

Cboe Global Markets Reports Record Results for First Quarter 2020

First Quarter 2020 Highlights*

- Diluted EPS for the Quarter of \$1.42, Up 67 Percent
- Record Adjusted Diluted EPS¹ for the Quarter of \$1.65, Up 48 Percent
- Record Net Revenue for the Quarter of \$358.3 Million, Up 28 Percent
- Set New Quarterly Highs for Total Options and FX Volume
- EBITDA Margin¹ for the Quarter of 73.9 Percent, Up 820 bps
- Adjusted EBITDA Margin¹ for the Quarter of 74.2 Percent, Up 770 bps
- Returned \$160 Million to Shareholders Through Share Repurchases and Dividends

CHICAGO, IL – May 1, 2020 - Cboe Global Markets, Inc. (Cboe: CBOE) today reported financial results for the first quarter of 2020.

“The first quarter 2020 was defined by tremendous market uncertainty fueled by the COVID-19 pandemic. We took swift action to protect the health of our associates and trading floor community, while maintaining orderly markets to serve our customers and the investing public. As we’ve seen in the past, market participants leveraged the utility of our proprietary products, which neared record trading levels for the quarter, to navigate the market turbulence,” said Edward T. Tilly, Cboe Global Markets Chairman, President and Chief Executive Officer.

“As we know, volumes ebb and flow as uncertainty plays out. When markets are less active, we will leverage our customized educational and trading resources to help customers reposition for new permutations of uncertainty likely to result from the re-opening of the economy. Nobody can say with certainty how this situation will evolve. As the path to recovery is unlikely to be linear, we expect investors to continue to deploy - and redeploy - our unique product set to represent their views and meet their hedging needs as the crisis evolves. Above all, I am extremely proud of the way the Cboe team successfully responded to the rapidly changing and adverse market conditions brought about by the crisis, while continuing to advance our strategic growth initiatives. As a result, we are well positioned to continue to successfully navigate this period of market turbulence, and to maintain our focus on delivering increased value to our customers and our shareholders in 2020 and beyond,” Mr. Tilly added.

“During the quarter, increased trading activity across our asset classes led to record net revenues. Additionally, our continued focus on expense discipline and operational efficiencies resulted in record earnings and an adjusted EBITDA margin in excess of 74 percent for the quarter,” said Brian N. Schell, Cboe Global Markets Executive Vice President, Chief Financial Officer and Treasurer. “During the quarter, we also maintained our ongoing commitment to returning capital to shareholders in a disciplined and consistent manner with \$120 million of share repurchases and \$40 million of dividends,” Mr. Schell added.

**All comparisons are first quarter 2020 compared to the same period in 2019.*

⁽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.

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Consolidated First 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 March 31, 2020 and 2019.

Table 1						
Consolidated First Quarter Results (\$ in millions except per share)	1Q20	1Q19	Change	1Q20 Adjusted¹	1Q19 Adjusted¹	Change
Total Revenues Less Cost of Revenues	\$ 358.3	\$ 280.5	28 %	\$ 358.3	\$ 280.5	28 %
Total Operating Expenses	\$ 131.9	\$ 134.0	(2)%	\$ 98.6	\$ 94.1	5 %
Operating Income	\$ 226.4	\$ 146.5	55 %	\$ 259.7	\$ 186.4	39 %
Operating Margin %	63.2 %	52.2 %	11.0 pp	72.5 %	66.5 %	6.0 pp
Net Income Allocated to Common Stockholders	\$ 157.0	\$ 94.6	66 %	\$ 182.3	\$ 124.5	46 %
Diluted EPS	\$ 1.42	\$ 0.85	67 %	\$ 1.65	\$ 1.11	48 %
EBITDA ¹	\$ 264.9	\$ 184.3	44 %	\$ 265.7	\$ 186.6	42 %
EBITDA Margin % ¹	73.9 %	65.7 %	8.2 pp	74.2 %	66.5 %	7.7 pp

- Total revenues less cost of revenues (referred to as “net revenue”) of \$358.3 million increased 28 percent compared to \$280.5 million in the prior-year period, reflecting higher trading volumes across each business segment, particularly in options and futures, which include our proprietary index products, SPX options and VIX options and futures.
- Total operating expenses were \$131.9 million versus \$134.0 million in the first quarter of 2019. Adjusted operating expenses¹ of \$98.6 million increased 5 percent compared with \$94.1 million in the first quarter of 2019. The increase was primarily due to higher compensation and benefits expense, reflecting an increase in incentive-based compensation, which is aligned with the company’s financial and operational performance.
- Operating income increased 55 percent to \$226.4 million and adjusted operating income¹ increased by 39 percent to \$259.7 million as a result of higher net revenue and lower operating expenses.
- The operating margin for the first quarter was 63.2 percent compared to 52.2 percent in the first quarter of 2019. The adjusted operating margin¹ for the first quarter was 72.5 percent, up 600 basis points from 2019’s first quarter, reflecting increased operating leverage from higher net revenue.
- The effective tax rate for the first quarter of 2020 was 27.6 percent compared with 25.5 percent in the first quarter of 2019. The effective tax rate on adjusted earnings¹ in the first quarter of 2020 was 27.0 percent compared with 25.4 percent in last year’s first quarter. The lower effective tax rate for the first quarter of 2019 was primarily due to excess tax benefits related to equity awards.
- Diluted EPS for the first quarter of 2020 was \$1.42, up 67 percent. Adjusted diluted EPS¹ of \$1.65 increased 48 percent compared to 2019’s first-quarter results and set a new all-time high.

Business Segment Information:

Table 2			
Total Revenues Less Cost of Revenues by Business Segment (in millions)	1Q20	1Q19	Change
Options	\$ 188.5	\$ 138.5	36 %
U.S. Equities	86.6	75.8	14 %
Futures	40.1	29.5	36 %
European Equities	26.2	22.8	15 %
Global FX	16.9	13.9	22 %
Total	\$ 358.3	\$ 280.5	28 %

⁽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.

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Discussion of Results by Business Segment:

Options:

- Options net revenue of \$188.5 million was up \$50.0 million or 36 percent from the first quarter of 2019, primarily due to higher revenue from net transaction fees¹ and market data, offset somewhat by an increase in royalty fees.
- Net transaction fees¹ increased \$51.7 million, as total options average daily volume (ADV) increased 51 percent, setting a new quarterly trading record, offset by a 3 percent decline in revenue per contract (RPC) compared to the first quarter 2019. The decrease in total options RPC was mainly due to multi-listed options representing a higher percentage of options volume. The RPC for multi-listed options decreased 21 percent, primarily due to a mix shift and higher volume rebates versus the first quarter of 2019. The RPC for index options increased 7 percent, reflecting a shift in the mix by order execution and type, as well as fee changes implemented during the quarter.
- Cboe's Options business had market share of 38.3 percent for the first quarter of 2020 compared to 36.8 percent in the first quarter of 2019.

U.S. Equities:

- U.S. Equities net revenue of \$86.6 million was up \$10.8 million or 14 percent, primarily due to higher revenue from net transaction fees¹, as well as higher revenue from non-transaction fees.
- Cboe U.S. Equities had market share of 16.7 percent for the first quarter of 2020 compared to 16.0 percent in the first quarter of 2019. The increase is due in part to a migration of volume traded on-exchange, which is typical during periods of heightened volatility.

Futures:

- Futures net revenue of \$40.1 million increased \$10.6 million or 36 percent, primarily due to growth in net transaction fees¹.
- Net transaction fees¹ increased \$11.3 million or 46 percent, reflecting a 43 percent increase in ADV and a 1 percent increase in RPC.

European Equities:

- European Equities net revenue of \$26.2 million increased by 15 percent, reflecting increases in net transaction fees¹ and non-transaction revenue. In local currency, net revenue was up 17 percent. Average daily notional value (ADNV) for the overall market was up 24 percent during the quarter and ADNV traded for Cboe Europe was €9.1 billion, down 1 percent from last year's first quarter, with net capture up 16 percent.
- For the first quarter of 2020, Cboe European Equities had 17.7 percent market share, down from 22.1 percent in the first quarter of 2019, primarily as a result of significant market profile shifts due to the highly volatile market conditions during the quarter, which saw some market participants recalibrate their models or retrench from the market, which impacted order flow to Cboe.

Global FX:

- Global FX net revenue of \$16.9 million increased \$3.0 million or 22 percent, primarily due to higher net transaction fees¹ compared with the first quarter of 2019. ADNV traded on the Cboe FX platform was \$43.3 billion for the quarter, up 19 percent from last year's first quarter, and net capture increased 3 percent, with net capture per one million dollars traded of \$2.69 for first quarter 2020 compared to \$2.61 in the first quarter 2019.
- Cboe FX had market share of 15.7 percent for the first quarter of 2020 compared to 15.8 percent in last year's first quarter.

⁽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.

2020 Fiscal Year Financial Guidance

The company updated or reaffirmed its guidance for the 2020 fiscal year as noted below. This guidance does not take into account the company's planned acquisition of EuroCCP, which is subject to satisfaction or waiver of conditions precedent, and its investment in launching pan-European derivatives trading and clearing, which is subject to regulatory approval. The company plans to update its guidance for 2020 after the acquisition closes, which is currently expected in the second quarter of this year.

- Adjusted operating expenses are now expected to be in the range of \$419 to \$427 million, down \$16 million from the previous guidance of \$435 to \$443 million, primarily reflecting near-term cost reductions due to the COVID-19 pandemic. The guidance excludes the expected amortization of acquired intangible assets of \$120 million, which the company plans to include in its non-GAAP reconciliation.¹
- Reaffirmed that depreciation and amortization expense, which is included in adjusted operating expenses above, is expected to be in the range of \$34 to \$38 million, excluding the expected amortization of acquired intangible assets of \$120 million.
- Reaffirmed that the effective tax rate¹ on adjusted earnings for the full year is expected to be in the range of 26.5 to 28.5 percent. Significant changes in trading volume, expenses, federal, state and local tax laws or rates and other items could materially impact this expectation.
- Reaffirmed that capital expenditures are expected to be in the range of \$65 to \$70 million, which includes expenditures associated with the company's Chicago headquarters relocation occurring later this year and its trading floor relocation planned for 2021.

⁽¹⁾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 \$40.0 million, or \$0.36 per share, during the first quarter of 2020 and utilized \$119.5 million to repurchase 1.1 million shares of its common stock under its share repurchase program at an average price of \$112.46 per share. As of March 31, 2020, the company had approximately \$179.7 million of availability remaining under its existing share repurchase authorizations.

At March 31, 2020, the company had adjusted cash² of \$137.3 million. Total debt as of March 31, 2020 was \$868.1 million.

⁽²⁾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.

Earnings Conference Call

Executives of Cboe Global Markets will host a conference call to review its first-quarter financial results today, May 1, 2020, 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, May 1, 2020, through 11:00 p.m. CT, May 8, 2020, by calling (877) 344-7529 from the U.S., (855) 669-9658 from Canada or (412) 317-0088 for international callers, using replay code 10140092.

About Cboe Global Markets

Cboe Global Markets (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 defining markets to benefit its participants and drive the global marketplace forward through product innovation, leading edge technology and seamless trading solutions.

The company 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 volatility products based on the Cboe Volatility Index (VIX Index), recognized as the world's premier gauge of U.S. equity market volatility.

Cboe's subsidiaries include the largest options exchange and the third largest stock exchange operator in the U.S. In addition, the company operates one of the largest stock exchanges by value traded in Europe and is a leading market globally for ETP listings and trading.

The company is headquartered in Chicago with a network of domestic and global offices across the Americas, Europe and Asia, including main hubs in New York, London, Kansas City and Amsterdam. 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 impact of the novel coronavirus (“COVID-19”) pandemic, including changes to trading behavior broadly in the market as well as due to the temporary suspension of open outcry trading in response to COVID-19; 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; 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; 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, long-lived assets, 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, 2019 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.

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

	1Q 2020	4Q 2019	3Q 2019	2Q 2019	1Q 2019
Options (ADV in thousands)					
Total industry ADV	28,014	19,492	19,790	19,274	19,193
Total company Options ADV	10,731	7,297	7,720	7,261	7,063
Multi-listed options	8,069	5,552	5,715	5,329	5,215
Index options	2,663	1,745	2,005	1,932	1,848
Total Options Market Share	38.3 %	37.4 %	39.0 %	37.7 %	36.8 %
Total Options RPC:	\$ 0.234	\$ 0.225	\$ 0.236	\$ 0.238	\$ 0.240
Multi-listed options	\$ 0.053	\$ 0.055	\$ 0.056	\$ 0.058	\$ 0.067
Index options	\$ 0.781	\$ 0.766	\$ 0.751	\$ 0.736	\$ 0.730
U.S. Equities					
Total industry ADV (shares in billions)	11.0	6.8	6.9	6.9	7.5
Market share %	16.7 %	16.4 %	17.2 %	15.7 %	16.0 %
Net capture (per 100 touched shares)	\$ 0.026	\$ 0.023	\$ 0.020	\$ 0.028	\$ 0.029
Futures					
ADV (in thousands)	331	228	279	257	231
RPC	\$ 1.750	\$ 1.794	\$ 1.746	\$ 1.748	\$ 1.739
European Equities					
Total industry ADVN (Euros - in billions)	€ 51.5	€ 35.1	€ 34.2	€ 40.8	€ 41.7
Market share %	17.7 %	18.4 %	19.8 %	20.3 %	22.1 %
Net capture (bps)	0.244	0.248	0.233	0.224	0.210
Global FX					
Market share %	15.7 %	16.0 %	14.1 %	15.2 %	15.8 %
ADNV (\$ in billions)	\$ 43.3	\$ 30.1	\$ 30.3	\$ 32.5	\$ 36.5
Net capture (per one million dollars traded)	\$ 2.69	\$ 2.80	\$ 2.80	\$ 2.65	\$ 2.61

ADV = average daily volume; ADNV = 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 ADNV 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 ADNV traded on the Cboe FX market, the number of trading days, and two, which represents the buyer and seller that are both charged on the transaction. 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.

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Cboe Global Markets, Inc. and Subsidiaries
Condensed Consolidated Statements of Income (Unaudited)
Three Months Ended March 31, 2020 and 2019

(in millions, except per share amounts)	Three Months Ended March 31,	
	2020	2019
Revenue:		
Transaction fees	\$ 661.5	\$ 430.4
Access and capacity fees	57.7	54.4
Market data fees	56.2	51.6
Regulatory fees	136.8	58.7
Other revenue	9.3	7.5
Total Revenues	921.5	602.6
Cost of Revenues:		
Liquidity payments	392.4	243.7
Routing and clearing	16.0	9.2
Section 31 fees	127.4	48.2
Royalty fees	27.4	21.0
Total Cost of Revenues	563.2	322.1
Revenues Less Cost of Revenues	358.3	280.5
Operating Expenses:		
Compensation and benefits	53.3	48.1
Depreciation and amortization	40.5	47.2
Technology support services	11.9	11.9
Professional fees and outside services	14.9	16.2
Travel and promotional expenses	2.1	2.6
Facilities costs	4.1	2.1
Acquisition-related costs	0.8	2.3
Other expenses	4.3	3.6
Total Operating Expenses	131.9	134.0
Operating Income	226.4	146.5
Non-operating Expense:		
Interest expense, net	(7.3)	(9.9)
Other expense, net	(1.6)	(8.8)
Total Non-operating Expense	(8.9)	(18.7)
Income Before Income Tax Provision	217.5	127.8
Income tax provision	60.1	32.6
Net Income	157.4	95.2
Net loss attributable to redeemable noncontrolling interest	—	0.2
Net Income Excluding Redeemable Noncontrolling Interest	157.4	95.4
Change in redemption value of redeemable noncontrolling interest	—	(0.2)
Net income allocated to participating securities	(0.4)	(0.6)
Net Income Allocated to Common Stockholders	\$ 157.0	\$ 94.6
Net Income Per Share Allocated to Common Stockholders:		
Basic earnings per share	\$ 1.42	\$ 0.85
Diluted earnings per share	1.42	0.85
Weighted average shares used in computing income per share:		
Basic	110.4	111.5
Diluted	110.6	111.7

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Cboe Global Markets, Inc. and Subsidiaries
Condensed Consolidated Balance Sheets (Unaudited)
March 31, 2020 and December 31, 2019

(in millions)	March 31, 2020	December 31, 2019
Assets		
Current Assets:		
Cash and cash equivalents	\$ 165.2	\$ 229.3
Financial investments	43.6	71.0
Accounts receivable, net	396.5	234.7
Income taxes receivable	11.5	56.8
Other current assets	15.3	15.8
Total Current Assets	632.1	607.6
Investments	62.3	61.2
Property and equipment, net	70.7	47.0
Property held for sale	21.1	21.1
Operating lease right of use assets	114.0	53.4
Goodwill	2,725.4	2,682.1
Intangible assets, net	1,555.5	1,589.9
Other assets, net	56.4	51.6
Total Assets	\$ 5,237.5	\$ 5,113.9
Liabilities and Stockholders' Equity		
Current Liabilities:		
Accounts payable and accrued liabilities	\$ 208.1	\$ 171.9
Section 31 fees payable	129.1	99.0
Deferred revenue	17.2	4.5
Income taxes payable	2.9	4.0
Current portion of contingent consideration liability	0.8	2.2
Total Current Liabilities	358.1	281.6
Long-term debt	868.1	867.6
Unrecognized tax benefits	142.1	135.9
Deferred income taxes	392.2	399.7
Non-current operating lease liabilities	128.3	46.7
Contingent consideration liabilities	16.7	—
Other non-current liabilities	21.9	26.8
Total Liabilities	1,927.4	1,758.3
Stockholders' Equity:		
Preferred stock	—	—
Common stock	1.2	1.2
Treasury stock at cost	(1,020.5)	(887.1)
Additional paid-in capital	2,699.7	2,691.3
Retained earnings	1,629.6	1,512.6
Accumulated other comprehensive income, net	0.1	37.6
Total Stockholders' Equity	3,310.1	3,355.6
Total Liabilities and Stockholders' Equity	\$ 5,237.5	\$ 5,113.9

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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, 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.

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 4

(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 March 31,	
	2020	2019
Net income allocated to common stockholders	\$ 157.0	\$ 94.6
Non-GAAP adjustments		
Acquisition-related expenses (1)	0.8	2.3
Amortization of acquired intangible assets (2)	32.5	37.6
Change in redemption value of noncontrolling interest	—	0.2
Total Non-GAAP adjustments	33.3	40.1
Income tax expense related to the items above	(7.6)	(10.0)
Net income allocated to participating securities - effect on reconciling items	(0.4)	(0.2)
Adjusted net income allocated to common stockholders	\$ 182.3	\$ 124.5

Reconciliation of Diluted EPS to Non-GAAP

Diluted earnings per common share	\$ 1.42	\$ 0.85
Per share impact of non-GAAP adjustments noted above	0.23	0.26
Adjusted diluted earnings per common share	\$ 1.65	\$ 1.11

Reconciliation of Operating Margin to Non-GAAP

Revenue less cost of revenue	\$ 358.3	\$ 280.5
Non-GAAP adjustments noted above	—	—
Adjusted revenue less cost of revenue	\$ 358.3	\$ 280.5
Operating expenses (3)	\$ 131.9	\$ 134.0
Non-GAAP adjustments noted above	33.3	39.9
Adjusted operating expenses	\$ 98.6	\$ 94.1
Operating income	\$ 226.4	\$ 146.5
Non-GAAP adjustments noted above	33.3	39.9
Adjusted operating income	\$ 259.7	\$ 186.4
Adjusted operating margin (4)	72.5 %	66.5 %

Reconciliation of Income Tax Rate to Non-GAAP

Income before income taxes	217.5	127.8
Non-GAAP adjustments noted above	33.3	40.1
Adjusted income before income taxes	\$ 250.8	\$ 167.9
Income tax expense	60.1	32.6
Non-GAAP adjustments noted above	7.6	10.0
Adjusted income tax expense	\$ 67.7	\$ 42.6
Adjusted income tax rate	27.0 %	25.4 %

(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 or income related to the deferred compensation plans are included in "Compensation and benefits" (a contra-expense of \$2.1 million in the three months ended March 31, 2020), and are directly offset by deferred compensation income, expenses and dividends included within "Other income (expense)" (\$2.1 million in income, expense and dividends in the three months ended March 31, 2020), 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.

- More -

EBITDA Reconciliations

EBITDA (earnings before interest, income taxes, depreciation and amortization) and Adjusted EBITDA are widely used non-GAAP financial measures 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. Adjusted EBITDA is calculated by adding back to EBITDA acquisition-related expenses. EBITDA and Adjusted 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 and Adjusted EBITDA may not be calculated identically by all companies, the presentation here may not be comparable to other similarly titled measures of other companies. Adjusted EBITDA margin represents Adjusted EBITDA divided by net revenue.

Table 5

(in millions)

Reconciliation of Net Income Allocated to Common Stockholders to EBITDA and Adjusted EBITDA (Per Table 1)

Net income allocated to common stockholders

Interest expense, net
Income tax provision
Depreciation and amortization

EBITDA

EBITDA Margin

Non-GAAP adjustments not included in above line items

Acquisition-related expenses

Adjusted EBITDA

Adjusted EBITDA Margin

		Three Months Ended March 31,	
		2020	2019
	\$	157.0	\$ 94.6
		7.3	9.9
		60.1	32.6
		40.5	47.2
	\$	<u>264.9</u>	<u>\$ 184.3</u>
		73.9 %	65.7 %
		0.8	2.3
	\$	<u>265.7</u>	<u>\$ 186.6</u>
		74.2 %	66.5 %

Table 6

(in millions)

Reconciliation of Cash and cash equivalents to Adjusted Cash

Cash and cash equivalents
Financial investments
Less deferred compensation plan assets
Less cash collected for Section 31 Fees

Adjusted Cash

		March 31, 2020	December 31, 2019
	\$	165.2	\$ 229.3
		43.6	71.0
		(18.4)	(23.4)
		(53.1)	(69.0)
	\$	<u>137.3</u>	<u>\$ 207.9</u>

Table 7

(in millions)

Reconciliation of Net Transaction Fees - Three Months Ended March 31, 2020 and 2019

	Consolidated		Options Segment		U.S. Equities Segment		Futures Segment		European Equities Segment		Global FX Segment	
	Three Months Ended		Three Months Ended		Three Months Ended		Three Months Ended		Three Months Ended		Three Months Ended	
	March 31,		March 31,		March 31,		March 31,		March 31,		March 31,	
	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019
Transaction fees	\$ 661.5	\$ 430.4	\$ 284.2	\$ 173.8	\$ 304.0	\$ 198.9	\$ 35.9	\$ 24.6	\$ 22.3	\$ 21.1	\$ 15.1	\$ 12.0
Liquidity payments	(392.4)	(243.7)	(124.3)	(65.5)	(261.4)	(170.7)	—	—	(6.7)	(7.5)	—	—
Routing and clearing	(16.0)	(9.2)	(4.5)	(3.5)	(11.5)	(5.7)	—	—	—	—	—	—
Net transaction fees	<u>\$ 253.1</u>	<u>\$ 177.5</u>	<u>\$ 155.4</u>	<u>\$ 104.8</u>	<u>\$ 31.1</u>	<u>\$ 22.5</u>	<u>\$ 35.9</u>	<u>\$ 24.6</u>	<u>\$ 15.6</u>	<u>\$ 13.6</u>	<u>\$ 15.1</u>	<u>\$ 12.0</u>