Cboe Global Markets

Second Quarter 2019 Earnings Presentation

August 2, 2019

Agenda

Strategic Review	**Edward Tilly** *Chairman, President and Chief Executive Officer*
Financial Review	**Brian Schell** *Executive Vice President, CFO and Treasurer*
Questions and Answers	**Edward Tilly** **Brian Schell** **Chris Isaacson** *Executive Vice President and Chief Operating Officer* **John Deters** *Chief Strategy Officer*

Cautionary Statements Regarding Forward-Looking Information

Cboe Global Markets

This presentation 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; potential difficulties in our migration of trading platforms and our ability to retain employees as a result of the acquisition of Bats; 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; impairment of our goodwill, investments or intangible assets; 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, 2018 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.

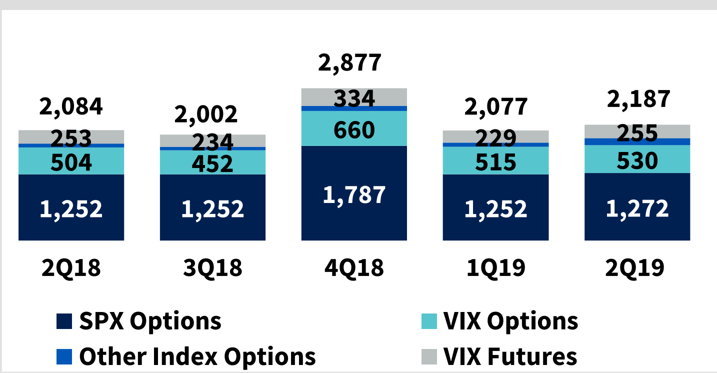
Strategic Review
Edward Tilly
Chairman, President and CEO

Second Quarter Net Revenue Flat YOY; Adjusted EPS[1] Up 8%

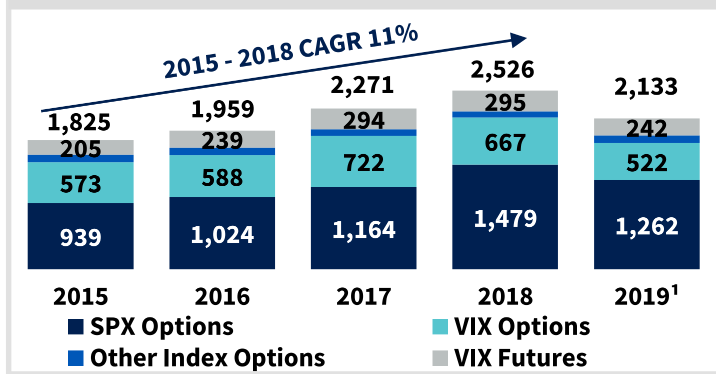
Remain focused on executing on strategic initiatives

- 2Q19 results primarily reflect:
  - Higher trading volume in our suite of proprietary products
  - Flat to lower trading industrywide in U.S. equities, European equities and Global FX

Quarterly ADV for Index Options and VIX Futures (in thousands)



Annual ADV for Index Options and VIX Futures (in thousands)

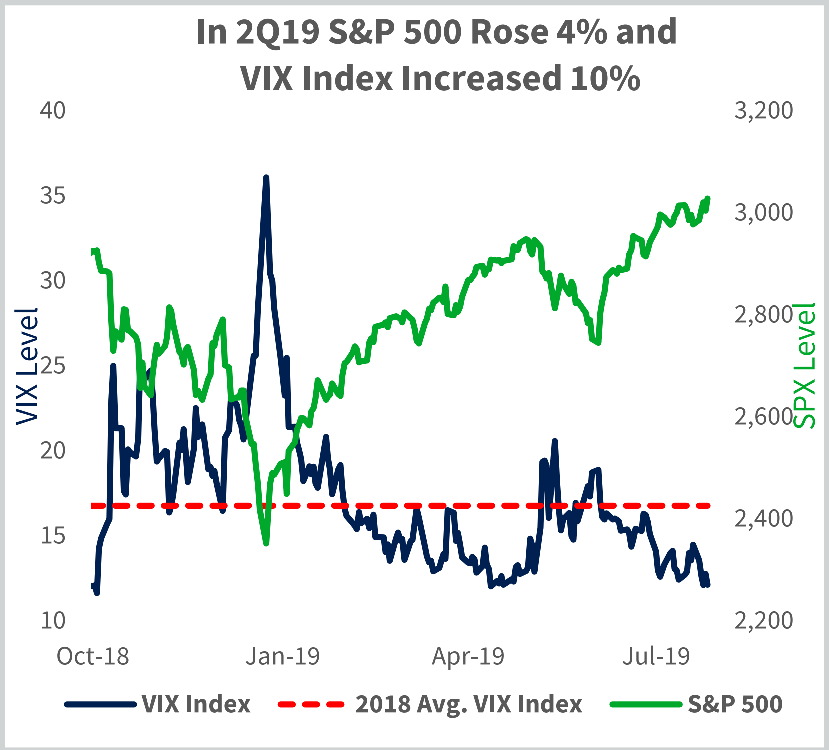


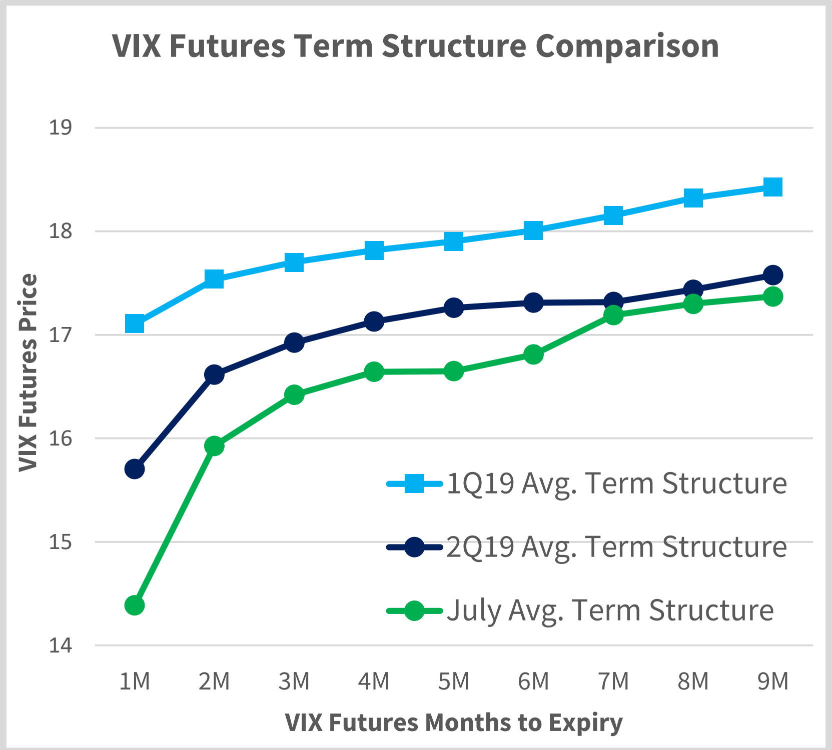
[1]Through June 30, 2019

[1]Adjusted to reflect the impact of certain items. See Appendix for "Non-GAAP Information."

Second Quarter Results Reflect a Continuation of Challenging Market Conditions

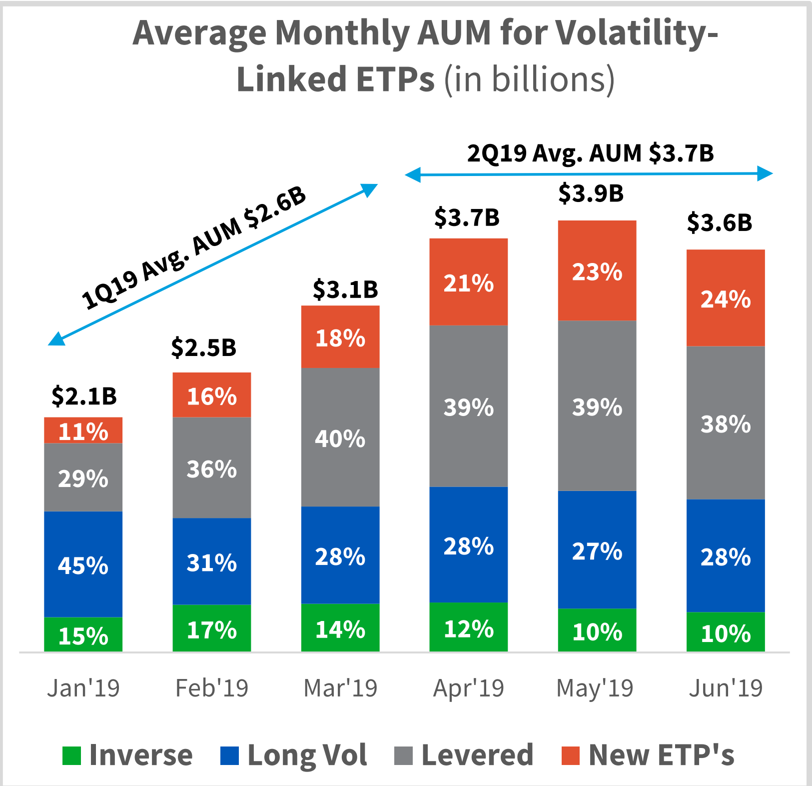
- Market continued to grind higher through July after a sell off in May
- Strong index volumes in May offset by slow April and June where traders lacked conviction
- In July, rising long-term uncertainty has led to a steepening in the VIX term structure and a renewed focus on hedging

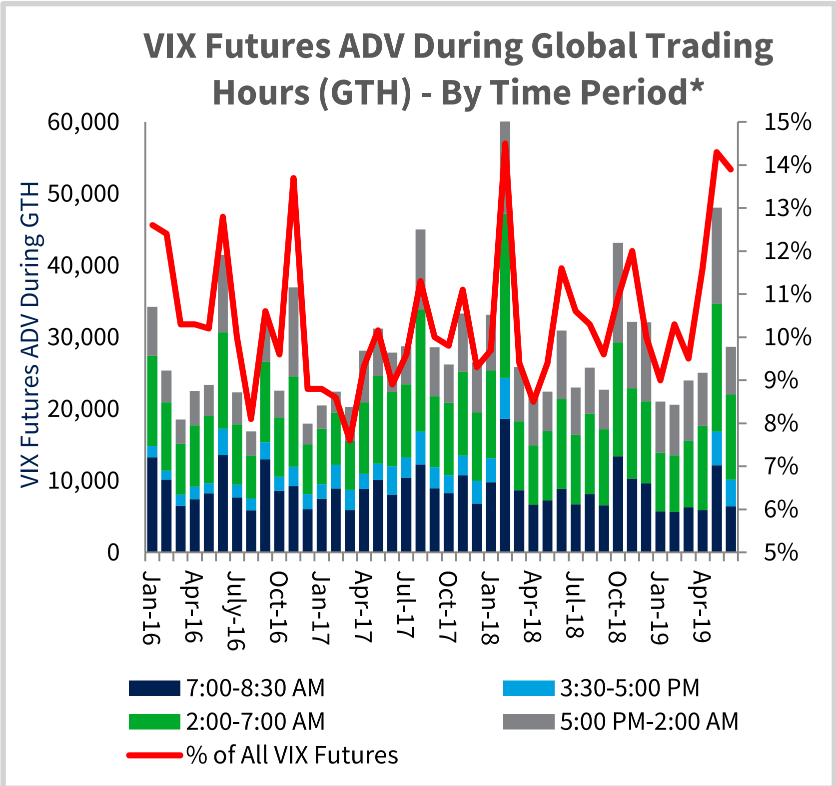




Changes in VIX Futures Term Structure and Growth in Volatility ETPs Presented More Trading Opportunities

- 42% increase in average AUM in volatility-linked ETPs
  - Average AUM of $3.7B in 2Q19 vs $2.6B in 1Q19
  - Increase driven in part by growth of ETPs based in APAC region, also driving growth in GTH





Source: Bloomberg
Inverse = XIV and SVXY; Long Vol = VXX and VIXY; Levered = UVXY and TVIX; New = Fubon and Kokusai
*All times are in CT

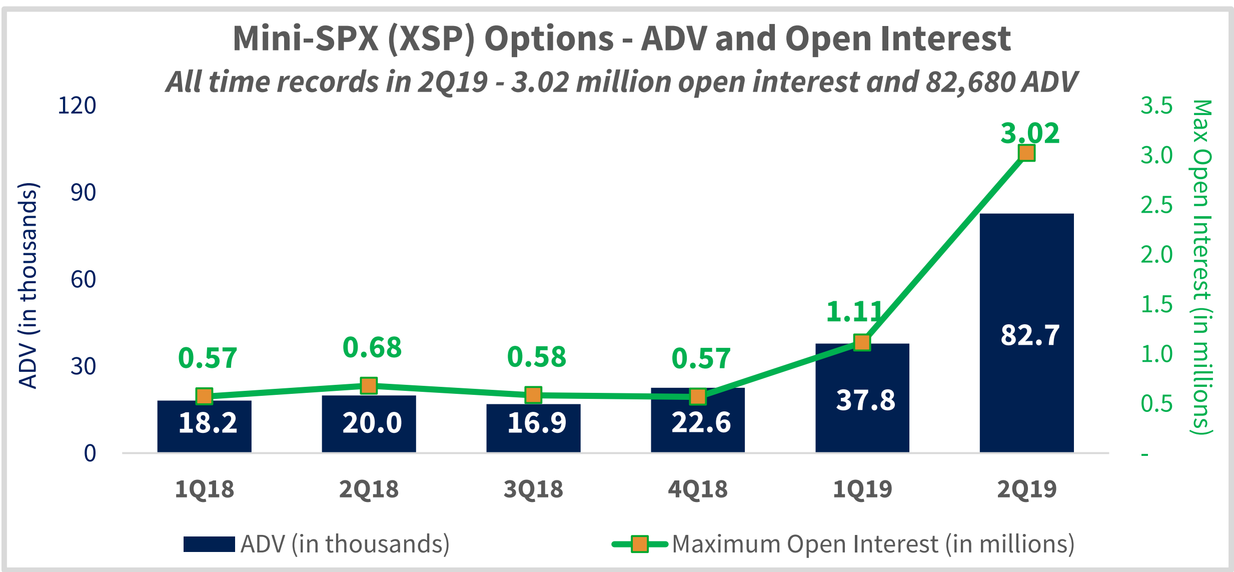
Focused on Growing Proprietary Product Suite

- Aligning sales and coverage teams across regions and products
- U.S. remains largest growth opportunity

Focused on Growing Proprietary Product Suite

Continued focus on providing solutions for our customers risk management needs

- Strong growth in mini-SPX (XSP) options
  - ADV up 119% in 2Q19 versus 1Q19 and up 314% versus 2Q18
  - Smaller notional contract provides more risk management granularity
  - 1/10 the size of SPX options contract and same size as SPY

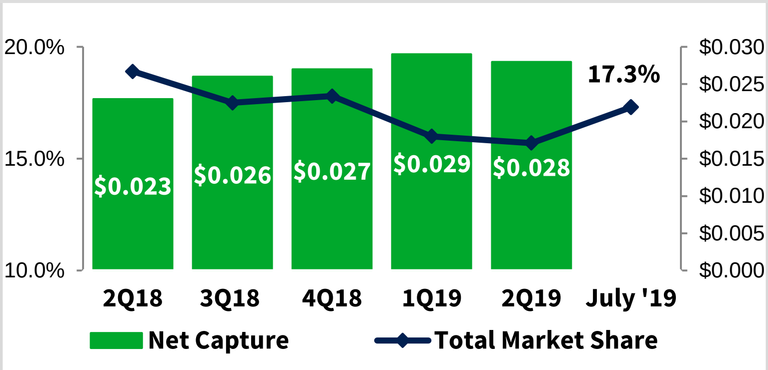


U.S. Equities

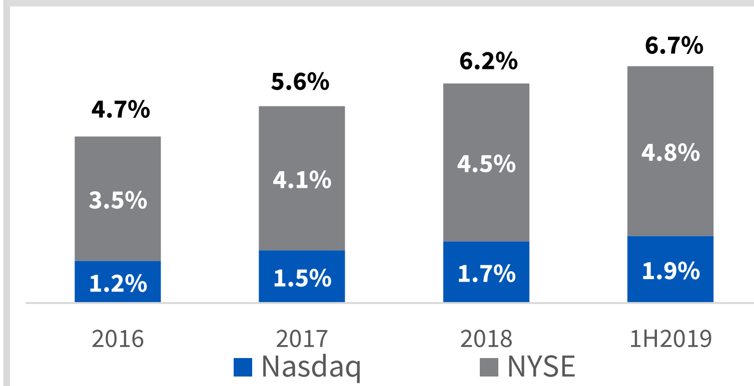
Cboe EDGX focused on being the destination of choice for retail trading

- July market share rose above 17%, reflecting impact of pricing changes aimed at attracting more order flow
- Ready to introduce execution priority to retail limit orders, subject to regulatory approval and customer readiness
- Continued to advocate for our Cboe Market Close proposal

Quarterly U.S. Equities Market Share & Net Capture



U.S. Equities Closing Volume as a Percent of Total Market Volume

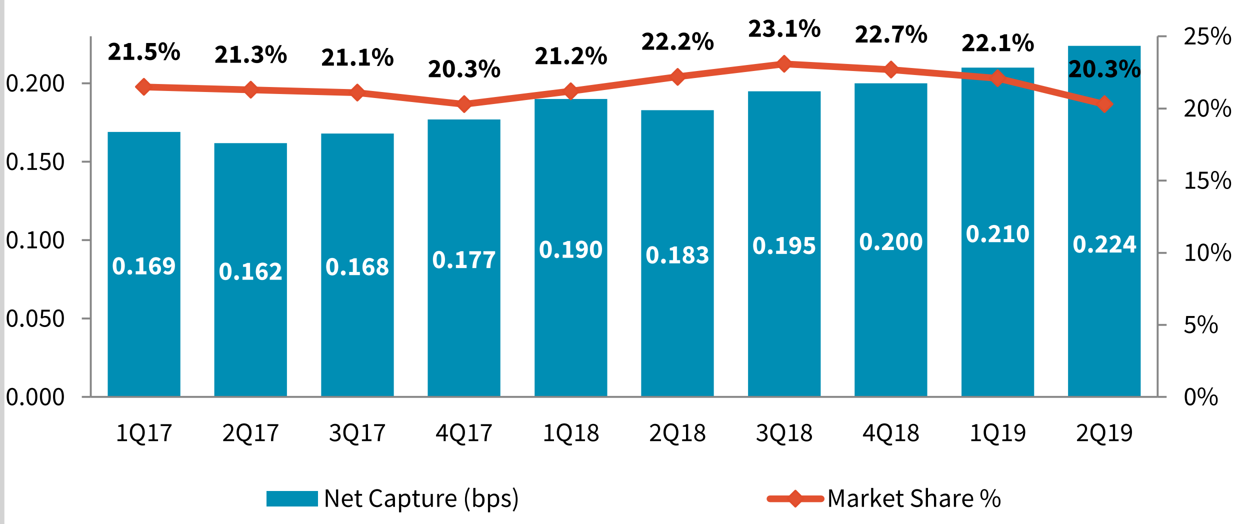


Source: Cboe

European Equities – Preparing to Operate in a Post-Brexit Environment

- Lighter overall market volumes for European equities in 2Q19 vs 2Q18
- Plan to launch our Dutch venue on October 1, with European Economic Area (EEA) stocks available for trading
- Our UK venue will continue to trade UK, as well as EEA stocks

European Equities - Quarterly Market Share and Net Capture (in bps)

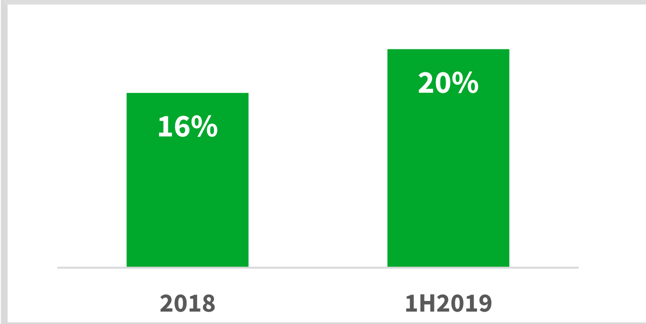


European Equities – Plan to Launch Cboe Closing Cross on August 16

Cboe Closing Cross (C3) expected to bring valuable competition to post-close trading session in Europe

- Cboe Closing Cross plans to:
  - Serve as a cost-effective, one-stop shop for customers to execute their post-close trading activities across 18 European markets
  - Bring choice and competition to a growing segment of the European market

European Equities Closing Auctions as a % of All On-Exchange Volume

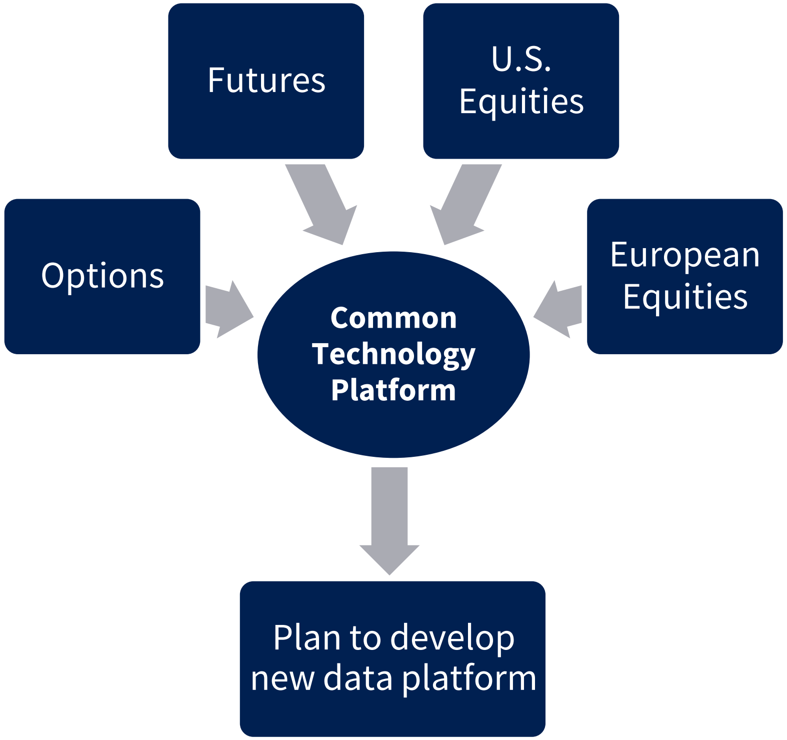


Source: Cboe Europe

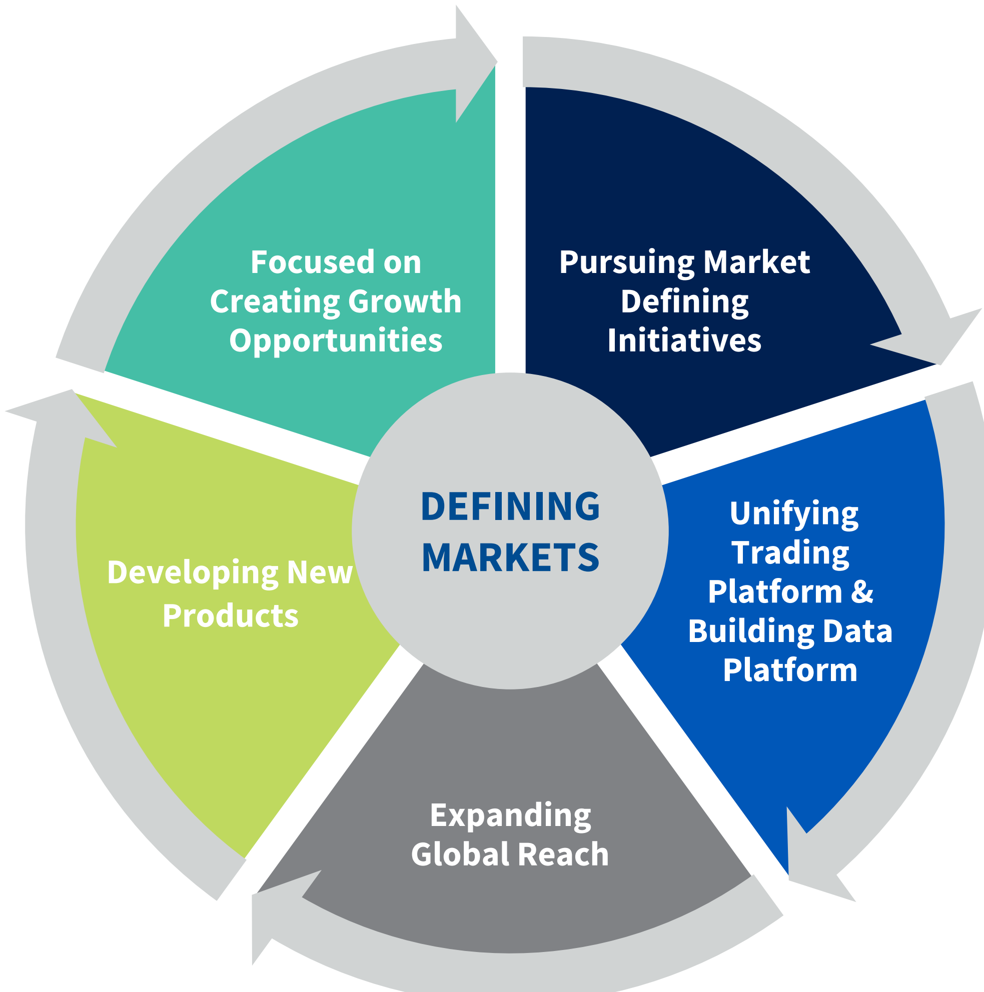
Defining Markets Through Technology

Completion of technology migration expected to enhance Cboe's efficiency and value proposition

- Final migration of Cboe Options Exchange on schedule for Oct. 7th
- Expected benefits of technology migration:
  - More efficient and user-friendly trading experience
  - Greater bandwidth
  - Significant latency reduction
  - Enhanced risk controls
  - Improved complex order handling
  - Enable Cboe to focus talent of technology team on new growth initiatives



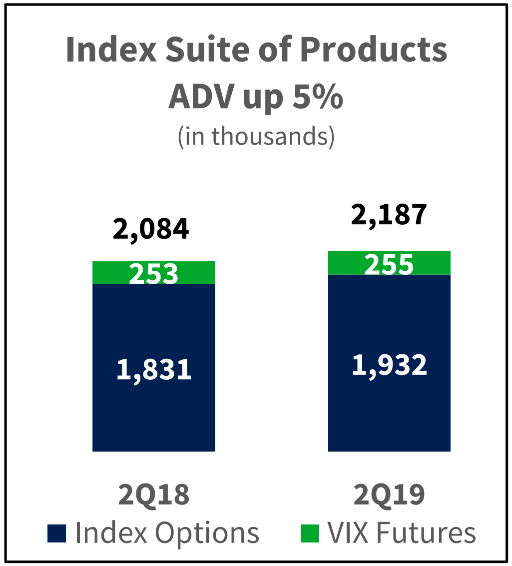
Laying the Foundation for Future Growth

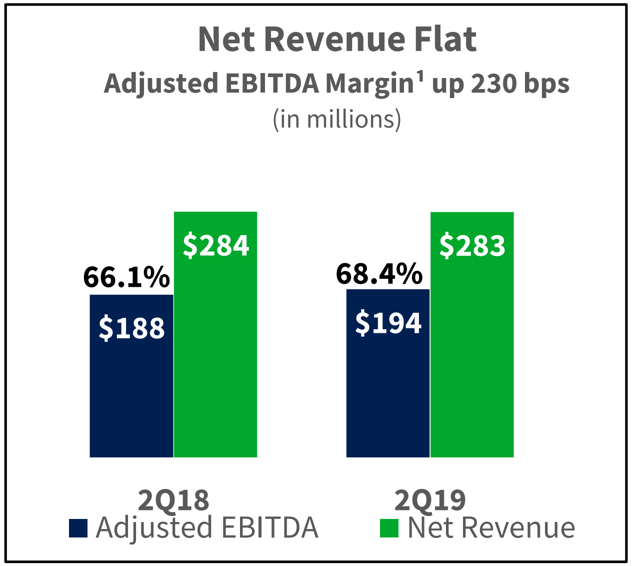


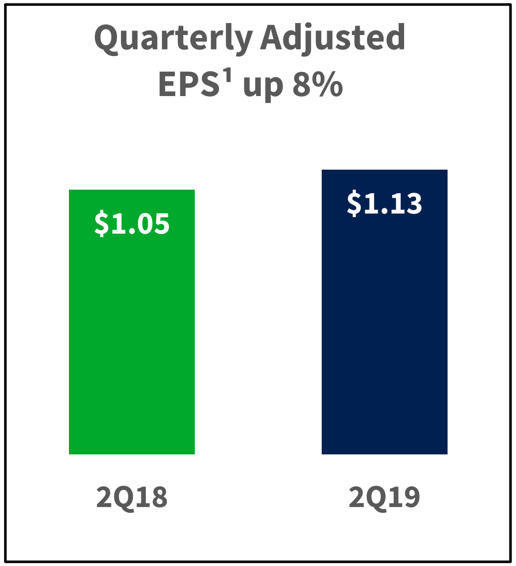
Financial Overview and Guidance
Brian Schell
EVP, CFO and Treasurer

Business Highlights – Key Performance Drivers

- Higher trading volumes in proprietary products and lower volumes in other business segments and industrywide
- Net transaction fees[1] down 1%; non-transaction net revenue up 1%
- Continued expense discipline resulted in solid EBITDA[1] margin performance





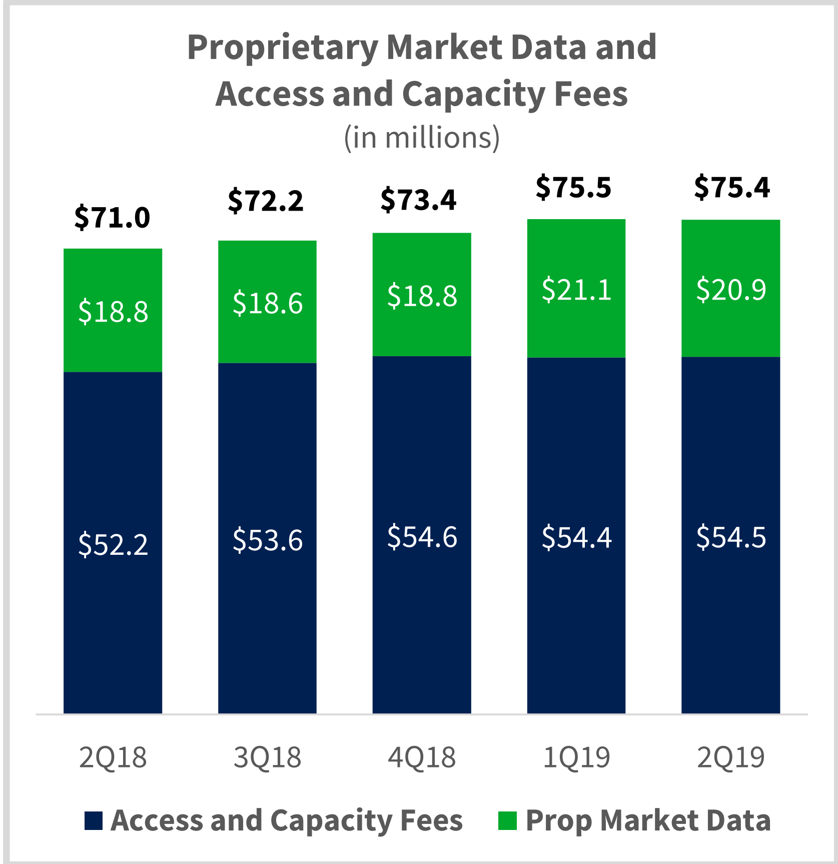


[1]See appendix for "Non-GAAP Information."

Grew Recurring Non-Transaction Revenue Streams

Recurring proprietary non-transaction net revenue up 6% in 2Q19 vs 2Q18; up 8% YTD

- Expect growth in proprietary market data and access and capacity fees combined to be mid- to high-single digit in 2019
- Two-thirds of proprietary market data revenue growth in 2Q19 driven by additional subscriptions
- Nearly 100% of access and capacity fees were attributable to incremental units in 2Q19
- Bats technology migration expected to provide opportunities longer term



Options 2Q19 Net Revenue Up 3%

- 2Q19 revenue increase driven by growth in market data and access and capacity fees
- RPC variance primarily reflects a mix shift in index options, with mini-SPX accounting for a higher percentage of index volume in 2Q19 versus 2Q18
- Non-transaction revenue up 10%

Options Statistics ($ in millions, except RPC)	**2Q19**	**2Q18**	**Change**
Net Revenue	**$140.8**	**$136.4**	**3%**
Key Operating Statistics:			
Total market share	**37.7%**	**37.7%**	**--**
Index options	99.2%	99.1%	0.1 pts
Multi-listed options	30.8%	31.0%	-0.2 pts
Total ADV (in thousands)	**7,261**	**7,095**	**2%**
Index options	1,932	1,831	6%
Multi-listed options	5,329	5,264	1%
Total RPC	**$0.238**	**$0.241**	**-1%**
Index options	$0.736	$0.753	-2%
Multi-listed options	$0.058	$0.063	-8%

Futures 2Q19 Net Revenue Up 4%

- Revenue increase driven by net transaction fees resulting from higher RPC
- RPC increase primarily reflects lower volume-based rebates
- ADV in non-U.S. trading hours (GTH) increased to 13.4% in 2Q19 from 9.5% in 1Q19 and 11% for all of 2018

Futures Statistics	2Q19	2Q18	Change
Net Revenue (in millions)	**$32.6**	**$31.4**	**4%**
Key Operating Statistics:			
Total ADV (in thousands)	**257**	**258**	**--**
Total RPC	**$1.748**	**$1.633**	**7%**

U.S. Equities 2Q19 Net Revenue Down 5%

- Revenue decline reflects lower volumes and market share offset somewhat by higher net capture and access and capacity fees
- Decrease in SIP market data revenue due to lower market share and audit recoveries versus 2Q18

U.S. Equities Statistics	2Q19	2Q18	Change
Net Revenue (in millions)	**$74.1**	**$77.6**	**-5%**
Market data - SIP	**23.7**	**27.6**	**-14%**
Market data - Proprietary	**9.1**	**9.0**	**1%**
Access and capacity fees	**19.6**	**18.7**	**5%**
Key Operating Statistics:			
Total market share	**15.7%**	**18.9%**	**-3.2 pts**
Market ADV (shares in billions)	**6.9**	**6.9**	**--**
ADV (matched shares in billions)	**1.1**	**1.3**	**-15%**
Net capture (per 100 touched shares)	**$0.028**	**$0.023**	**22%**

European Equities 2Q19 Net Revenue Down 4%; Up 1% on Local Currency Basis

- Net revenue decrease primarily reflects unfavorable foreign-currency translation
- On local currency basis, net transaction fees decreased 6% and non-transaction revenue increased 14%
- Decline in net transaction fees driven by lower overall industry volume and market share, offset somewhat by higher net capture

European Equities Statistics	2Q19	2Q18	Change
Net Revenue (in millions)	**$22.4**	**$23.4**	**-4%**
Net Revenue (in millions)	**£17.5**	**£17.3**	**1%**
Key Operating Statistics:			
Total market share	**20.3%**	**22.2%**	**-1.9 pts**
Market ADNV (in billions)	**€40.8**	**€47.4**	**-14%**
Net capture (per matched notional value, in basis points)	**0.224**	**0.183**	**22%**

Global FX 2Q19 Net Revenue Down 10%

- Revenue decline reflects lower market volume offset somewhat by higher net capture and market share
- Higher net capture due to the impact of fee changes implemented in 2018

	2Q19	2Q18	Change
FX Net Revenue (in millions)	**$13.1**	**$14.5**	**-10%**
Key Operating Statistics:			
Market share[1]	**15.2%**	**14.9%**	**0.3 pts**
Average Daily Notional Value ($ in billions)	**$32.5**	**$38.4**	**-15%**
Net capture (per one million dollars traded)	**$2.65**	**$2.56**	**4%**

[1]Market share represents Cboe FX volume divided by the total volume of publicly reporting spot FX venues (Cboe FX, EBS, Refinitiv, and FastMatch).

Acquisition-Related Expenses

- 2Q19 acquisition-related expenses included:
  - An impairment charge of $6.1 million related to Cboe headquarters
    - Classified Chicago headquarters location as property held for sale
    - Ceased depreciation on headquarters May 1, 2019
    - Plan to relocate headquarters due to a reduction in employee workspace needs in Chicago post the Bats acquisition
  - An impairment charge of $10.5 million due to anticipated restructuring of Cboe Vest
    - Negotiating a sale of a majority of our shares in Vest – resulting in Cboe going from 60% ownership to approximately 25%

Adjusted Operating Expenses Down 3%

2Q19 vs 2Q18:

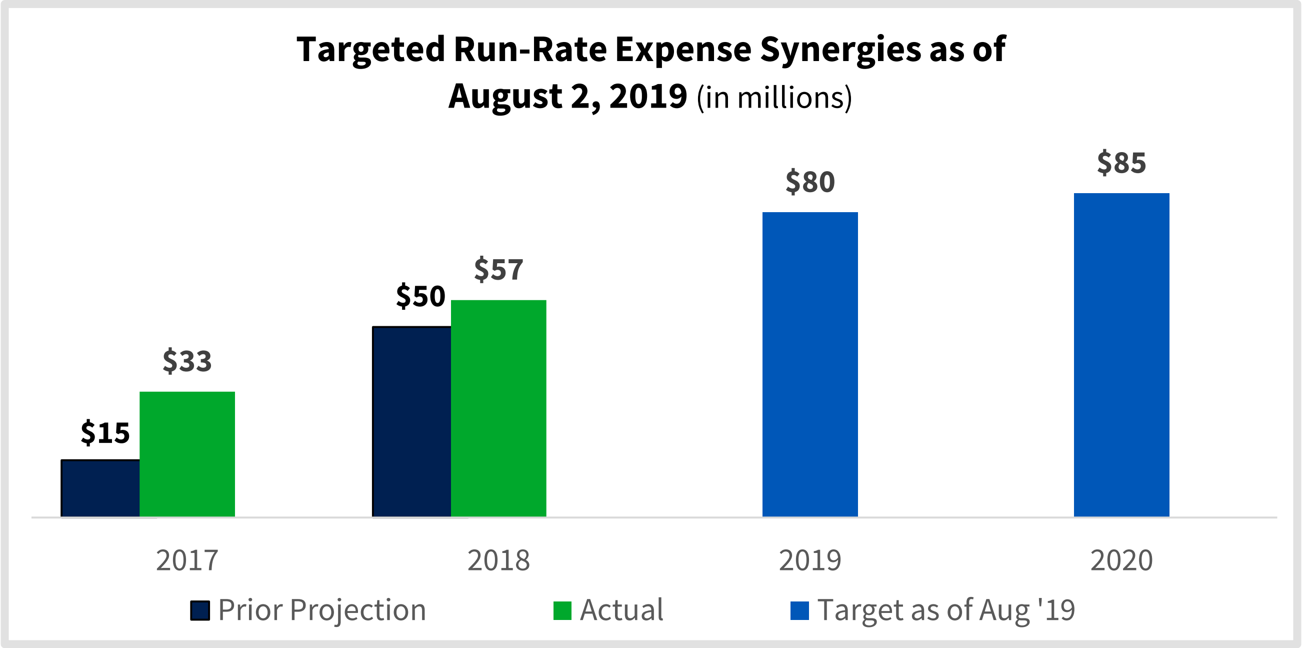
- Compensation and benefits down due to decrease in incentive-based compensation and equity compensation, offset somewhat by higher expense related to deferred compensation plans
- Lowering full-year 2019 adjusted operating expense guidance to a range of $405 to $413 million, a decrease of $10 million

Adjusted Operating Expenses[1] (in millions)	**2Q19**	**2Q18**	**% Chg**
Compensation and benefits	$52.2	$57.4	-9%
Depreciation and amortization[1]	9.6	10.7	-10%
Technology support services	11.8	11.8	--
Professional fees and outside services	19.2	17.3	11%
Travel and promotional	3.0	3.5	-14%
Facilities costs	3.0	2.9	3%
Other expenses	4.3	2.5	72%
Total[1]	**$103.1**	**$106.1**	-3%

[1]Adjusted to reflect the impact of certain items. See Appendix for "Non-GAAP Information."

Maintaining Expense Synergy Targets

- Maintaining 2019 run-rate expense synergy target of $80 million and 2020 target of $85 million



2019 Full-Year Guidance

2019 Full-Year Guidance ($ in millions)	**Guidance as of May 3, 2019**	**Guidance as of Aug. 2, 2019**
Adjusted operating expenses[1,4]	$415 to $423 million	$405 to $413 million
Depreciation and amortization (excluding amortization of acquired intangible assets)	$35 to $40 million	$35 to $40 million
Effective tax rate on adjusted earnings	27% to 29%	27% to 29%[2]
Capital expenditures	$50 to $55 million	$50 to $55 million[3]

[1]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.

[2]Expect effective tax rate on adjusted earnings for 2019 to be at lower end of guidance range.

[3]Expect capital expenditures to be at the lower end of the guidance range.

[4]Adjusted operating expenses for 2020 expected to be in a range of $420 to $428 million, excluding acquisition-related expenses and amortization of intangible assets

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

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Preserving balance sheet flexibility is a priority

- Invest in the growth of our business
- Return capital through dividends and opportunistic share repurchases - about $35MM in 2Q19
- Utilize cash to reduce debt - $300 MM debt repayment in 2Q19

Debt Outstanding ($ in millions)	June 30, 2019	Mar. 31, 2019	Dec. 31, 2018	Sept. 30, 2018	June 30, 2018
3.650% Senior Notes (10Y; Due 2027)	$650	$650	$650	$650	$650
1.950% Senior Notes (2Y; Due 2019)	-	300	300	300	300
Term Loan Facility	275	275	275	275	275
Total Debt (Gross)	**$ 925**	**$ 1,225**	**$ 1,225**	**$ 1,225**	**$ 1,225**
Debt to EBITDA TTM[1]	**1.2x**	**1.5x**	**1.5x**	**1.6x**	**1.6x**
Adjusted Cash & Financial Investments[1]	**$136**	**$348**	**$258**	**$138**	**$116**
Dividends Paid	**$34.8**	**$34.8**	**$34.7**	**$34.7**	**$30.6**
Share Repurchases	**--**	**$35.0**	**--**	**$49.1**	**$48.3**

[1]See Appendix for "Non-GAAP Information."

Delivering on Sources of Operating Leverage and Key Strategic Initiatives While Defining Markets Globally

Growth of Core Proprietary Products	• Focused on growing proprietary products
Strengthen Recurring Revenue Stream	• Growth in recurring revenue
Scale of Business Model	• Disciplined expense management
Synergies Realization	• Complete integration plan and deliver on our expense synergies
Capital Allocation	• Returned capital through dividends • Focused on maintaining balance sheet flexibility • Reduced debt; leverage ratio at 1.2x vs 1.5x

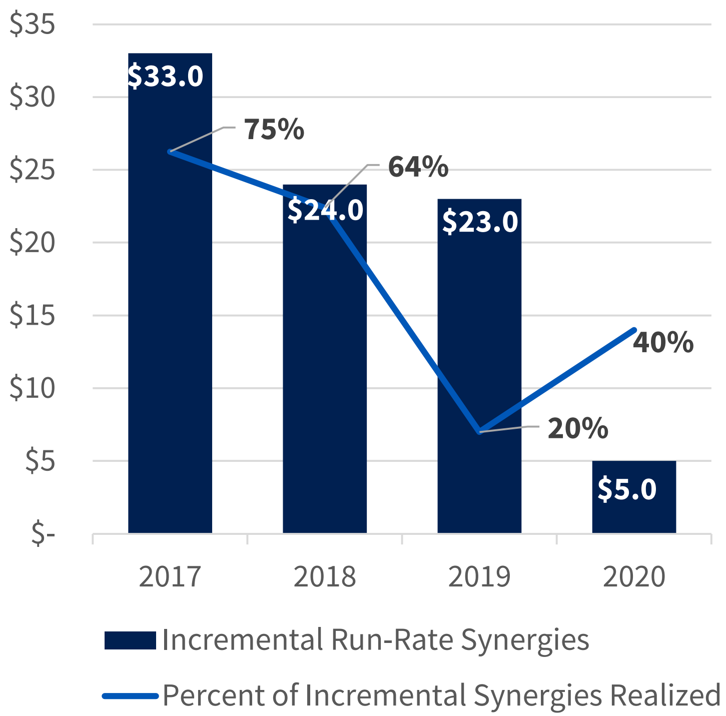
Questions & Answers

Appendix Materials

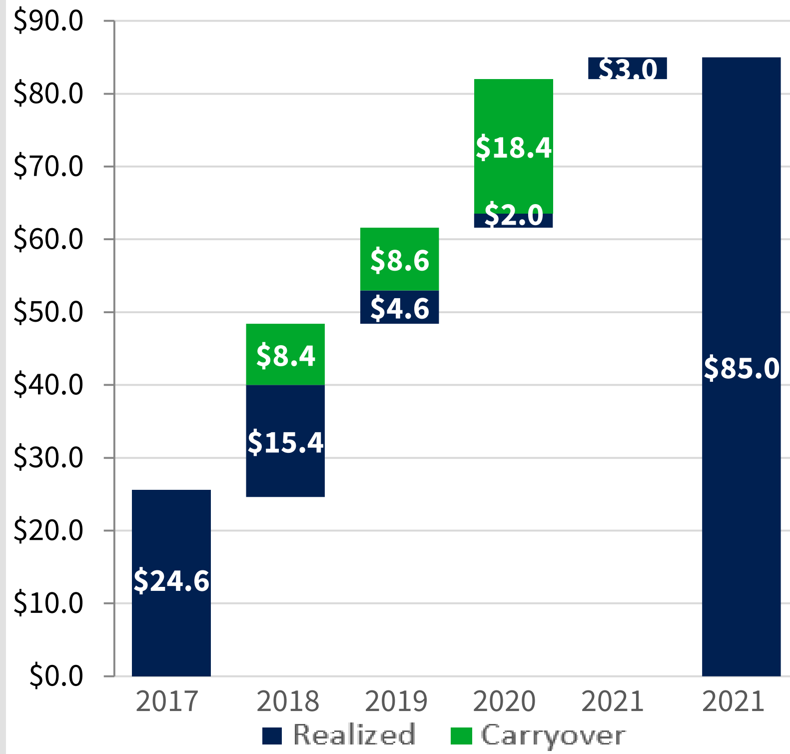
Realized Versus Run-Rate Expense Synergies

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

Timing of Incremental Run-Rate Synergies* (in millions)



Timing of Realized Synergies* (in millions)



*Actual through 2018; reflects target as of August 2, 2019, for 2019 and 2020.

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
Total		**$85.0**		**$46.6**	**$38.4**	**$85.0**	

*Reflects target as of August 2, 2019

2Q19 Financial Overview

Adjusted Financial Results[1] ($ in millions, except per share)	**2Q19**	**2Q18**	**% Chg**
Net Revenue[2]	$283.2	$283.5	--
Adjusted Operating Expenses[1]	103.1	106.1	-3%
Adjusted Operating Income[1]	$180.1	$177.4	2%
Adjusted Operating Margin[1]	*63.6%*	*62.6%*	*100 bps*
Adjusted Net Income Allocated to Common Stockholders[1]	$125.7	$118.2	6%
Adjusted Diluted EPS[1]	$ 1.13	$ 1.05	8%
Adjusted EBITDA[1]	$193.6	$187.5	3%
Adjusted EBITDA Margin[1]	*68.4%*	*66.1%*	*230 bps*

[1]Adjusted to reflect the impact of certain items. See Appendix for "Non-GAAP Information."

[2]Net revenue referenced in this presentation represents revenue less cost of revenue.

2Q19 Net Revenue Detail

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2Q19 net transaction fees down 1%; non-transaction net revenue up 1%

Net Revenue (in millions)	2Q19	2Q18	% Chg
Net transaction fees[1]	$181.9	$183.9	-1%
Access and capacity fees	54.5	52.2	4%
Market data fees	51.8	52.5	-1%
Regulatory fees	9.4	8.2	15%
Royalty fees	(21.9)	(22.0)	--
Other revenue	7.5	8.7	-14%
Total	**$283.2**	**$283.5**	**--**

[1]See Appendix for "Non-GAAP Information."

Supplemental Segment Information

2Q19 Supplemental Net Revenue by Segment (in millions)	Options	U.S. Equities	Futures	European Equities	Global FX	Total[1]
Net transaction fees[2]	$109.1	$20.1	$28.3	$13.2	$11.2	$181.9
Proprietary net transaction fees include above	$89.7		$28.3			$118.0
Access and capacity fees	$25.6	$19.6	$3.8	$3.9	$1.6	$54.5
Market data fees	$14.0	$32.8	$1.6	$3.2	$0.2	$51.8
Industry market data fees included above	$7.2	$23.7				$30.9

2Q18 Supplemental Net Revenue by Segment (in millions)	Options	U.S. Equities	Futures	European Equities	Global FX	Total[1]
Net transaction fees[2]	$109.5	$20.0	$26.9	$14.7	$12.8	$183.9
Proprietary net transaction fees include above	$88.2		$26.9			$115.1
Access and capacity fees	$24.4	$18.7	$3.8	$3.7	$1.6	$52.2
Market data fees	$10.6	$36.6	$1.8	$3.4	$0.1	$52.5
Industry market data fees included above	$6.2	$27.6				$33.7

[1]Totals may not foot due to rounding.
[2]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.

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

Reconciliation of Net Transaction Fees by Segment

For the Three Months Ended June 30, 2019 (in millions)	Options	U.S. Equities	Futures	European Equities	Global FX	Total
Transaction fees	$ 185.9	$ 182.0	$ 28.3	$ 19.5	$ 11.2	$ 426.9
Liquidity payments	(73.3)	(156.2)	-	(6.3)	-	(235.8)
Routing and clearing	(3.5)	(5.7)	-	-	-	(9.2)
Net transaction fees	$ 109.1	$ 20.1	$ 28.3	$ 13.2	$ 11.2	$ 181.9

For the Three Months Ended June 30, 2018 (in millions)	Options	U.S. Equities	Futures	European Equities	Global FX	Total
Transaction fees	$ 189.0	$ 211.9	$ 26.9	$ 24.2	$ 12.8	$ 464.8
Liquidity payments	(75.7)	(185.9)	-	(9.5)	-	(271.1)
Routing and clearing	(3.8)	(6.0)	-	-	-	(9.8)
Net transaction fees	$ 109.5	$ 20.0	$ 26.9	$ 14.7	$ 12.8	$ 183.9

Non-GAAP Information

(in millions, except per share amounts)	1Q18	2Q18	3Q18	4Q18	2018	1Q19	2Q19
Reconciliation of Net Income Allocated to Common Stocholders to Non-GAAP							
Net income allocated to common stockholders	$ 117.3	$ 82.4	$ 85.0	$ 137.3	$ 422.1	$ 94.6	$ 87.6
Acquisition-related expenses (1)	8.8	8.6	5.9	6.7	30.0	2.3	20.8
Amortization of acquired intangible assets (2)	42.1	39.7	39.4	39.4	160.6	37.6	34.1
Change in contingent consideration	-	-	-	0.1	0.1	-	-
Total Non-GAAP operating expense adjustments	50.9	48.3	45.3	46.2	190.7	39.9	54.9
Interest and other borrowing costs	-	-	-	-	-	-	-
Provision for uncollectable convertible notes receivable	-	-	-	-	-	-	-
Change in redemption value of noncontrolling interest	0.3	0.3	0.3	0.4	1.3	0.2	0.2
Total Non-GAAP adjustments - pretax	51.2	48.6	45.6	46.6	192.0	40.1	55.1
Income tax expense related to the items above	(13.0)	(12.6)	(12.1)	(11.7)	(49.4)	(10.0)	(13.2)
Tax provision re-measurement	-	-	-	(0.4)	(0.4)	-	-
Impairment charges attributed to noncontrolling interest	-	-	-	-	-	-	(3.6)
Net income allocated to participating securities - effect on reconciling items	(0.3)	(0.2)	(0.2)	(0.2)	(0.9)	(0.2)	(0.2)
Adjusted net income allocated to common stockholders	$ 155.2	$ 118.2	$ 118.3	$ 171.6	$ 563.4	$ 124.5	$ 125.7
Reconciliation of Diluted EPS to Non-GAAP							
Diluted earnings per common share	$ 1.04	$ 0.73	$ 0.76	$ 1.23	$ 3.76	$ 0.85	$ 0.78
Per share impact of non-GAAP adjustments noted above	0.34	0.32	0.30	0.31	1.26	0.26	0.35
Adjusted diluted earnings per common share	$ 1.38	$ 1.05	$ 1.06	$ 1.54	$ 5.02	$ 1.11	$ 1.13
Reconciliation of Operating Margin to Non-GAAP							
Revenue less cost of revenue	$ 328.5	$ 283.5	$ 270.5	$ 334.4	$ 1,216.9	$ 280.5	$ 283.2
Non-GAAP adjustments noted above	-	-	-	-	-	-	-
Adjusted revenue less cost of revenue	$ 328.5	$ 283.5	$ 270.5	$ 334.4	$ 1,216.9	$ 280.5	$ 283.2
Operating expenses (3)	$ 160.8	$ 154.4	$ 144.4	$ 158.0	$ 617.5	$ 134.0	$ 158.0
Non-GAAP expense adjustments noted above	(50.9)	(48.3)	(45.3)	(46.2)	(190.7)	(39.9)	54.9
Adjusted operating expenses	$ 109.9	$ 106.1	$ 99.1	$ 111.8	$ 426.8	$ 94.1	$ 103.1
Operating income	$ 167.7	$ 129.1	$ 126.1	$ 176.4	$ 599.4	$ 146.5	$ 125.2
Non-GAAP expense adjustments noted above	50.9	48.3	45.3	46.2	190.7	39.9	54.9
Adjusted operating income	$ 218.6	$ 177.4	$ 171.4	$ 222.6	$ 790.1	$ 186.4	$ 180.1
Adjusted operating margin (4)	66.5%	62.6%	63.4%	66.6%	64.9%	66.5%	63.6%
Reconciliation of Income Tax Rate to Non-GAAP							
Income before income taxes	$ 159.4	$ 119.8	$ 116.3	$ 175.6	$ 571.2	$ 127.8	$ 119.6
Non-GAAP adjustments noted above	51.2	48.6	45.6	46.6	192.0	40.1	55.1
Adjusted income before income taxes	$ 210.6	$ 168.4	$ 161.9	$ 222.2	$ 763.2	$ 167.9	$ 174.7
Income tax (benefit) expense	$ 41.3	$ 36.8	$ 30.6	$ 37.3	$ 146.0	$ 32.6	$ 35.1
Non-GAAP adjustments noted above	13.0	12.6	12.1	11.7	49.4	10.0	13.2
Adjusted income tax (benefit) expense	$ 54.3	$ 49.4	$ 42.7	$ 49.0	$ 195.4	$ 42.6	$ 48.3
Adjusted income tax rate	25.8%	29.4%	26.4%	22.1%	25.6%	25.4%	27.7%

(1) This amount includes professional fees and outside services, severance, facilities expenses, impairment charges and other costs related to the company's acquisitions.
(2) This amount represents the amortization of acquired intangible assets related to the company's acquisitions.
(3) The company sponsors deferred compensation plans held in a rabbi trust. The expenses related to the deferred compensation plans are included in "Compensation and benefits" ($3.7 million in expense in the three and six months ended June 30, 2019), and are directly offset by deferred compensation income, expenses and dividends included within "Other income (expense)" ($3.7 million in income, expense and dividends in the three and six months ended June 30, 2019), on the consolidated statements of income. The deferred compensation plans' expenses are not adjusted out of "adjusted operating expenses" and do not have an impact on "Income before income taxes."
(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.

Reconciliation of Net Income Allocated to Common Stockholders to EBITDA and Ajdusted EBITDA

(in millions, except per share amounts)	1Q18	2Q18	3Q18	4Q18	2018	1Q19	2Q19
Net income allocated to common stockholders	$ 117.3	$ 82.4	$ 85.0	$ 137.3	$ 422.1	$ 94.6	$ 87.6
Interest expense	9.6	9.3	9.6	9.7	38.2	9.9	10.0
Income tax provision	41.3	36.8	30.6	37.3	146.0	32.6	35.1
Depreciation and amortization	54.2	50.4	50.3	49.1	204.0	47.2	43.7
EBITDA	$ 222.4	$ 178.9	$ 175.5	$ 233.4	$ 810.3	$ 184.3	$ 176.4
EBITDA Margin[1]	67.7%	63.1%	64.9%	69.8%	66.6%	65.7%	62.3%
Non-GAAP adjustments not included in above line items							
Acquisition-related expenses	8.8	8.6	5.9	6.7	30.0	2.3	20.8
Impairment charges attributed to noncontrolling interest	-	-	-	-	-	-	(3.6)
Other	-	-	-	0.1	0.1	-	-
Adjusted EBITDA	$ 231.2	$ 187.5	$ 181.4	$ 240.2	$ 840.4	$ 186.6	$ 193.6
Adjusted EBITDA Margin[1]	70.4%	66.1%	67.1%	71.8%	69.1%	66.5%	68.4%

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

Non-GAAP Information

Adjusted Debt to EBITDA - Trailing Twelve Months[1]

(in millions)	3Q18	4Q18	1Q19	2Q19	LTM
Net income allocated to common stockholders	$ 85.0	$ 137.3	$ 94.6	$ 87.6	$ 404.5
Interest expense, net	9.6	9.7	9.9	10.0	39.2
Income tax provision	30.6	37.3	32.6	35.1	135.6
Depreciation and amortization	50.3	49.1	47.2	43.7	190.3
EBITDA	$ 175.5	$ 233.4	$ 184.3	$ 176.4	$ 769.6
Non-GAAP adjustments not included in above line items:					
Acquisition-related expenses	5.9	6.7	2.3	20.8	35.7
Impairment charges attributed to noncontrolling interest	-	-	-	(3.6)	(3.6)
Other	-	0.1	-	-	0.1
Adjusted EBITDA	$ 181.4	$ 240.2	$ 186.6	$ 193.6	$ 801.8
Debt at end of period					$ 925.0
Debt to EBITDA					**1.2x**

[1]A full reconciliation of our non-GAAP 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 deferred compensation plan assets and 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.

Adjusted Cash (in millions)	As of 3/31/18	As of 6/30/18	As of 9/30/18	As of 12/31/18	As of 3/31/19	As of 6/30/19
Cash and cash equivalents	$ 166.3	$ 140.0	$ 88.5	$ 275.1	$ 346.2	$ 161.3
Financial investments	64.0	131.8	49.2	35.7	30.2	82.9
Less deferred compensation plan assets	-	-	-	-	-	(20.3)
Less cash collected for Section 31 fees	(64.0)	(155.8)	-	(53.1)	(28.6)	(88.0)
Adjusted Cash	$ 166.3	$ 116.0	$ 137.7	$ 257.7	$ 347.8	$ 135.9

Cboe Global Markets
400 South LaSalle Street
Chicago, IL 60605
www.cboe.com