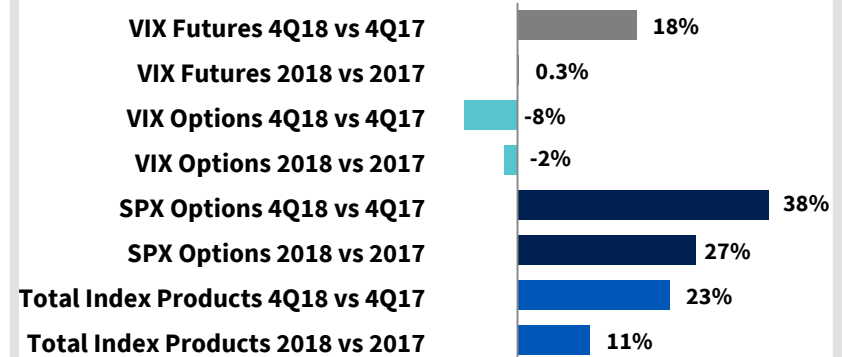


# Focused on Growing Highest-Margin Proprietary Index Suite

## Index customers at Cboe typically use SPX and VIX products interchangeably or in tandem, depending on their trading objectives and market conditions

- ❖ VIX futures ADV increased 18% in 4Q18; 14<sup>th</sup> consecutive year of record volume in 2018
- ❖ VIX options down 2% in 4Q18 but up versus previous quarter
- ❖ SPX options set new ADV highs in 4Q18 and in 2018; up 27% YOY in 2018 vs 2017
- ❖ Plan to further penetrate existing markets with an emphasis on education, targeting key market segments and geographies

### YOY % Change in ADV for Fourth Quarter and Year by Proprietary Product



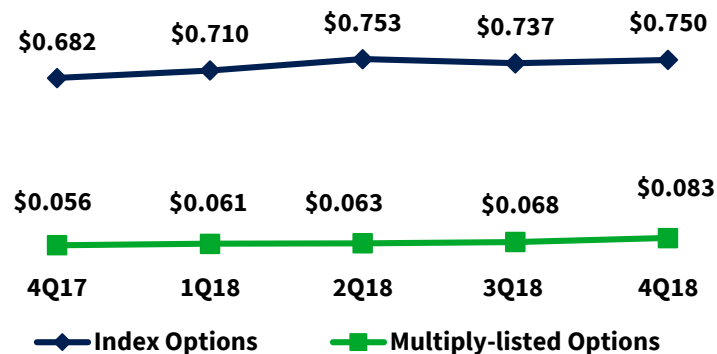
# Total U. S. Options ADV Rose 23% in 4Q18 and 14% for the Year

- ❖ Multiply-listed options ADV up 22% in 4Q18; up 14% in 2018
- ❖ Index options trading rose 24% in 4Q18
- ❖ Sixth consecutive record year for index options in 2018
- ❖ Plan to increase trading in mini SPX options (XSP), which trade on Cboe, by adding them to our EDGX exchange, subject to regulatory review
- ❖ Plan to continue to grow index marketplace offering through product innovation

## Options YOY ADV Growth



## Quarterly Options RPC (in dollars)



\*Based on combined company volumes



# Product Innovation: Launching Cboe Select Sector Index Options



## Expands Cboe's successful suite of products tied to S&P Dow Jones Indexes

- ❖ Cboe plans to launch cash-settled options on the 11 industry sector indexes that comprise the S&P 500, offering:
  - Efficient way to gain exposure to U.S. industry sectors
  - Alternative vehicle for asset managers who cannot hold options on exchange-traded products due to regulatory constraints

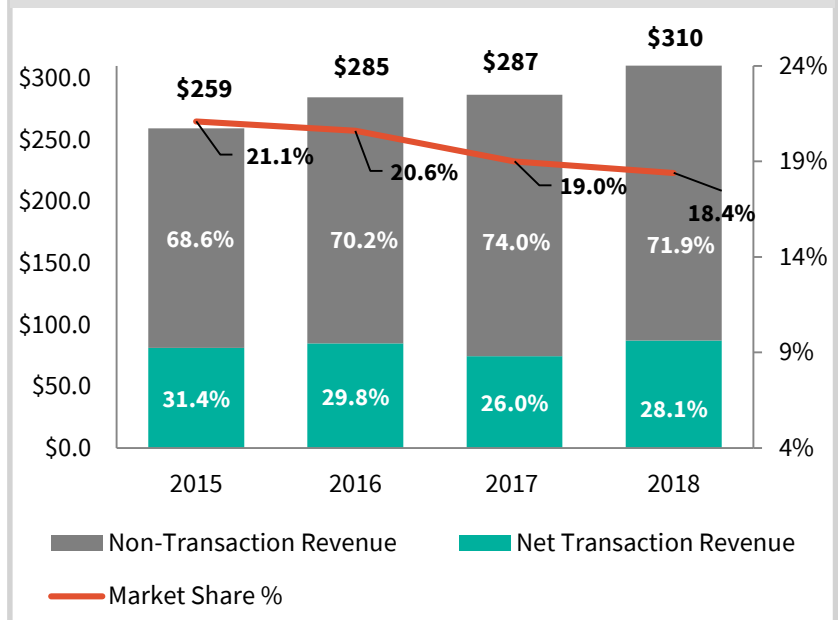
Listing Date	Index Name	Option Symbol	Underlying Symbol
<b>February 7, 2019</b>	Materials Select Sector Index	SIXB	SIXB
<b>February 11, 2019</b>	Communication Services Select Sector Index	SIXC	SIXC
<b>February 11, 2019</b>	Energy Select Sector Index	SIXE	SIXE
<b>February 12, 2019</b>	Industrials Select Sector Index	SIXI	SIXI
<b>February 12, 2019</b>	Financial Select Sector Index	SIXM	SIXM
<b>February 13, 2019</b>	Consumer Staples Select Sector Index	SIXR	SIXR
<b>February 13, 2019</b>	Real Estate Select Sector Index	SIXRE	SIXRE
<b>February 13, 2019</b>	Technology Select Sector Index	SIXT	SIXT
<b>February 14, 2019</b>	Utilities Select Sector Index	SIXU	SIXU
<b>February 14, 2019</b>	Health Care Select Sector Index	SIXV	SIXV
<b>February 14, 2019</b>	Consumer Discretionary Select Sector Index	SIXY	SIXY

# U.S. Equities Industry Volume up 33% for 4Q18; up 12% for 2018

## Plan to evolve business model to adapt to changing market environment

- ❖ ETP listings up 16% in 2018 versus 2017
- ❖ ETP listings now includes VXXB, the largest volatility-linked ETP, which replaces VXX
- ❖ Plan to continue to grow data sales in 2019 by:
  - Distributing products globally
  - Leveraging our position as the industry low-cost provider
  - Offering products tailored to meet the needs of our customers

**U.S. Equities Net Revenue - Percent Transaction versus Non-Transaction Fees and Market Share**  
(\$ in millions)

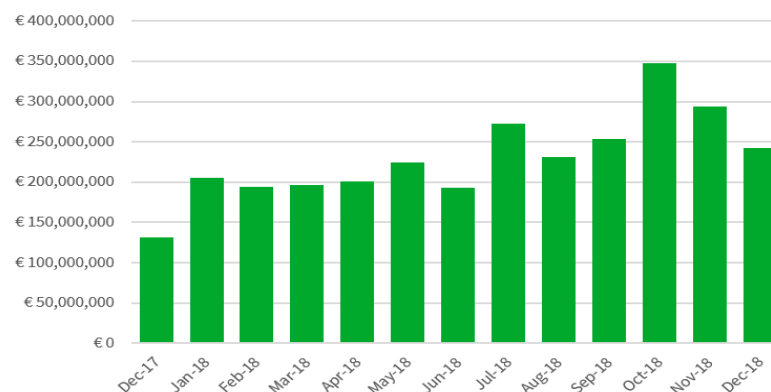


# European Equities – Leveraging Opportunities Under MiFID II

- ❖ European equities ADNV increased 19% for 4Q18 and 11% for 2018
- ❖ Cboe LIS, European block trading platform powered by BIDS technology, logged another record year
- ❖ Strong adoption of Periodic Auctions
- ❖ Positioning business to continue to grow in a post-Brexit environment
- ❖ In the final stages of preparing to launch our new EU venue in Amsterdam, subject to regulatory review

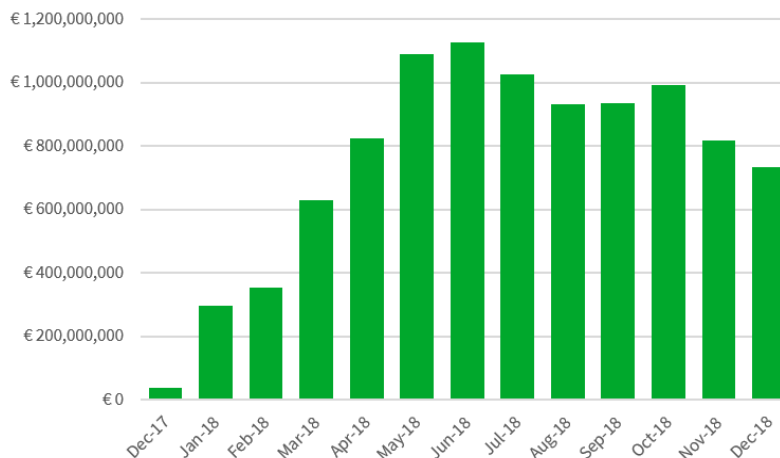
**Cboe LIS: Average Daily Notional Value Traded**

(In Euros, single counted)



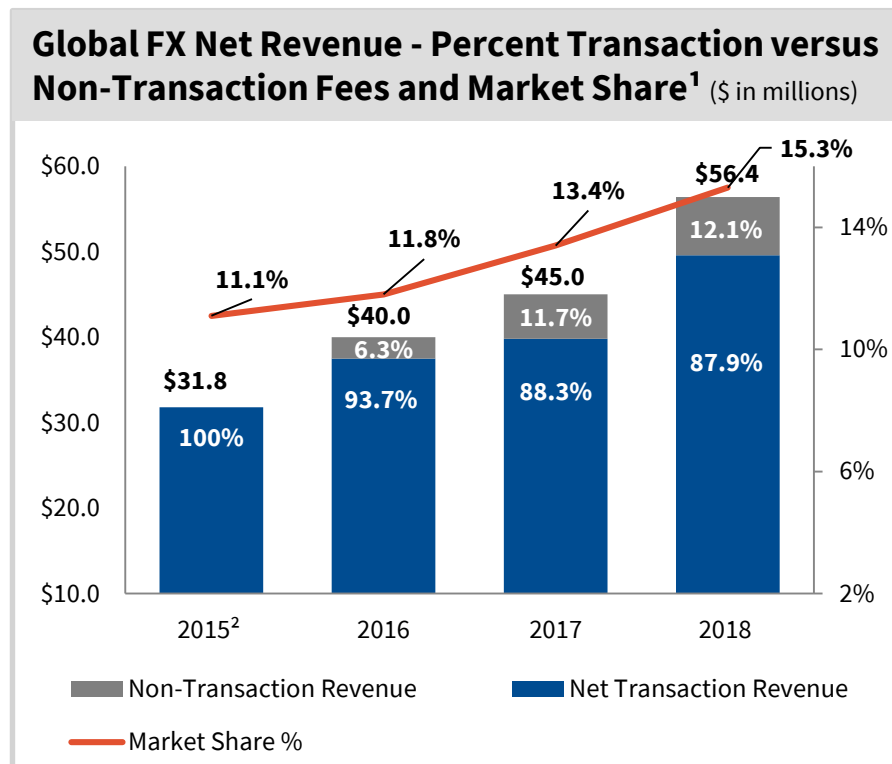
**Cboe Periodic Auctions: Average Daily Notional Value Traded**

(In Euros, single-counted)



## Developed new products and services, leveraging industry structural changes

- ❖ Cboe Global FX had record year
- ❖ ADNV up 8% for 4Q18
- ❖ Record ADNV of \$37.4 billion traded on the Cboe FX platform in 2018, up 27%
- ❖ In 2019 plan to improve customers' experience through advanced data and analytics combined with industry leading liquidity



<sup>1</sup>Market share represents Cboe FX volume divided by total volume of publicly reporting spot FX venues (Cboe FX, EBS, Thomson Reuters and FastMatch), which reflects readily available data from publicly reporting venues.

<sup>2</sup>Revenue starting March 13, 2015, date of Bats acquisition of Hotspot FX.

# Well Positioned to Continue to Deliver Strong Results that Benefit Our Customers and Our Shareholders

❖ **Plan to build on 2018's strong results in 2019**

❖ **Continue to redefine markets through our commitment to:**

- Relentless product innovation
- Leading-edge technology
- Seamless trading solutions

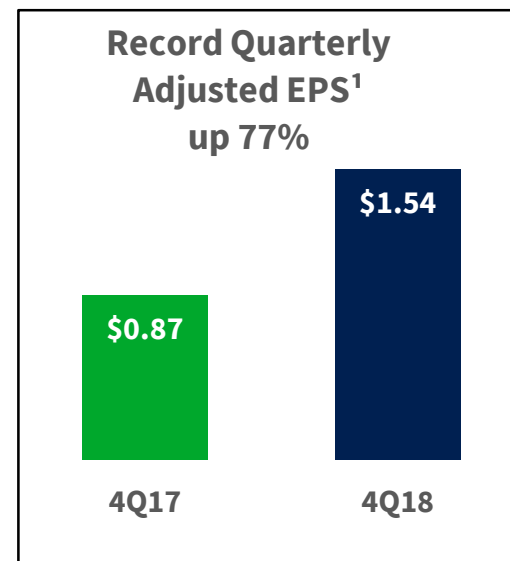
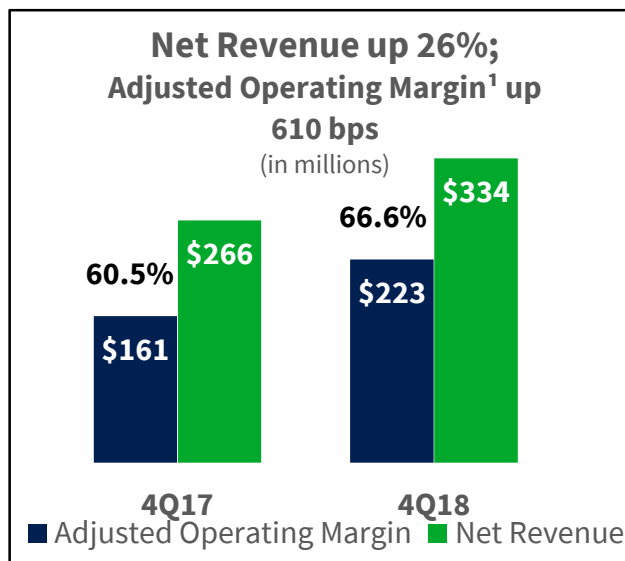
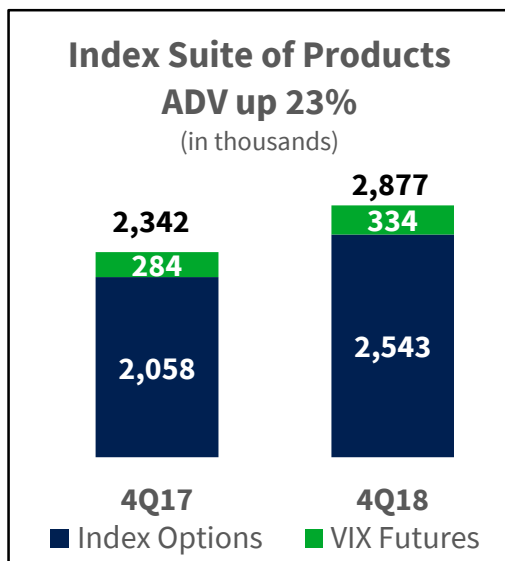




**Financial Overview and Guidance**  
**Brian Schell**  
**EVP, CFO and Treasurer**

# Business Highlights – Key Growth Drivers

- ❖ Continued strength of proprietary index products
- ❖ Growth from non-transaction fees
- ❖ Expense discipline and over achievement of expense synergies
- ❖ Resulted in margin expansion and earnings growth



<sup>1</sup>See Appendix for “Non-GAAP Information.”

# Options 4Q18 Net Revenue Up 34%

❖ 4Q18 revenue increase primarily driven by higher transaction fees

❖ **2019 initiatives include:**

- Focus on growing proprietary products
- Ongoing education and business development

<b>Options Combined Statistics</b> (\$ in millions, except RPC)	<b>4Q18</b>	<b>4Q17</b>	<b>Change</b>	<b>2018</b>	<b>2017</b>	<b>Change</b>
<b>Options Combined Net Revenue</b>	<b>\$174.5</b>	<b>\$130.0</b>	<b>34%</b>	<b>\$611.2</b>	<b>\$522.5<sup>1</sup></b>	<b>17%</b>
<b>Key Operating Statistics:</b>						
<b>Total market share</b>	<b>38.4%</b>	<b>40.5%</b>	<b>-2.1% pts</b>	<b>38.5%</b>	<b>41.4%</b>	<b>-2.9% pts</b>
<b>Total ADV (in thousands)</b>	<b>8,610</b>	<b>7,029</b>	<b>23%</b>	<b>7,870</b>	<b>6,917</b>	<b>14%</b>
Index options	2,543	2,058	24%	2,231	1,977	13%
Multiply-listed options	6,067	4,971	22%	5,639	4,940	14%
<b>Total RPC</b>	<b>\$0.280</b>	<b>\$0.239</b>	<b>17%</b>	<b>\$0.258</b>	<b>\$0.238</b>	<b>8%</b>
Index options	\$0.750	\$0.682	10%	\$0.736	\$0.687	7%
Multiply-listed options	\$0.083	\$0.056	48%	\$0.069	\$0.059	17%

<sup>1</sup>See Appendix for “Non-GAAP Information.”



# Futures 4Q18 Net Revenue Up 13% - 2018 Marked 14<sup>th</sup> Consecutive Year of Record ADV for VIX Futures



- ❖ Revenue increase driven by transaction fees, reflecting higher ADV and lower RPC
- ❖ RPC decrease primarily due to shift in mix of products, with lower block trade volume
- ❖ **2019 initiatives include:**
  - Leverage global business development team to expand customer base
  - Product expansion

Futures Statistics	4Q18	4Q17	Change	2018	2017	Change
<b>Futures Net Revenue</b> (in millions)	\$40.4	\$35.6	13%	\$144.1	\$139.5	3%
<b>Key Operating Statistics:</b>						
<b>Total ADV</b> (in thousands)	338	285	19%	300	295	2%
<b>Total RPC</b>	\$1.686	\$1.799	-6%	\$1.690	\$1.779	-5%

# U.S. Equities 4Q18 Net Revenue Up 18%



- ❖ Growth driven by higher levels of volatility and volumes with higher net capture
- ❖ Increase in market data revenue through organic growth and product enhancements
- ❖ **2019 initiatives include:**
  - Continued growth of proprietary market data
  - Evolve business model to changing market environment

U.S. Equities Combined Statistics	4Q18	4Q17	Change	2018	2017	Change
<b>U.S. Equities Net Revenue</b> (in millions)	<b>\$81.5</b>	<b>\$69.0</b>	<b>18%</b>	<b>\$310.2</b>	<b>\$286.3</b>	<b>8%</b>
Market data - SIP	24.7	25.8	-4%	104.9	104.1	1%
Market data - Proprietary	9.1	7.1	28%	36.0	28.8	25%
<b>Key Operating Statistics:</b>						
<b>Total market share</b>	<b>17.8%</b>	<b>18.5%</b>	<b>-0.7% pts</b>	<b>18.4%</b>	<b>19.0%</b>	<b>-0.6%</b>
<b>Market ADV</b> (shares in billions)	<b>8.5</b>	<b>6.4</b>	<b>33%</b>	<b>7.3</b>	<b>6.5</b>	<b>12%</b>
<b>ADV</b> (matched shares in billions)	<b>1.5</b>	<b>1.2</b>	<b>25%</b>	<b>1.3</b>	<b>1.2</b>	<b>8%</b>
<b>Net capture</b> (per 100 touched shares)	<b>\$0.027</b>	<b>\$0.022</b>	<b>23%</b>	<b>\$0.025</b>	<b>\$0.023</b>	<b>9%</b>

# European Equities 4Q18 Net Revenue Up 29%



- ❖ Net revenue increase reflects growth in net transaction fees and non-transaction revenue
- ❖ Net revenue up 31% on local currency basis
- ❖ Growth in net transaction fees driven by greater share of higher industry volume with increased net capture
- ❖ **2019 Initiatives include:**
  - Continue to build on growth of highest margin products
  - Manage Brexit scenario to economically meet client needs

European Equities Combined Statistics	4Q18	4Q17	Change	2018	2017	Change
<b>European Equities Net Revenue</b> (in millions)	<b>\$24.3</b>	<b>\$18.8</b>	<b>29%</b>	<b>\$94.6</b>	<b>\$73.6</b>	<b>29%</b>
<b>Key Operating Statistics:</b>						
<b>Total market share</b>	<b>22.7%</b>	<b>20.3%</b>	<b>2.4% pts</b>	<b>22.3%</b>	<b>21.1%</b>	<b>1.2% pts</b>
<b>Market ADV</b> (Euros, in billions)	<b>€46.7</b>	<b>€43.8</b>	<b>6%</b>	<b>€46.6</b>	<b>€44.7</b>	<b>4%</b>
<b>Net capture</b> (per matched notional value, in basis points)	<b>0.200</b>	<b>0.177</b>	<b>11%</b>	<b>0.192</b>	<b>0.168</b>	<b>14%</b>

# Global FX 4Q18 Net Revenue Up 14%



- ❖ Fourth quarter marked a high point for both market share and ADNV traded
- ❖ Growth driven by increased volume and better fill rates
- ❖ **2019 initiatives include:**
  - Growing core FX Spot offering while diversifying revenue by adding new products and expanding market data offerings

Global FX Combined Statistics	4Q18	4Q17	Change	2018	2017	Change
<b>Global FX Net Revenue</b> (in millions)	<b>\$13.7</b>	<b>\$12.0</b>	<b>14%</b>	<b>\$56.4</b>	<b>\$45.0</b>	<b>25%</b>
<b>Key Operating Statistics:</b>						
<b>Market share</b>	<b>15.3%</b>	<b>14.9%</b>	<b>0.4% pts</b>	<b>15.1%</b>	<b>13.4%</b>	<b>1.7% pts</b>
<b>Average Daily Notional Value</b> (\$ in billions)	<b>\$35.1</b>	<b>\$32.4</b>	<b>8%</b>	<b>\$37.4</b>	<b>\$29.4</b>	<b>27%</b>
<b>Net capture</b> (per one million dollars traded)	<b>\$2.63</b>	<b>\$2.57</b>	<b>2%</b>	<b>\$2.56</b>	<b>\$2.60</b>	<b>-2%</b>

# Adjusted Combined Operating Expenses Up 6% in 4Q and 3% for Year



## 4Q18 vs 4Q17:

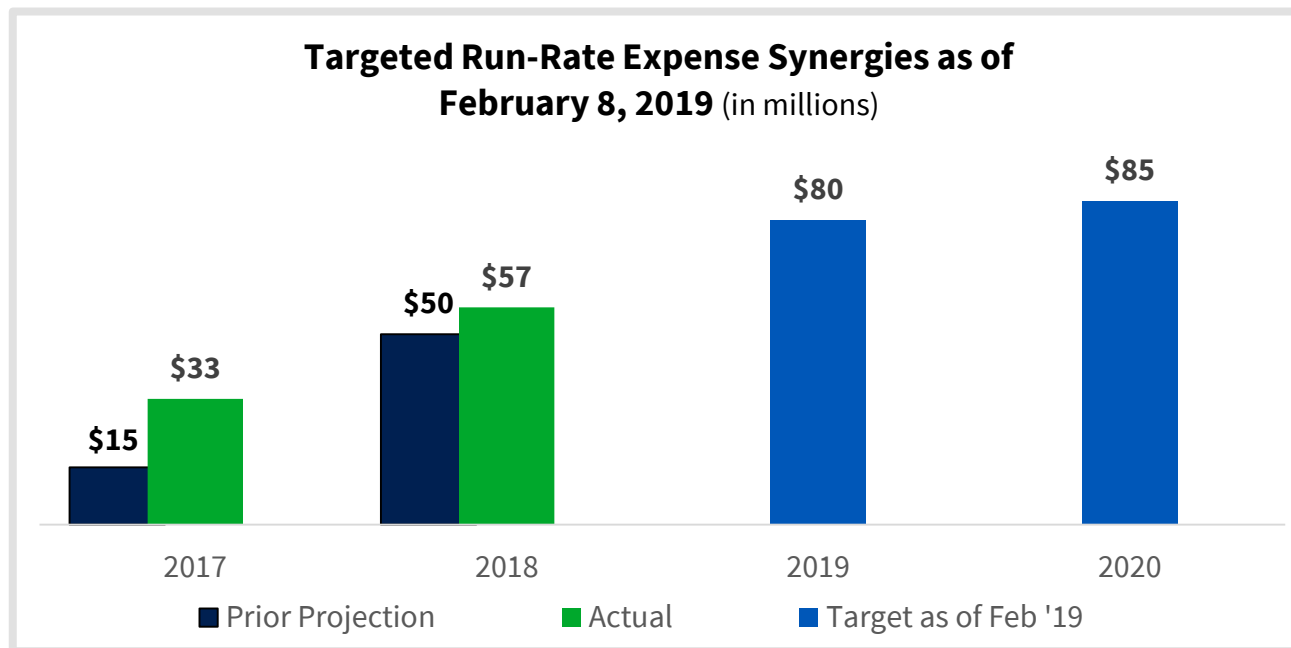
- ❖ Compensation and benefits up due to increase in incentive-based compensation
- ❖ Other expenses up due to higher VAT and sales taxes and bad debt write-off
- ❖ Depreciation and amortization down due to accelerated depreciation in prior year and retirement of certain assets

<b>Adjusted Combined Operating Expenses<sup>1</sup></b> (in millions)	<b>4Q18</b>	<b>4Q17</b>	<b>% Chg</b>	<b>2018</b>	<b>2017</b>	<b>% Chg</b>
Compensation and benefits	\$60.8	\$53.2	14%	\$228.8	\$208.4	10%
Depreciation and amortization <sup>1</sup>	9.7	12.9	-24%	43.4	52.6	-17%
Technology support services	13.4	11.2	20%	47.9	46.1	4%
Professional fees and outside services	16.4	17.1	-4%	68.3	69.8	-2%
Travel and promotional	3.2	5.2	-38%	13.0	17.8	-27%
Facilities costs	2.9	2.6	12%	11.5	10.9	6%
Other expenses	5.4	2.8	93%	13.9	9.7	43%
<b>Total<sup>1</sup></b>	<b>\$111.8</b>	<b>\$105.0</b>	<b>6%</b>	<b>\$426.8</b>	<b>\$415.3</b>	<b>3%</b>

<sup>1</sup>Adjusted to reflect the impact of certain items. See Appendix for “Non-GAAP Information”

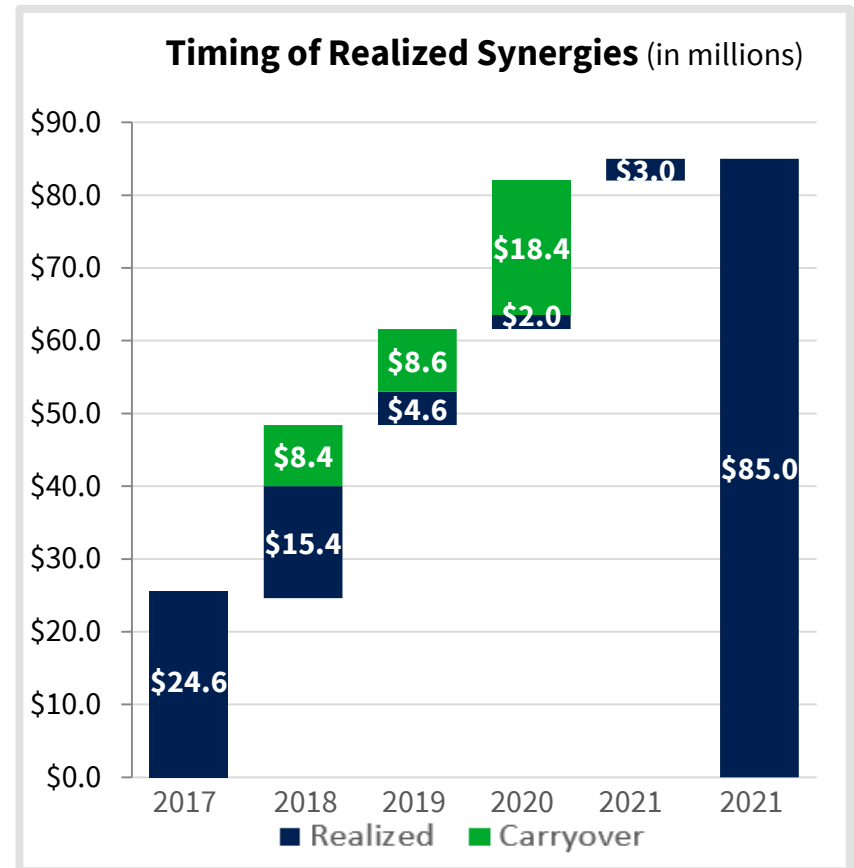
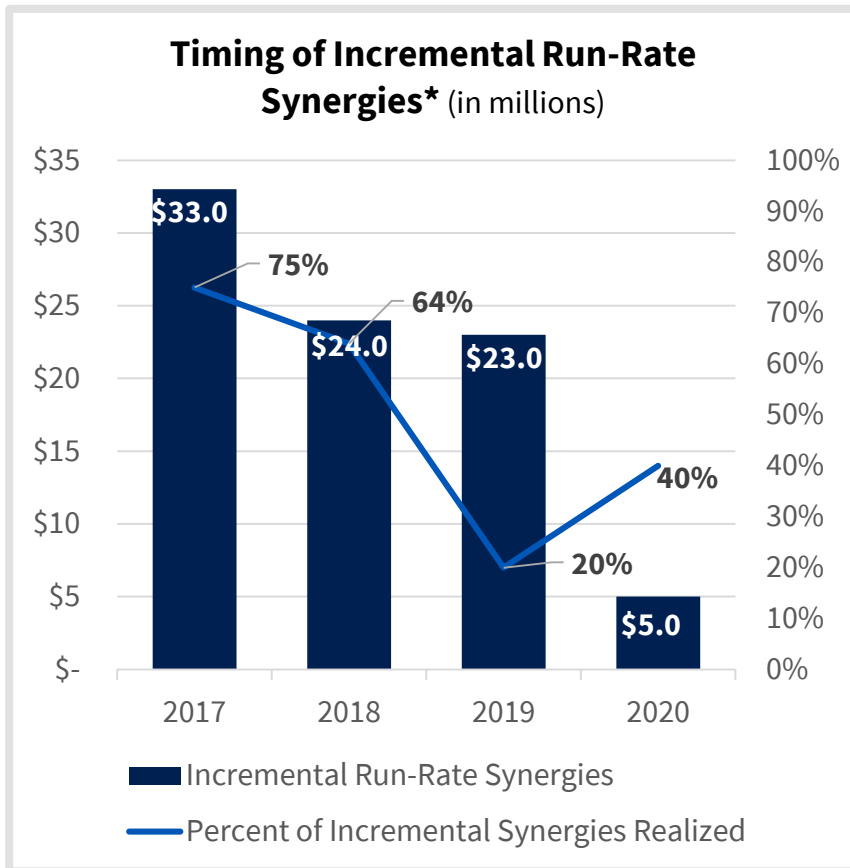
# 2018 Run-Rate Expense Synergy Above Target; Maintaining 2020 Run-Rate Target of \$85MM

- ❖ 2018 run-rate synergies of \$57 million, \$7 million above target due to timing
- ❖ Maintaining run-rate expense synergy target of \$85 million in 2020



# Realized Versus Run-Rate Expense Synergies

**2019 realized synergies expected to be lower due to timing of C1 migration in October 2019**



\*Actual through 2018; projected for 2019-2021. See appendix for table.

# 2019 Full-Year Guidance

<b>2019 Full-Year Guidance</b> (\$ in millions)	<b>Guidance as of</b> <b>February 8, 2019</b>	<b>2018 Actual</b>
<b>Adjusted operating expenses<sup>2</sup></b>	\$420 to \$428 million	\$426.8 <sup>1</sup>
<b>Depreciation and amortization (excluding amortization of acquired intangible assets)</b>	\$35 to \$40 million	\$43.4
<b>Capital expenditures</b>	\$50 to \$55 million	\$36.9
<b>Effective tax rate on adjusted earnings</b>	27% to 29%	25.6% <sup>1</sup>

<sup>1</sup>See “Non-GAAP Information” in the appendix for reconciliations.

<sup>2</sup>Adjusted operating expenses for 2019 exclude acquisition-related expenses and amortization of acquired intangible assets, which are expected to be \$138 million for 2019. Adjustments included in the non-GAAP reconciliation.



# Focused on Efficient Allocation of Capital to Create Long-Term Shareholder Value



## Preserving balance sheet flexibility is a priority

- ❖ Invest in the growth of our business
- ❖ Return capital through dividends and share repurchases
  - Returned more than \$271 million in dividends and share repurchases in 2018

Debt Outstanding (\$ in millions)	Dec. 31, 2018	Sept. 30, 2018	June 30, 2018	Mar. 31, 2018	Dec. 31, 2017
<b>3.650% Senior Notes (10Y; Due 2027)</b>	\$ 650	\$ 650	\$ 650	\$ 650	\$ 650
<b>1.950% Senior Notes (2Y; Due 2019)</b>	300	300	300	300	300
<b>Term Loan Facility</b>	275	275	275	275	300
<b>Total Debt (Gross)</b>	<b>\$ 1,225</b>	<b>\$ 1,225</b>	<b>\$ 1,225</b>	<b>\$ 1,225</b>	<b>\$ 1,250</b>
<b>Debt to EBITDA TTM<sup>1</sup></b>	<b>1.5x</b>	<b>1.6x</b>	<b>1.6x</b>	<b>1.6x</b>	<b>1.8x</b>
<b>Adjusted Cash &amp; Financial Investments<sup>1</sup></b>	<b>\$258</b>	<b>\$138</b>	<b>\$116</b>	<b>\$166</b>	<b>\$120</b>
<b>Dividends Paid</b>	<b>\$34.7</b>	<b>\$34.7</b>	<b>\$30.6</b>	<b>\$30.6</b>	<b>\$30.6</b>
<b>Share Repurchases</b>	<b>--</b>	<b>\$49.1</b>	<b>\$48.3</b>	<b>\$43.6</b>	<b>--</b>

<sup>1</sup>See Appendix for "Non-GAAP Information."

# Delivering on Sources of Operating Leverage and Key Strategic Initiatives

## Growth of Core Proprietary Products

- Focused on growing proprietary products

## Diversification and Stabilization of Revenue Stream

- Strong growth in diverse set of revenue streams

## Scale of Business Model

- Disciplined expense management
- Provided higher operating margins

## Synergies Realization

- Continued to realize expense synergies

## Capital Allocation

- Returned capital through dividends and buybacks
- Focused on maintaining balance sheet flexibility
- Leverage ratio of 1.5x

# Questions & Answers

# Appendix Materials



# Targeted Run-Rate Synergies Realization

(in millions)	Targeted Run-Rate Synergies	Increase in Run Rate Each Year	% of Incremental Run-rate Synergies Realized/Targeted	Actual/Targeted Realized Synergies	Carryover from Prior Year Run-Rate	Total Synergies Realized/Targeted by Year	Cumulative Synergies Realized/Targeted
2017 Actual	\$33.0	\$33.0	75%	\$24.6	\$0.0	\$24.6	\$24.6
2018 Actual	57.0	24.0	64%	\$15.4	8.4	23.8	\$48.4
2019 Target*	80.0	23.0	20%	\$4.6	8.6	13.2	\$61.6
2020 Target*	85.0	5.0	40%	\$2.0	18.4	20.4	\$82.0
2021 Target*					3.0	3.0	\$85.0
<b>Total</b>		<b>\$85.0</b>		<b>\$46.6</b>	<b>\$38.4</b>	<b>\$85.0</b>	

\*Reflects target as of February 8, 2019

# 4Q18 and 2018 Financial Overview

<b>Adjusted Combined Financial Results<sup>1</sup></b> (\$ in millions, except per share)	<b>4Q18</b>	<b>4Q17</b>	<b>% Chg</b>	<b>2018</b>	<b>2017</b>	<b>% Chg</b>
Net Revenue <sup>1,2</sup>	\$334.4	\$265.6	26%	\$1,216.9	\$1,067.5	14%
Adjusted Operating Expenses <sup>1</sup>	111.8	105.0	6%	426.8	415.3	2%
Adjusted Operating Income <sup>1</sup>	\$222.6	\$160.6	39%	\$790.1	\$652.2	22%
<i>Adjusted Operating Margin<sup>1</sup></i>	<i>66.6%</i>	<i>60.5%</i>	<i>610 bps</i>	<i>64.9%</i>	<i>61.1%</i>	<i>410 bps</i>
Adjusted Net Income Allocated to Common Stockholders <sup>1</sup>	\$171.6	\$97.7	76%	\$563.4	\$397.7	39%
Adjusted Diluted EPS <sup>1</sup>	\$ 1.54	\$ 0.87	77%	\$5.02	\$3.57	41%
Adjusted EBITDA <sup>1</sup>	\$240.2	\$176.8	36%	\$840.4	\$708.6	19%
<i>Adjusted EBITDA Margin<sup>1</sup></i>	<i>71.8%</i>	<i>66.6%</i>	<i>520 bps</i>	<i>69.1%</i>	<i>66.4%</i>	<i>270 bps</i>

<sup>1</sup>Adjusted to reflect the impact of certain items. See Appendix for “Non-GAAP Information.”

<sup>2</sup>Net revenue referenced in this presentation represents revenue less cost of revenue.

# Net Revenue Growth Supported by Both Transaction and Non-Transaction Revenue



## 4Q18 net transaction fees up 37%; non-transaction revenue up 8%

<b>Adjusted Combined Net Revenue<sup>1</sup></b> (in millions)	<b>4Q18</b>	<b>4Q17</b>	<b>% Chg</b>	<b>2018</b>	<b>2017</b>	<b>% Chg</b>
Net transaction fees	\$243.1	\$178.0	37%	\$834.8	\$705.4	18%
Access fees	33.8	29.2	16%	127.9	118.7	8%
Exchange services and other fees	20.8	19.5	7%	83.1	79.8	4%
Market data fees	49.7	47.2	5%	204.0	190.2	7%
Regulatory fees	7.4	6.9	7%	31.5	32.0	-2%
Royalty fees	(27.5)	(22.3)	23%	(97.4)	(86.2)	13%
Other revenue	7.1	7.1	--	33.0	27.6	20%
<b>Total<sup>1</sup></b>	<b>\$334.4</b>	<b>\$265.6</b>	<b>26%</b>	<b>\$1,216.9</b>	<b>\$1,067.5</b>	<b>14%</b>

<sup>1</sup>Adjusted to reflect the impact of certain items. See Appendix for "Non-GAAP Information."

# Supplemental Segment Information



<b>4Q18 Supplemental Net Revenue by Segment (in millions)</b>	<b>Options</b>	<b>U.S. Equities</b>	<b>Futures</b>	<b>European Equities</b>	<b>Global FX</b>	<b>Total<sup>1</sup></b>
Net transaction fees <sup>2</sup>	\$152.0	\$27.0	\$36.4	\$15.7	\$12.0	\$243.1
Access fees	\$17.0	\$11.4	\$2.2	\$2.2	\$1.0	\$33.8
Exchange services and other fees	\$9.3	\$7.9	\$1.6	\$1.5	\$0.5	\$20.8
Market data fees	\$10.9	\$33.8	\$1.7	\$3.2	\$0.1	\$49.7

<b>4Q17 Supplemental Net Revenue by Segment (in millions)</b>	<b>Options</b>	<b>U.S. Equities</b>	<b>Futures</b>	<b>European Equities</b>	<b>Global FX</b>	<b>Total<sup>1</sup></b>
Net transaction fees <sup>2</sup>	\$105.9	\$17.4	\$32.4	\$11.6	\$10.7	\$178.0
Access fees	\$14.1	\$11.9	\$0.5	\$2.0	\$0.7	\$29.2
Exchange services and other fees	\$9.6	\$5.6	\$2.5	\$1.3	\$0.5	\$19.5
Market data fees	\$10.2	\$32.9	\$0.9	\$3.1	\$0.1	\$47.2

<sup>1</sup>Totals may not foot due to rounding

<sup>2</sup>A full reconciliation of our non-GAAP results to our GAAP results is included in the following tables. See "Non-GAAP Information" in the accompanying financial tables.



# Non-GAAP Information



# 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 presentation 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, adjusted tax rate, 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 presentation, 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.**

# Non-GAAP Information

## Combined Reconciliations

The non-GAAP unaudited combined financial measures have been prepared by recording combined adjustments to the historical consolidated financial statements of Cboe Global Markets. The combined financial measures for the three months ended March 31, 2017 have been prepared as if the Bats acquisition closed on January 1, 2017.

Due to the transformative nature of the Bats acquisition, the company believes that providing a discussion of its results and operations on a non-GAAP combined basis provides management and investors an additional perspective on the company's financial and operational performance and trends. We believe that the non-GAAP financial measures presented provide additional and comparative information to assess trends in our core operations and a means to evaluate period-to-period comparisons.

These combined financial measures are not necessarily indicative of the financial position or results of operations that would have occurred had the transactions been effected on the assumed dates. Additionally, future results may vary significantly from the results reflected in the combined financial measures.

**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.**

<b>Reconciliation of Segment Net Revenues</b>										
<b>(in millions)</b>	<b>1Q17</b>	<b>2Q17</b>	<b>3Q17</b>	<b>4Q17</b>	<b>2017</b>	<b>1Q18</b>	<b>2Q18</b>	<b>3Q18</b>	<b>4Q18</b>	<b>2018</b>
Options	\$ 128.9	\$ 126.7	\$ 130.7	\$ 130.0	\$ 516.3	\$ 167.1	\$ 136.4	\$ 133.2	\$ 174.5	\$ 611.2
U.S. Equities	25.5	74.4	70.2	69.0	239.1	79.7	77.6	71.4	81.5	310.2
Futures	28.8	36.2	38.9	35.6	139.5	42.3	31.4	30.0	40.4	144.1
European Equities	6.1	18.5	18.4	18.8	61.8	24.6	23.4	22.3	24.3	94.6
Global FX	4.0	10.9	11.3	12.0	38.2	14.6	14.5	13.6	13.7	56.4
Corporate	-	0.2	0.2	0.2	0.6	0.2	0.2	-	-	0.4
<b>Total</b>	<b>\$ 193.3</b>	<b>\$ 266.9</b>	<b>\$ 269.7</b>	<b>\$ 265.6</b>	<b>\$ 995.5</b>	<b>\$ 328.5</b>	<b>\$ 283.5</b>	<b>\$ 270.5</b>	<b>\$ 334.4</b>	<b>\$ 1,216.9</b>
<b>Non-GAAP Adjustments (1)</b>										
Options	\$ 6.2	-	-	-	\$ 6.2					
U.S. Equities	47.2	-	-	-	47.2					
Futures	-	-	-	-	-					
European Equities	11.8	-	-	-	11.8					
Global FX	6.8	-	-	-	6.8					
Corporate	-	-	-	-	-					
<b>Total</b>	<b>\$ 72.0</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 72.0</b>					
<b>Combined</b>										
Options	\$ 135.1	\$ 126.7	\$ 130.7	\$ 130.0	\$ 522.5					
U.S. Equities	72.7	74.4	70.2	69.0	286.3					
Futures	28.8	36.2	38.9	35.6	139.5					
European Equities	17.9	18.5	18.4	18.8	73.6					
Global FX	10.8	10.9	11.3	12.0	45.0					
Corporate	-	0.2	0.2	0.2	0.6					
<b>Total</b>	<b>\$ 265.3</b>	<b>\$ 266.9</b>	<b>\$ 269.7</b>	<b>\$ 265.6</b>	<b>\$ 1,067.5</b>					

(1) Represents historical Bats activity for the period January 1, 2017 through February 28, 2017.

## Non-GAAP Information

<b>Reconciliation of Net Transaction Fees by Segment</b>							
<b>For the Three Months Ended December 31, 2018</b>							
<b>(in millions)</b>	<b>U.S.</b>			<b>European</b>		<b>Total</b>	
	<b>Options</b>	<b>Equities</b>	<b>Futures</b>	<b>Equities</b>	<b>Global FX</b>		
Transaction fees	\$ 235.5	\$ 254.0	\$ 36.6	\$ 25.1	\$ 12.0	\$ 563.2	
Liquidity payments	(80.7)	(219.5)	(0.2)	(9.4)	-	(309.8)	
Routing and clearing	(2.8)	(7.5)	-	-	-	(10.3)	
Net transaction fees	<u>\$ 152.0</u>	<u>\$ 27.0</u>	<u>\$ 36.4</u>	<u>\$ 15.7</u>	<u>\$ 12.0</u>	<u>\$ 243.1</u>	
<b>For the Three Months Ended December 31, 2017</b>							
<b>(in millions)</b>	<b>U.S.</b>			<b>European</b>		<b>Total</b>	
	<b>Options</b>	<b>Equities</b>	<b>Futures</b>	<b>Equities</b>	<b>Global FX</b>		
Transaction fees	\$ 180.1	\$ 188.9	\$ 32.4	\$ 19.2	\$ 10.7	\$ 431.3	
Liquidity payments	(71.9)	(164.1)	-	(7.6)	-	(243.6)	
Routing and clearing	(2.3)	(7.4)	-	-	-	(9.7)	
Net transaction fees	<u>\$ 105.9</u>	<u>\$ 17.4</u>	<u>\$ 32.4</u>	<u>\$ 11.6</u>	<u>\$ 10.7</u>	<u>\$ 178.0</u>	

# Non-GAAP Information

Reconciliation of Net Income Allocated to Common Stockholders, Diluted EPS										
(in millions, except per share amounts)	1Q17	2Q17	3Q17	4Q17	2017*	1Q18	2Q18	3Q18	4Q18	2018
Net income allocated to common stockholders	\$ 15.1	\$ 67.3	\$ 59.7	\$ 254.6	\$ 396.7	\$ 117.3	\$ 82.4	\$ 85.0	\$ 137.3	422.1
Compensation and benefits (1)	9.1	-	-	-	9.1	-	-	-	-	-
Acquisition-related expenses (2)	65.2	4.7	5.5	9.0	84.4	8.8	8.6	5.9	6.7	30.0
Amortization of acquired intangible assets (3)	14.4	42.6	42.6	43.0	142.6	42.1	39.7	39.4	39.4	160.6
Change in contingent consideration	0.2	0.5	0.4	(0.1)	1.0	-	-	-	0.1	0.1
<b>Total Non-GAAP operating expense adjustments</b>	<b>88.9</b>	<b>47.8</b>	<b>48.5</b>	<b>51.9</b>	<b>237.1</b>	<b>50.9</b>	<b>48.3</b>	<b>45.3</b>	<b>46.2</b>	<b>190.7</b>
Interest and other borrowing costs	4.3	0.9	-	-	5.2	-	-	-	-	-
Provision for uncollectable convertible notes receivable	-	-	3.8	-	3.8	-	-	-	-	-
Change in redemption value of noncontrolling interest	0.3	0.3	0.2	0.3	1.1	0.3	0.3	0.3	0.4	1.3
<b>Total Non-GAAP adjustments - pretax</b>	<b>93.5</b>	<b>49.0</b>	<b>52.5</b>	<b>52.2</b>	<b>247.2</b>	<b>51.2</b>	<b>48.6</b>	<b>45.6</b>	<b>46.6</b>	<b>192.0</b>
Income tax expense related to the items above	(36.0)	(18.0)	(19.1)	(19.2)	(92.3)	(13.0)	(12.6)	(12.1)	(11.7)	(49.4)
Re-measurement of deferred tax assets and liabilities as a result of corporate rate increase in Illinois	-	-	7.4	-	7.4	-	-	-	-	-
Effect of tax reform law	-	-	-	(191.5)	(191.5)	-	-	-	-	-
Tax provision re-measurement	-	-	-	-	-	-	-	-	(0.4)	(0.4)
Net income allocated to participating securities - effect on	(0.4)	(0.3)	(0.4)	1.6	0.5	(0.3)	(0.2)	(0.2)	(0.2)	(0.9)
<b>Adjusted net income allocated to common stockholders</b>	<b>\$ 72.2</b>	<b>\$ 98.0</b>	<b>\$ 100.1</b>	<b>\$ 97.7</b>	<b>\$ 368.0</b>	<b>\$ 155.2</b>	<b>\$ 118.2</b>	<b>\$ 118.3</b>	<b>\$ 171.6</b>	<b>\$ 563.4</b>
<b>Reconciliation of Diluted EPS to Non-GAAP</b>										
Diluted earnings per common share	\$ 0.16	\$ 0.62	\$ 0.53	\$ 2.26	\$ 3.69	\$1.04	\$0.73	\$0.76	\$1.23	\$3.76
Per share impact of non-GAAP adjustments noted above	0.62	(0.02)	0.36	(1.39)	(0.27)	0.34	0.32	0.30	0.31	1.26
<b>Adjusted diluted earnings per common share</b>	<b>\$ 0.78</b>	<b>\$ 0.60</b>	<b>\$ 0.89</b>	<b>\$ 0.87</b>	<b>\$ 3.42</b>	<b>\$1.38</b>	<b>\$1.05</b>	<b>\$1.06</b>	<b>\$1.54</b>	<b>\$5.02</b>
<b>Reconciliation of Operating Margin to Non-GAAP</b>										
Revenue less cost of revenue	\$ 193.3	\$ 266.9	\$ 269.7	\$ 265.6	\$ 995.5	\$ 328.5	\$ 283.5	\$ 270.5	\$ 334.4	\$ 1,216.9
Non-GAAP adjustments noted above	-	-	-	-	-	-	-	-	-	-
<b>Adjusted revenue less cost of revenue</b>	<b>\$ 193.3</b>	<b>\$ 266.9</b>	<b>\$ 269.7</b>	<b>\$ 265.6</b>	<b>\$ 995.5</b>	<b>\$ 328.5</b>	<b>\$ 283.5</b>	<b>\$ 270.5</b>	<b>\$ 334.4</b>	<b>\$ 1,216.9</b>
<b>Operating expenses</b>										
Operating expenses	\$ 167.3	\$ 149.1	\$ 150.4	\$ 156.9	\$ 623.7	\$ 160.8	\$ 154.4	\$ 144.4	\$ 158.0	\$ 617.5
Non-GAAP expense adjustments noted above	(88.9)	(47.8)	(48.5)	(51.9)	(237.1)	(50.9)	(48.3)	(45.3)	(46.2)	(190.7)
<b>Adjusted operating expenses</b>	<b>\$ 78.4</b>	<b>\$ 101.3</b>	<b>\$ 101.9</b>	<b>\$ 105.0</b>	<b>\$ 386.6</b>	<b>\$ 109.9</b>	<b>\$ 106.1</b>	<b>\$ 99.1</b>	<b>\$ 111.8</b>	<b>\$ 426.8</b>
Operating income	\$ 26.1	\$ 117.8	\$ 119.3	\$ 108.7	\$ 371.9	\$ 167.7	\$ 129.1	\$ 126.1	\$ 176.4	\$ 599.4
Non-GAAP expense adjustments noted above	88.9	47.8	48.5	51.9	237.1	50.9	48.3	45.3	46.2	190.7
<b>Adjusted operating income</b>	<b>\$ 115.0</b>	<b>\$ 165.6</b>	<b>\$ 167.8</b>	<b>\$ 160.6</b>	<b>\$ 609.0</b>	<b>\$ 218.6</b>	<b>\$ 177.4</b>	<b>\$ 171.4</b>	<b>\$ 222.6</b>	<b>\$ 790.1</b>
<b>Adjusted operating margin (4)</b>	<b>59.5%</b>	<b>62.0%</b>	<b>62.2%</b>	<b>60.5%</b>	<b>61.2%</b>	<b>66.5%</b>	<b>62.6%</b>	<b>63.4%</b>	<b>66.6%</b>	<b>64.9%</b>
<b>Reconciliation of Income Tax Rate to Non-GAAP</b>										
Income before income taxes	\$ 18.3	\$ 106.1	\$ 105.9	\$ 104.1	\$ 334.4	\$ 159.4	\$ 119.8	\$ 116.3	\$ 175.6	\$ 571.2
Non-GAAP adjustments noted above	93.5	49.0	52.5	52.2	247.2	51.2	48.6	45.6	46.6	192.0
<b>Adjusted income before income taxes</b>	<b>\$ 111.8</b>	<b>\$ 155.1</b>	<b>\$ 158.4</b>	<b>\$ 156.3</b>	<b>\$ 581.6</b>	<b>\$ 210.6</b>	<b>\$ 168.4</b>	<b>\$ 161.9</b>	<b>\$ 222.2</b>	<b>\$ 763.2</b>
Income tax (benefit) expense	\$ (3.1)	\$ 38.1	\$ 45.6	\$ (153.0)	\$ (66.2)	\$ 41.3	\$ 36.8	\$ 30.6	\$ 37.3	\$ 146.0
Non-GAAP adjustments noted above	36.0	18.0	11.7	210.7	276.4	13.0	12.6	12.1	11.7	49.4
<b>Adjusted income tax (benefit) expense</b>	<b>\$ 32.9</b>	<b>\$ 56.1</b>	<b>\$ 57.3</b>	<b>\$ 57.7</b>	<b>\$ 210.2</b>	<b>\$ 54.3</b>	<b>\$ 49.4</b>	<b>\$ 42.7</b>	<b>\$ 49.0</b>	<b>\$ 195.4</b>
<b>Adjusted income tax rate</b>	<b>29.4%</b>	<b>36.2%</b>	<b>36.2%</b>	<b>36.9%</b>	<b>36.1%</b>	<b>25.9%</b>	<b>29.4%</b>	<b>26.4%</b>	<b>22.1%</b>	<b>25.6%</b>

(\*) Includes Bats beginning March 1, 2017.

(1) For the three months ended March 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.

# Non-GAAP Information

## 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.

<b>Reconciliation of Net Income Allocated to Common Stockholders to EBITDA and Adjusted EBITDA</b>										
<b>(in millions, except per share amounts)</b>	<b>1Q17*</b>	<b>2Q17</b>	<b>3Q17</b>	<b>4Q17</b>	<b>2017</b>	<b>1Q18</b>	<b>2Q18</b>	<b>3Q18</b>	<b>4Q18</b>	<b>2018</b>
<b>Net income allocated to common stockholders</b>	\$ 15.1	\$ 67.3	\$ 59.7	\$ 254.6	\$ 396.7	\$ 117.3	\$ 82.4	\$ 85.0	\$ 137.3	\$ 422.1
Interest	7.9	12.5	10.5	10.4	41.3	9.6	9.3	9.6	9.7	38.2
Income tax provision	3.1	38.1	45.6	(153.0)	(66.2)	41.3	36.8	30.6	37.3	146.0
Depreciation and amortization	25.1	55.8	55.4	55.9	192.2	54.2	50.4	50.3	49.1	204.0
<b>EBITDA</b>	<b>\$ 51.2</b>	<b>\$ 173.7</b>	<b>\$ 171.2</b>	<b>\$ 167.9</b>	<b>\$ 564.0</b>	<b>\$ 222.4</b>	<b>\$ 178.9</b>	<b>\$ 175.5</b>	<b>\$ 233.4</b>	<b>\$ 810.3</b>
<b>EBITDA Margin<sup>1</sup></b>	<b>26.5%</b>	<b>65.1%</b>	<b>63.5%</b>	<b>63.2%</b>	<b>56.7%</b>	<b>67.7%</b>	<b>63.1%</b>	<b>64.9%</b>	<b>69.8%</b>	<b>66.6%</b>
<b>Non-GAAP adjustments not included in above line items</b>										
Compensation and benefits (accelerated stock-based compensation)	9.1	-	-	-	9.1	-	-	-	-	-
Acquisition-related expenses	65.2	4.7	5.5	9.0	84.4	8.8	8.6	5.9	6.7	30.0
Provision for uncollectable convertible notes receivable	-	-	3.8	-	3.8	-	-	-	-	-
Other	0.2	0.5	0.4	(0.1)	1.0	-	-	-	0.1	0.1
<b>Adjusted EBITDA</b>	<b>\$ 125.7</b>	<b>\$ 178.9</b>	<b>\$ 180.9</b>	<b>\$ 176.8</b>	<b>\$ 662.3</b>	<b>\$ 231.2</b>	<b>\$ 187.5</b>	<b>\$ 181.4</b>	<b>\$ 240.2</b>	<b>\$ 840.4</b>
<b>Adjusted EBITDA Margin<sup>1</sup></b>	<b>65.0%</b>	<b>67.0%</b>	<b>67.1%</b>	<b>66.6%</b>	<b>66.5%</b>	<b>70.4%</b>	<b>66.1%</b>	<b>67.1%</b>	<b>71.8%</b>	<b>69.1%</b>
<b>Reconciliation of Combined Net Income Allocated to Common Stockholders to EBITDA and Adjusted EBITDA</b>										
<b>Combined net income allocated to common stockholders*</b>	\$ 73.0	\$ 67.3	\$ 59.7	\$ 254.6	\$ 454.6					
Interest	12.0	12.5	10.5	10.4	45.4					
Income tax provision	22.0	38.1	45.6	(153.0)	(47.3)					
Depreciation and amortization	55.3	55.8	55.4	55.9	222.4					
<b>Combined EBITDA</b>	<b>\$ 162.3</b>	<b>\$ 173.7</b>	<b>\$ 171.2</b>	<b>\$ 167.9</b>	<b>\$ 675.1</b>					
<b>Combined EBITDA Margin<sup>1</sup></b>	<b>61.2%</b>									
<b>Non-GAAP adjustments not included in above line items</b>										
Compensation and benefits (accelerated stock-based compensation)	\$ 9.1	\$ -	\$ -	\$ -	\$ 9.1					
Acquisition-related expenses	\$ -	4.7	5.5	9.0	19.2					
Other	0.6	0.5	4.2	(0.1)	5.2					
<b>Adjusted Combined EBITDA</b>	<b>\$ 172.0</b>	<b>\$ 178.9</b>	<b>\$ 180.9</b>	<b>\$ 176.8</b>	<b>\$ 708.6</b>					
<b>Adjusted Combined EBITDA Margin<sup>1</sup></b>	<b>64.8%</b>	<b>67.0%</b>	<b>67.1%</b>	<b>66.6%</b>	<b>66.4%</b>					

\*Includes the activity of Bats for January 1 through February 28, 2017.

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

# Non-GAAP Information (see next slide for footnotes)

(in millions, except per share amounts)	Three Months Ended March 31, 2017	Twelve Months Ended December 31, 2017
<b>Reconciliation of Non-transaction Revenue (1):</b>		
Access fees	\$ 17.8	\$ 106.8
Exchange services and other fees	15.4	74.8
Market data fees	22.5	164.5
Regulatory fees	8.3	31.5
Other revenue	5.8	26.6
Non-GAAP adjustments	44.1 (2)	44.1 (2)
<b>Combined non-transaction revenue</b>	<u>\$ 113.9</u>	<u>\$ 448.3</u>
<i>Total non-transaction revenue as a percent of revenues less cost of revenues (3)</i>	42.9%	42.0%
<b>Reconciliation of Revenues Less Cost of Revenues:</b>		
Revenue less cost of revenues	\$ 193.4	995.6
Non-GAAP adjustments	71.9 (5)	71.9 (5)
<b>Combined revenue less cost of revenues</b>	<u>\$ 265.3</u>	<u>\$ 1,067.5</u>
<b>Reconciliation of Operating Expenses to Non-GAAP:</b>		
Operating expenses	\$ 167.3	\$ 623.7
Non-GAAP adjustments	(8.9) (6)	(28.1) (6)
Non-GAAP adjustments as detailed below	(52.1)	(180.3)
<b>Adjusted combined operating expenses</b>	<u>\$ 106.3</u>	<u>\$ 415.3</u>
<b>Reconciliation of Operating Income to Non-GAAP:</b>		
Operating income	\$ 26.1	\$ 371.9
Non-GAAP revenue adjustments	80.8 (7)	71.9 (7)
Non-GAAP expense adjustments as detailed below	52.1	180.3
Non-GAAP adjustments	28.1 (6)	28.1 (6)
<b>Adjusted combined operating income</b>	<u>\$ 159.0</u>	<u>\$ 652.2</u>
<i>Adjusted combined operating margin (4)</i>	<u>59.9%</u>	<u>61.1%</u>
<b>Reconciliation of Net Income Allocated to Common Stockholders to Non-GAAP:</b>		
Net income allocated to common stockholders	\$ 15.2	\$ 396.7
Non-GAAP adjustments	57.8 (8)	(129.5) (8)
Non-GAAP expense adjustments as detailed below	32.8	130.5
<b>Adjusted combined net income allocated to common stockholders</b>	<u>\$ 105.8</u>	<u>\$ 397.7</u>
<b>Adjusted combined diluted EPS</b>	<u>\$ 0.94</u>	<u>\$ 3.57</u>
<b>Non-GAAP Operating Expense Adjustments to Non-GAAP:</b>		
Compensation and benefits	\$ 9.1	\$ 9.1
Amortization of acquired intangible assets	42.4	169.8
Other	0.6	1.4
Total non-GAAP operating expense adjustments	\$ 52.1	\$ 180.3
Income tax expense related to items above	(19.3)	(53.6)
<b>Total non-GAAP expense adjustments, net of tax</b>	<u>\$ 32.8</u>	<u>\$ 130.5</u>

## Non-GAAP Information - Footnotes for table on prior slide

- (1) Total non-transaction revenue represents the sum of access fees, exchange services and other fees, market data fees, regulatory fees (net of Section 31 fees) and other revenue.
- (2) Reflects adjustment to include the activity of Bats for January 1, 2017 through February 28, 2017 of \$11.9 million of access fees, \$5.0 million of exchange services and other fees, \$25.7 million of market data fees, \$0.5 million of regulatory fees and \$1.0 million of other revenue.
- (3) The percentage of combined non-transaction revenue represents total combined non-transaction revenue divided by combined revenue less cost of revenue.
- (4) Reflects adjustments to include the activity of Bats for January 1, 2017 through February 28, 2017 of \$71.9 million of revenue less cost of revenues.
- (5) Reflects adjustments to include the activity of Bats for January 1, 2017 through February 28, 2017 of \$56.2 million and adjustments to reduce Bats historical amortization of acquired intangibles by \$4.5 million and increase amortization of acquired intangibles by \$28.0 million for the periods January and February 2017. Also reflects adjustments to reduce acquisition costs by \$65.2 million for Cboe historical and reduce professional fees for Bats historical by \$23.4 million which are costs associated with the Bats merger.
- (6) Reflects adjustments to include the activity of Bats for January 1, 2017 through February 28, 2017 of \$15.7 million and adjustments to reduce Bats historical amortization of acquired intangibles by \$4.5 million and increase amortization of acquired intangibles by \$28.0 million for the periods January and February 2017. Also reflects adjustments to reduce acquisition costs by \$65.2 million for Cboe historical and reduce professional fees for Bats historical by \$23.4 million which are costs associated with the Bats merger.
- (7) Adjusted combined operating margin represents adjusted combined operating income divided by combined revenue less cost of revenue.
- (8) Reflects adjustments to include the activity of Bats for January 1, 2017 through February 28, 2017 of (\$0.2) million and adjustments to reduce Bats historical amortization of acquired intangibles by \$4.5 million and increase amortization of acquired intangibles by \$28.0 million for the periods January and February 2017. Also reflects adjustments to reduce acquisition costs by \$65.2 million for Cboe historical, reduce professional fees for Bats historical by \$23.4 million which are costs associated with the Bats merger and \$13.6 million to adjust for the extinguishment of Bats historical debt as well as the income tax impact of the previous adjustments of \$20.7 million



## Non-GAAP Information

<b>Adjusted Debt to EBITDA - Trailing Twelve Months</b>					
<b>(in millions)</b>	<b>1Q18</b>	<b>2Q18</b>	<b>3Q18</b>	<b>4Q18</b>	<b>LTM</b>
Net income allocated to common stockholders	\$ 117.3	\$ 82.4	\$ 85.0	\$ 137.3	\$ 422.1
Interest	9.6	9.3	9.6	9.7	38.2
Income tax provision	41.3	36.8	30.6	37.3	146.0
Depreciation and amortization	54.2	50.4	50.3	49.1	204.0
<b>EBITDA</b>	<b>\$ 222.4</b>	<b>\$ 178.9</b>	<b>\$ 175.5</b>	<b>\$ 233.4</b>	<b>\$ 810.3</b>
Non-GAAP adjustments not included in above line items:					
Acquisition-related expenses	8.8	8.6	5.9	6.7	30.0
Other	-	-	-	0.1	0.1
<b>Adjusted EBITDA</b>	<b>\$ 231.2</b>	<b>\$ 187.5</b>	<b>\$ 181.4</b>	<b>\$ 240.2</b>	<b>\$ 840.4</b>
Debt at end of period					\$ 1,225.0
<b>Debt to EBITDA</b>					<b>1.5x</b>

<sup>1</sup>A full reconciliation of our non-GAAP and combined results to our GAAP results are available in this section.

### Adjusted Cash

Adjusted cash is a non-GAAP measure and represents cash and cash equivalents plus financial investments minus cash collected for Section 31 fees, which will need to be remitted in the near term. 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.

<b>Adjusted Cash (in millions)</b>	<b>As of 3/31/17</b>	<b>As of 6/30/17</b>	<b>As of 9/30/17</b>	<b>As of 12/31/17</b>	<b>As of 3/31/18</b>	<b>As of 6/30/18</b>	<b>As of 9/30/18</b>	<b>As of 12/31/18</b>
Cash and cash equivalents	\$ 153.3	\$ 148.6	\$ 124.8	\$ 143.5	\$ 166.3	\$ 140.0	\$ 88.5	\$ 275.1
Financial investments	41.3	110.4	2.4	47.3	64.0	131.8	49.2	35.7
Cash collected for Section 31 fees	(41.3)	(110.0)	-	(70.6)	(64.0)	(155.8)	-	(53.1)
<b>Adjusted Cash</b>	<b>\$ 153.3</b>	<b>\$ 149.0</b>	<b>\$ 127.2</b>	<b>\$ 120.2</b>	<b>\$ 166.3</b>	<b>\$ 116.0</b>	<b>\$ 137.7</b>	<b>\$ 257.7</b>



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