

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

FORM 10-Q

(Mark One)

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

For the quarterly period ended June 30, 2021

- OR -

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

For the transition period from _____ to _____
Commission file number 001-31553

CME GROUP INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

20 South Wacker Drive
(Address of principal executive offices)

Chicago Illinois

36-4459170
(I.R.S. Employer
Identification No.)

60606
(Zip Code)

(312) 930-1000

(Registrant's telephone number, including area code)

Not Applicable

(Former name, former address and former fiscal year, if changed since last report)

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

<u>Title of each class</u>	<u>Trading symbol</u>	<u>Name of each exchange on which registered</u>
Class A Common Stock	CME	The Nasdaq Stock Market

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

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

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes No

The number of shares outstanding of each of the registrant's classes of common stock as of July 14, 2021 was as follows: 359,135,132 shares of Class A common stock, \$0.01 par value; 625 shares of Class B-1 common stock, \$0.01 par value; 813 shares of Class B-2 common stock, \$0.01 par value; 1,287 shares of Class B-3 common stock, \$0.01 par value; and 413 shares of Class B-4 common stock, \$0.01 par value.

CME GROUP INC.
FORM 10-Q
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PART I. FINANCIAL INFORMATION

Certain Terms

All references to “options” or “options contracts” in the text of this document refer to options on futures contracts.

Further information about CME Group and its products can be found at <http://www.cmegroup.com>. Information made available on our website does not constitute a part of this Quarterly Report on Form 10-Q.

Information about Contract Volume and Average Rate per Contract

All amounts regarding contract volume and average rate per contract are for CME Group's listed futures and options on futures contracts unless otherwise noted.

Trademark Information

CME Group, the Globe logo, CME, Chicago Mercantile Exchange, Globex, and E-mini are trademarks of Chicago Mercantile Exchange Inc. CBOT and Chicago Board of Trade are trademarks of Board of Trade of the City of Chicago, Inc. NYMEX, New York Mercantile Exchange and ClearPort are trademarks of New York Mercantile Exchange, Inc. COMEX is a trademark of Commodity Exchange, Inc. NEX, BrokerTec, EBS, TriOptima, and Traiana are trademarks of various entities of NEX Group Limited (NEX). Dow Jones, Dow Jones Industrial Average, S&P 500 and S&P are service and/or trademarks of Dow Jones Trademark Holdings LLC, Standard & Poor's Financial Services LLC and S&P/Dow Jones Indices LLC, as the case may be, and have been licensed for use by Chicago Mercantile Exchange Inc. All other trademarks are the property of their respective owners.

Forward-Looking Statements

From time to time, in this Quarterly Report on Form 10-Q as well as in other written reports and verbal statements, we discuss our expectations regarding future performance. These forward-looking statements are identified by their use of terms and phrases such as "believe," "anticipate," "could," "estimate," "intend," "may," "plan," "expect" and similar expressions, including references to assumptions. These forward-looking statements are based on currently available competitive, financial and economic data, current expectations, estimates, forecasts and projections about the industries in which we operate and management's beliefs and assumptions. These statements are not guarantees of future performance and involve risks, uncertainties and assumptions that are difficult to predict. Therefore, actual outcomes and results may differ materially from what is expressed or implied in any forward-looking statements. We want to caution you not to place undue reliance on any forward-looking statements. We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise. Among the factors that might affect our performance are:

- increasing competition by foreign and domestic entities, including increased competition from new entrants into our markets and consolidation of existing entities;
- our ability to keep pace with rapid technological developments, including our ability to complete the development, implementation and maintenance of the enhanced functionality required by our customers while maintaining reliability and ensuring that such technology is not vulnerable to security risks;
- our ability to continue introducing competitive new products and services on a timely, cost-effective basis, including through our electronic trading capabilities, and our ability to maintain the competitiveness of our existing products and services, including our ability to provide effective services to the swaps market;
- our ability to adjust our fixed costs and expenses if our revenues decline;
- our ability to maintain existing customers at substantially similar trading levels, develop strategic relationships and attract new customers;
- our ability to expand and globally offer our products and services;
- changes in regulations, including the impact of any changes in laws or government policies with respect to our products or services or our industry, such as any changes to regulations and policies that require increased financial and operational resources from us or our customers;
- the costs associated with protecting our intellectual property rights and our ability to operate our business without violating the intellectual property rights of others;
- decreases in revenue from our market data as a result of decreased demand or changes to regulations in various jurisdictions;
- changes in our rate per contract due to shifts in the mix of the products traded, the trading venue and the mix of customers (whether the customer receives member or non-member fees or participates in one of our various incentive programs) and the impact of our tiered pricing structure;

- the ability of our credit and liquidity risk management practices to adequately protect us from the credit risks of clearing members and other counterparties, and to satisfy the margin and liquidity requirements associated with the BrokerTec matched principal business;
- the ability of our compliance and risk management methods to effectively monitor and manage our risks, including our ability to prevent errors and misconduct and protect our infrastructure against security breaches and misappropriation of our intellectual property assets;
- our dependence on third-party providers and exposure to risk through third parties, including risks related to the performance, reliability and security of technology used by our third-party providers;
- volatility in commodity, equity and fixed income prices, and price volatility of financial benchmarks and instruments such as interest rates, credit spreads, equity indices, fixed income instruments and foreign exchange rates;
- economic, social, political and market conditions, including the volatility of the capital and credit markets and the impact of economic conditions on the trading activity of our current and potential customers;
- the impact of the COVID-19 pandemic and response by governments and other third parties;
- our ability to accommodate increases in contract volume and order transaction traffic and to implement enhancements without failure or degradation of the performance of our trading and clearing systems;
- our ability to execute our growth strategy and maintain our growth effectively;
- our ability to manage the risks, control the costs and achieve the synergies associated with our strategy for acquisitions, investments and alliances, including those associated with NEX;
- our ability to continue to generate funds and/or manage our indebtedness to allow us to continue to invest in our business;
- industry and customer consolidation;
- decreases in trading and clearing activity;
- the imposition of a transaction tax or user fee on futures and options transactions and/or repeal of the 60/40 tax treatment of such transactions;
- our ability to maintain our brand and reputation; and
- the unfavorable resolution of material legal proceedings.

For a detailed discussion of these and other factors that might affect our performance, see Item 1A. of our Annual Report on Form 10-K for the year ended December 31, 2020, filed with the Securities and Exchange Commission on February 26, 2021 and Item 1A. in Part II of this Quarterly Report on Form 10-Q.

ITEM 1. FINANCIAL STATEMENTS

CME GROUP INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(dollars in millions, except par value data; shares in thousands)

	June 30, 2021 (unaudited)	December 31, 2020
Assets		
Current Assets:		
Cash and cash equivalents	\$ 1,081.0	\$ 1,633.2
Marketable securities	110.9	100.9
Accounts receivable, net of allowance of \$5.2 and \$5.4	509.6	461.3
Assets held for sale	1,486.2	—
Other current assets (includes \$4.8 and \$4.7 in restricted cash)	361.5	306.7
Performance bonds and guaranty fund contributions	141,299.8	86,781.8
Total current assets	144,849.0	89,283.9
Property, net of accumulated depreciation and amortization of \$980.4 and \$961.2	527.6	579.2
Intangible assets—trading products	17,175.3	17,175.3
Intangible assets—other, net	3,659.3	4,865.3
Goodwill	10,543.0	10,798.8
Other assets (includes \$2.9 and \$0.6 in restricted cash)	1,944.9	1,957.1
Total Assets	\$ 178,699.1	\$ 124,659.6
Liabilities and Equity		
Current Liabilities:		
Accounts payable	\$ 47.2	\$ 69.3
Liabilities held for sale	286.7	—
Other current liabilities	379.1	1,346.8
Performance bonds and guaranty fund contributions	141,299.8	86,781.8
Total current liabilities	142,012.8	88,197.9
Long-term debt	3,444.6	3,443.8
Deferred income tax liabilities, net	5,399.4	5,607.0
Other liabilities	1,054.9	1,059.4
Total Liabilities	151,911.7	98,308.1
Shareholders' Equity:		
Preferred stock, \$0.01 par value, 10,000 shares authorized at June 30, 2021 and December 31, 2020; none issued	—	—
Class A common stock, \$0.01 par value, 1,000,000 shares authorized at June 30, 2021 and December 31, 2020; 358,305 and 358,110 shares issued and outstanding as of June 30, 2021 and December 31, 2020, respectively	3.6	3.6
Class B common stock, \$0.01 par value, 3 shares authorized, issued and outstanding as of June 30, 2021 and December 31, 2020	—	—
Additional paid-in capital	21,219.1	21,185.5
Retained earnings	5,434.5	4,995.9
Accumulated other comprehensive income (loss)	106.0	134.9
Total CME Group Shareholders' Equity	26,763.2	26,319.9
Non-controlling interests	24.2	31.6
Total Equity	26,787.4	26,351.5
Total Liabilities and Equity	\$ 178,699.1	\$ 124,659.6

See accompanying notes to unaudited consolidated financial statements.

CME GROUP INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF INCOME
(dollars in millions, except per share data; shares in thousands)
(unaudited)

	Quarter Ended June 30,		Six Months Ended June 30,	
	2021	2020	2021	2020
Revenues				
Clearing and transaction fees	\$ 929.9	\$ 940.2	\$ 1,936.9	\$ 2,219.0
Market data and information services	145.2	134.7	289.4	266.2
Other	104.1	107.4	206.2	219.2
Total Revenues	<u>1,179.2</u>	<u>1,182.3</u>	<u>2,432.5</u>	<u>2,704.4</u>
Expenses				
Compensation and benefits	211.7	217.0	436.7	424.5
Technology	49.3	49.1	97.5	96.8
Professional fees and outside services	36.8	51.2	74.2	92.9
Amortization of purchased intangibles	59.4	76.6	120.0	153.9
Depreciation and amortization	37.1	36.7	74.7	72.0
Licensing and other fee agreements	54.2	55.4	118.9	129.3
Other	56.0	58.8	110.7	137.6
Total Expenses	<u>504.5</u>	<u>544.8</u>	<u>1,032.7</u>	<u>1,107.0</u>
Operating Income	<u>674.7</u>	<u>637.5</u>	<u>1,399.8</u>	<u>1,597.4</u>
Non-Operating Income (Expense)				
Investment income	62.4	32.1	93.3	128.0
Interest and other borrowing costs	(41.7)	(41.9)	(83.2)	(82.8)
Equity in net earnings of unconsolidated subsidiaries	55.7	48.8	111.9	100.0
Other non-operating income (expense)	(25.0)	(15.2)	(43.4)	(92.0)
Total Non-Operating Income (Expense)	<u>51.4</u>	<u>23.8</u>	<u>78.6</u>	<u>53.2</u>
Income before Income Taxes	<u>726.1</u>	<u>661.3</u>	<u>1,478.4</u>	<u>1,650.6</u>
Income tax provision	215.5	158.0	393.0	380.5
Net Income	<u>510.6</u>	<u>503.3</u>	<u>1,085.4</u>	<u>1,270.1</u>
Less: net (income) loss attributable to non-controlling interests	(0.3)	—	(0.7)	(0.6)
Net Income Attributable to CME Group	<u>\$ 510.3</u>	<u>\$ 503.3</u>	<u>\$ 1,084.7</u>	<u>\$ 1,269.5</u>
Earnings per Common Share Attributable to CME Group:				
Basic	\$ 1.42	\$ 1.41	\$ 3.03	\$ 3.55
Diluted	1.42	1.40	3.02	3.54
Weighted Average Number of Common Shares:				
Basic	358,261	357,691	358,204	357,607
Diluted	358,888	358,457	358,853	358,453

See accompanying notes to unaudited consolidated financial statements.

CME GROUP INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(in millions)
(unaudited)

	Quarter Ended June 30,		Six Months Ended June 30,	
	2021	2020	2021	2020
Net income	\$ 510.6	\$ 503.3	\$ 1,085.4	\$ 1,270.1
Other comprehensive income (loss), net of tax:				
Investment securities:				
Net unrealized holding gains (losses) arising during the period	0.4	1.4	(0.7)	0.8
Income tax benefit (expense)	(0.1)	(0.4)	0.2	(0.2)
Investment securities, net	0.3	1.0	(0.5)	0.6
Defined benefit plans:				
Net change in defined benefit plans arising during the period	—	—	—	(2.0)
Amortization of net actuarial (gains) losses included in compensation and benefits expense	1.1	1.1	2.2	2.3
Income tax benefit (expense)	(0.3)	(0.3)	(0.6)	(0.1)
Defined benefit plans, net	0.8	0.8	1.6	0.2
Derivative investments:				
Reclassification of net unrealized (gains) losses to interest expense and other non-operating income (expense)	(0.3)	(0.3)	(0.6)	(2.1)
Income tax benefit (expense)	0.1	—	0.2	0.4
Derivative investments, net	(0.2)	(0.3)	(0.4)	(1.7)
Foreign currency translation:				
Foreign currency translation adjustments	21.6	11.6	(29.6)	(16.2)
Reclassification of net currency (gains) losses from foreign entities to other expenses	—	—	—	0.6
Foreign currency translation, net	21.6	11.6	(29.6)	(15.6)
Other comprehensive income (loss), net of tax	22.5	13.1	(28.9)	(16.5)
Comprehensive income	533.1	516.4	1,056.5	1,253.6
Less: comprehensive (income) loss attributable to non-controlling interests	(0.3)	—	(0.7)	(0.6)
Comprehensive income attributable to CME Group	<u>\$ 532.8</u>	<u>\$ 516.4</u>	<u>\$ 1,055.8</u>	<u>\$ 1,253.0</u>

See accompanying notes to unaudited consolidated financial statements.

CME GROUP INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF EQUITY
(dollars in millions, except per share data; shares in thousands)
(unaudited)

	Six Months Ended, June 30, 2021							
	Class A Common Stock (Shares)	Class B Common Stock (Shares)	Common Stock and Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total CME Group Shareholders' Equity	Non- controlling Interest	Total Equity
Balance at December 31, 2020	358,110	3	\$ 21,189.1	\$ 4,995.9	\$ 134.9	\$ 26,319.9	\$ 31.6	\$ 26,351.5
Net income				1,084.7		1,084.7	0.7	1,085.4
Other comprehensive income (loss)					(28.9)	(28.9)		(28.9)
Dividends on common stock of \$1.80 per share				(646.1)		(646.1)		(646.1)
Purchase of non-controlling interest			(4.4)			(4.4)	(8.1)	(12.5)
Exercise of stock options	58		3.2			3.2		3.2
Vesting of issued restricted Class A common stock	104		(13.5)			(13.5)		(13.5)
Shares issued to Board of Directors	13		2.9			2.9		2.9
Shares issued under Employee Stock Purchase Plan	20		4.4			4.4		4.4
Stock-based compensation			41.0			41.0		41.0
Balance at June 30, 2021	358,305	3	\$ 21,222.7	\$ 5,434.5	\$ 106.0	\$ 26,763.2	\$ 24.2	\$ 26,787.4

CME GROUP INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF EQUITY (continued)
(dollars in millions, except per share data; shares in thousands)
(unaudited)

	Quarter Ended, June 30, 2021							
	Class A Common Stock (Shares)	Class B Common Stock (Shares)	Common Stock and Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total CME Group Shareholders' Equity	Non- controlling Interest	Total Equity
Balance at March 31, 2021	358,240	3	\$ 21,197.1	\$ 5,247.3	\$ 83.5	\$ 26,527.9	\$ 28.0	\$ 26,555.9
Net income				510.3		510.3	0.3	510.6
Other comprehensive income (loss)					22.5	22.5		22.5
Dividends on common stock of \$0.90 per share				(323.1)		(323.1)		(323.1)
Purchase of non-controlling interest			(2.2)			(2.2)	(4.1)	(6.3)
Exercise of stock options	27		1.5			1.5		1.5
Vesting of issued restricted Class A common stock	5		(0.4)			(0.4)		(0.4)
Shares issued to Board of Directors	13		2.9			2.9		2.9
Shares issued under Employee Stock Purchase Plan	20		4.4			4.4		4.4
Stock-based compensation			19.4			19.4		19.4
Balance at June 30, 2021	358,305	3	\$ 21,222.7	\$ 5,434.5	\$ 106.0	\$ 26,763.2	\$ 24.2	\$ 26,787.4

CME GROUP INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF EQUITY (continued)
(dollars in millions, except per share data; shares in thousands)
(unaudited)

	Six Months Ended, June 30, 2020							
	Class A Common Stock (Shares)	Class B Common Stock (Shares)	Common Stock and Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total CME Group Shareholders' Equity	Non- controlling Interest	Total Equity
Balance at December 31, 2019	357,469	3	\$ 21,116.8	\$ 5,008.7	\$ 3.4	\$ 26,128.9	\$ 30.4	\$ 26,159.3
Net income				1,269.5		1,269.5	0.6	1,270.1
Other comprehensive income (loss)					(16.5)	(16.5)		(16.5)
Dividends on common stock of \$1.70 per share				(609.4)		(609.4)		(609.4)
Impact of adoption of accounting standards updates on credit losses				(0.3)		(0.3)		(0.3)
Exercise of stock options	66		3.8			3.8		3.8
Vesting of issued restricted Class A common stock	158		(19.4)			(19.4)		(19.4)
Shares issued to Board of Directors	17		2.9			2.9		2.9
Shares issued under Employee Stock Purchase Plan	17		2.9			2.9		2.9
Stock-based compensation			45.5			45.5		45.5
Balance at June 30, 2020	357,727	3	\$ 21,152.5	\$ 5,668.5	\$ (13.1)	\$ 26,807.9	\$ 31.0	\$ 26,838.9

CME GROUP INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF EQUITY (continued)
(dollars in millions, except per share data; shares in thousands)
(unaudited)

	Quarter Ended, June 30, 2020							
	Class A Common Stock (Shares)	Class B Common Stock (Shares)	Common Stock and Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total CME Group Shareholders' Equity	Non- controlling Interest	Total Equity
Balance at March 31, 2020	357,677	3	\$ 21,124.0	\$ 5,469.9	\$ (26.2)	\$ 26,567.7	\$ 31.0	\$ 26,598.7
Net income				503.3		503.3	—	503.3
Other comprehensive income (loss)					13.1	13.1		13.1
Dividends on common stock of \$0.85 per share				(304.7)		(304.7)		(304.7)
Exercise of stock options	11		0.6			0.6		0.6
Vesting of issued restricted Class A common stock	5		(0.3)			(0.3)		(0.3)
Shares issued to Board of Directors	17		2.9			2.9		2.9
Shares issued under Employee Stock Purchase Plan	17		2.9			2.9		2.9
Stock-based compensation			22.4			22.4		22.4
Balance at June 30, 2020	<u>357,727</u>	<u>3</u>	<u>\$ 21,152.5</u>	<u>\$ 5,668.5</u>	<u>\$ (13.1)</u>	<u>\$ 26,807.9</u>	<u>\$ 31.0</u>	<u>\$ 26,838.9</u>

See accompanying notes to unaudited consolidated financial statements.

CME GROUP INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in millions)
(unaudited)

	Six Months Ended June 30,	
	2021	2020
Cash Flows from Operating Activities		
Net income	\$ 1,085.4	\$ 1,270.1
Adjustments to reconcile net income to net cash provided by operating activities:		
Stock-based compensation	41.0	45.5
Amortization of purchased intangibles	120.0	153.9
Depreciation and amortization	74.7	72.0
Net losses on impaired assets	—	27.9
Net (gain) on derivative contracts	—	(1.6)
Net realized and unrealized (gains) losses on investments	(20.7)	1.1
Cash dividends in excess of earnings (undistributed net earnings) of unconsolidated subsidiaries	1.9	(10.5)
Deferred income taxes	19.2	(22.1)
Change in:		
Accounts receivable	(132.5)	(42.5)
Other current assets	(22.3)	1.8
Other assets	31.1	27.8
Accounts payable	(21.0)	26.1
Income taxes payable	(83.7)	294.0
Other current liabilities	24.5	(55.9)
Other liabilities	(17.3)	(49.1)
Other	2.2	5.4
Net Cash Provided by Operating Activities	1,102.5	1,743.9
Cash Flows from Investing Activities		
Proceeds from maturities of available-for-sale marketable securities	5.7	7.5
Purchases of available-for-sale marketable securities	(4.9)	(6.7)
Purchases of property, net	(68.2)	(79.2)
Investments in privately-held equity investments	(1.5)	(1.4)
Purchase of non-controlling interest	(12.5)	—
Proceeds from sales of investments	13.4	0.3
Net Cash Used in Investing Activities	(68.0)	(79.5)
Cash Flows from Financing Activities		
Repayment of commercial paper, net	—	(304.6)
Cash dividends	(1,540.0)	(1,501.6)
Employee taxes paid on restricted stock vesting	(13.5)	(19.4)
Other	(0.8)	15.1
Net Cash Used in Financing Activities	(1,554.3)	(1,810.5)

CME GROUP INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS (continued)
(in millions)
(unaudited)

	Six Months Ended June 30,	
	2021	2020
Net change in cash, cash equivalents and restricted cash	\$ (519.8)	\$ (146.1)
Cash, cash equivalents and restricted cash, beginning of period	1,638.5	1,556.6
Cash, Cash Equivalents and Restricted Cash, End of Period	\$ 1,118.7	\$ 1,410.5
Reconciliation of cash, cash equivalents and restricted cash:		
Cash and cash equivalents	\$ 1,081.0	\$ 1,405.4
Cash classified as assets held for sale	30.0	—
Short-term restricted cash	4.8	4.4
Long-term restricted cash	2.9	0.7
Total	\$ 1,118.7	\$ 1,410.5
Supplemental Disclosure of Cash Flow Information		
Income taxes paid	\$ 433.7	\$ 116.6
Interest paid	67.1	67.0
Non-cash investing activities:		
Accrued proceeds from sale of investments	0.7	12.5

See accompanying notes to unaudited consolidated financial statements.

NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS

1. Basis of Presentation

The consolidated financial statements consist of CME Group Inc. (CME Group) and its subsidiaries (collectively, the company), including Chicago Mercantile Exchange Inc. (CME), Board of Trade of the City of Chicago, Inc. (CBOT), New York Mercantile Exchange, Inc. (NYMEX), Commodity Exchange, Inc. (COMEX) and NEX Group Limited (NEX). The clearing house is operated by CME.

The accompanying interim consolidated financial statements have been prepared by CME Group without audit. Certain notes and other information normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States have been condensed or omitted. In the opinion of management, the accompanying consolidated financial statements include all adjustments (consisting only of normal recurring adjustments) considered necessary to present fairly the financial position of the company at June 30, 2021 and December 31, 2020 and the results of operations and cash flows for the periods indicated. Quarterly results are not necessarily indicative of results for any subsequent period.

The accompanying consolidated financial statements should be read in conjunction with the consolidated financial statements and notes thereto in CME Group's Annual Report on Form 10-K for the year ended December 31, 2020, filed with the Securities and Exchange Commission (SEC) on February 26, 2021.

2. Revenue Recognition

The company generates revenue from customers from the following sources:

Clearing and transaction fees. Clearing and transaction fees include electronic trading fees and brokerage commissions, surcharges for privately-negotiated transactions, portfolio reconciliation and compression services, risk mitigation and other volume-related charges for trade contracts. Clearing and transaction fees are assessed upfront at the time of trade execution. As such, the company recognizes the majority of the fee revenue upon successful execution of the trade. The minimal remaining portion of the fee revenue related to settlement activities performed after trade execution is recognized over the short-term period that the contract is outstanding, based on management's estimates of the average contract lifecycle. These estimates are based on various assumptions to approximate the amount of fee revenue to be attributed to services performed through contract settlement, expiration, or termination. For cleared trades, these assumptions include the average number of days that a contract remains in open interest, contract turnover, average revenue per day, and revenue remaining in open interest at the end of each period.

The nature of contracts gives rise to several types of variable consideration, including volume-based pricing tiers, customer incentives associated with market maker programs and other fee discounts. The company includes fee discounts and incentives in the estimated transaction price when there is a basis to reasonably estimate the amount of the fee reduction. These estimates are based on historical experience, anticipated performance, and best judgment at the time. Because of the company's certainty in estimating these amounts, they are included in the transaction price of contracts.

Market data and information services. Market data and information services represent revenue from the dissemination of market data to subscribers, distributors, and other third-party licensees of market data. Pricing for market data is primarily based on the number of reportable devices used as well as the number of subscribers enrolled under the arrangement. Fees for these services are generally billed monthly. Market data services are satisfied over time and revenue is recognized on a monthly basis as the customers receive and consume the benefit of the market data services. However, the company also maintains certain annual license arrangements with one-time upfront fees. The fees for annual licenses are initially recorded as a contract liability and recognized as revenue monthly over the term of the annual period.

Other. Other revenues include certain access and communication fees, fees for collateral management, equity membership subscription fees, and fees for trade order routing through agreements from various strategic relationships. Access and communication fees are charges to customers that utilize various telecommunications networks and communications services. Fees for these services are generally billed monthly and the associated fee revenue is recognized as billed. Collateral management fees are charged to clearing firms that have collateral on deposit with the clearing house to meet their minimum performance bond and guaranty fund obligations on the exchange. These fees are calculated based on daily collateral balances and are billed monthly. This fee revenue is recognized monthly as billed as the customers receive and consume the benefits of the services. The company also has an equity membership program which provides equity members the option to substitute a monthly subscription fee for their existing requirement to hold CME Group Class A common stock. Choosing to pay this fee in lieu of holding Class A shares is entirely voluntary and the client's choice. Fee revenue under this program is earned monthly as billed over the contractual term. Pricing for strategic relationships may be driven by customer levels and activity. There are fee arrangements which provide for monthly as well as quarterly payments in arrears. Revenue is recognized monthly for strategic relationship arrangements as the customers receive and consume the benefits of the services.

The following table represents a disaggregation of revenue from contracts with customers by product line for the quarters ended June 30, 2021 and 2020:

(in millions)	Quarter Ended June 30,		Six Months Ended June 30,	
	2021	2020	2021	2020
Interest rates	\$ 265.5	\$ 221.4	\$ 565.2	\$ 639.7
Equity indexes	172.3	201.3	370.8	449.5
Foreign exchange	39.0	35.9	79.5	84.1
Agricultural commodities	138.0	108.7	258.5	226.4
Energy	141.0	194.0	299.1	415.8
Metals	51.5	49.6	109.8	128.4
Cash markets business	105.7	112.4	220.9	236.8
Interest rate swap	16.9	16.9	33.1	38.3
Total clearing and transaction fees	929.9	940.2	1,936.9	2,219.0
Market data and information services	145.2	134.7	289.4	266.2
Other	104.1	107.4	206.2	219.2
Total revenues	\$ 1,179.2	\$ 1,182.3	\$ 2,432.5	\$ 2,704.4
Timing of Revenue Recognition				
Services transferred at a point in time	\$ 870.1	\$ 881.3	\$ 1,815.4	\$ 2,092.5
Services transferred over time	303.7	298.8	609.8	606.3
One-time charges and miscellaneous revenues	5.4	2.2	7.3	5.6
Total revenues	\$ 1,179.2	\$ 1,182.3	\$ 2,432.5	\$ 2,704.4

The timing of revenue recognition, billings and cash collections results in billed accounts receivable, and customer advances and deposits (contract liabilities) on the consolidated balance sheets. Certain fees for transactions, annual licenses, and other revenue arrangements are billed upfront before revenue is recognized, which results in the recognition of contract liabilities. These liabilities are recognized on the consolidated balance sheets on a contract-by-contract basis upon commencement of services under the customer contract. These upfront customer payments are recognized as revenue over time as the obligations under the contracts are satisfied. Changes in the contract liability balances during the six months ended June 30, 2021 were not materially impacted by any other factors. The balance of contract liabilities was \$36.6 million and \$37.3 million as of June 30, 2021 and December 31, 2020, respectively. There is also \$31.2 million of contract liabilities included in the liabilities held for sale balance at June 30, 2021 in connection with the net assets that will be contributed to a joint venture with IHS Markit.

3. Assets and Liabilities Held for Sale

On January 12, 2021, the company announced that it has agreed with IHS Markit to combine their post-trade services into a new joint venture. The new company will perform trade processing and risk mitigation services. The company will contribute its optimization business, which includes Traiana, TriOptima and Reset, to the new joint venture for an equity interest in the new company. The transaction is expected to close in the third quarter of 2021, subject to customary antitrust and regulatory approvals and other customary closing conditions.

In January 2021, the net assets that will be contributed to the joint venture were classified as held for sale following approval of the transaction by the company's Board of Directors. The reclassification of the assets and liabilities to held for sale did not have an impact on earnings with the exception of amortization expense. Amortization expense is no longer taken on intangible assets once reclassified to assets held for sale.

4. Performance Bonds and Guaranty Fund Contributions

Performance Bonds and Guaranty Fund Contributions. CME has been designated as a systemically important financial market utility by the Financial Stability Oversight Council and is authorized to maintain cash accounts at the Federal Reserve Bank of Chicago. At June 30, 2021, CME maintained \$130.5 billion within the cash account at the Federal Reserve Bank of Chicago. The cash deposit at the Federal Reserve Bank of Chicago is included within performance bonds and guaranty fund contributions on the consolidated balance sheets.

Clearing House Contract Settlement. The clearing house marks-to-market open positions for all futures and options contracts twice a day (once a day for CME's cleared-only interest rate swap contracts). Based on values derived from the mark-to-market

process, the clearing house requires payments from clearing firms whose positions have lost value and makes payments to clearing firms whose positions have gained value. Under the extremely unlikely scenario of simultaneous default by every clearing firm who has open positions with unrealized losses, the maximum exposure related to positions other than cleared-only interest rate swap contracts would be one half day of changes in fair value of all open positions, before considering the clearing house's ability to access defaulting clearing firms' collateral deposits.

For CME's cleared-only interest rate swap contracts, the maximum exposure related to CME's guarantee would be one full day of changes in fair value of all open positions, before considering CME's ability to access defaulting clearing firms' collateral.

During the first six months of 2021, the clearing house transferred an average of approximately \$4.1 billion a day through its clearing systems for settlement from clearing firms whose positions had lost value to clearing firms whose positions had gained value. The clearing house reduces its guarantee exposure through initial and maintenance performance bond requirements and mandatory guaranty fund contributions. Management has assessed the fair value of the company's settlement guarantee liability by taking the following factors into consideration: the design and operations of the clearing risk management process, the financial safeguard packages in place, historical evidence of default by a clearing member and the estimated probability of potential payouts by the clearing house. Based on the assessment performed, management estimates the guarantee liability to be nominal and therefore has not recorded any liability at June 30, 2021. The company does not have a history of significant losses recognized on performance bond collateral as posted by our clearing members, and management currently does not anticipate any future credit losses on its performance bond assets. Accordingly, the company has not provided an allowance for credit losses on these performance bond deposits, nor has it recorded any liabilities to reflect an allowance for credit losses related to our off-balance sheet credit exposures and guarantees.

5. Intangible Assets and Goodwill

In January 2021, the net assets that will be contributed to a joint venture with IHS Markit were classified as held for sale. As a result, \$1.1 billion of amortizable intangible assets were reclassified to assets held for sale on the consolidated balance sheet. Amortization expense is no longer taken on these intangible assets once reclassified to assets held for sale.

Intangible assets consisted of the following at June 30, 2021 and December 31, 2020:

(in millions)	June 30, 2021				December 31, 2020			
	Assigned Value	Reclassified as Held for Sale	Accumulated Amortization	Net Book Value	Assigned Value	Accumulated Amortization	Net Book Value	
Amortizable Intangible Assets:								
Clearing firm, market data and other customer relationships	\$ 5,834.5	\$ (955.3)	\$ (1,740.5)	\$ 3,138.7	\$ 5,858.0	\$ (1,632.5)	\$ 4,225.5	
Technology-related intellectual property	175.9	(85.2)	(72.1)	18.6	178.4	(68.2)	110.2	
Other	107.0	(23.4)	(31.6)	52.0	106.9	(27.3)	79.6	
Total amortizable intangible assets	\$ 6,117.4	\$ (1,063.9)	\$ (1,844.2)	3,209.3	\$ 6,143.3	\$ (1,728.0)	4,415.3	
Indefinite-Lived Intangible Assets:								
Trade names				450.0			450.0	
Total intangible assets – other, net				\$ 3,659.3			\$ 4,865.3	
Trading products ⁽¹⁾				\$ 17,175.3			\$ 17,175.3	

- (1) Trading products represent futures and options products acquired in our business combinations with CBOT Holdings, Inc., NYMEX Holdings, Inc. and The Board of Trade of Kansas City, Missouri, Inc. Clearing and transaction fees are generated through the trading of these products. These trading products, most of which have traded for decades, require authorization from the Commodity Futures Trading Commission (CFTC). Product authorizations from the CFTC have no term limits.

Total amortization expense for intangible assets was \$59.4 million and \$76.6 million for the quarters ended June 30, 2021 and 2020, respectively. Total amortization expense for intangible assets was \$120.0 million and \$153.9 million for the six months ended June 30, 2021 and 2020, respectively.

As of June 30, 2021, the future estimated amortization expense related to amortizable intangible assets is expected to be as follows:

<i>(in millions)</i>	Amortization Expense
Remainder of 2021	\$ 140.1
2022	233.1
2023	231.7
2024	225.1
2025	225.1
2026	225.1
Thereafter	1,929.1

Goodwill activity consisted of the following for the periods ended June 30, 2021 and December 31, 2020:

<i>(in millions)</i>	Balance at December 31, 2020	Reclassified as Held for Sale	Other Activity⁽¹⁾	Balance at June 30, 2021
CBOT Holdings	\$ 5,066.4	\$ —	\$ —	\$ 5,066.4
NYMEX Holdings	2,462.2	—	—	2,462.2
NEX	3,229.8	(246.3)	(9.5)	2,974.0
Other	40.4	—	—	40.4
Total Goodwill	\$ 10,798.8	\$ (246.3)	\$ (9.5)	\$ 10,543.0

<i>(in millions)</i>	Balance at December 31, 2019	Reclassified as Held for Sale	Other Activity⁽¹⁾	Balance at December 31, 2020
CBOT Holdings	\$ 5,066.4	\$ —	\$ —	\$ 5,066.4
NYMEX Holdings	2,462.2	—	—	2,462.2
NEX	3,173.5	—	56.3	3,229.8
Other	40.4	—	—	40.4
Total Goodwill	\$ 10,742.5	\$ —	\$ 56.3	\$ 10,798.8

1) Other activity includes currency translation adjustments.

6. Debt

Long-term debt consisted of the following at June 30, 2021 and December 31, 2020:

<i>(in millions)</i>	June 30, 2021	December 31, 2020
\$750.0 million fixed rate notes due September 2022, stated rate of 3.00% ⁽¹⁾	\$ 749.0	\$ 748.6
€15.0 million fixed rate notes due May 2023, stated rate of 4.30%	17.6	18.1
\$750.0 million fixed rate notes due March 2025, stated rate of 3.00% ⁽²⁾	747.4	747.0
\$500.0 million fixed rate notes due June 2028, stated rate of 3.75%	497.0	496.8
\$750.0 million fixed rate notes due September 2043, stated rate of 5.30% ⁽³⁾	743.2	743.1
\$700.0 million fixed rate notes due June 2048, stated rate of 4.15%	690.4	690.2
Total long-term debt	\$ 3,444.6	\$ 3,443.8

- (1) The company maintained a forward-starting interest rate swap agreement that modified the interest obligation associated with these notes so that the interest payable on the notes effectively became fixed at a rate of 3.32%.
- (2) The company maintained a forward-starting interest rate swap agreement that modified the interest obligation associated with these notes so that the interest payable on the notes effectively became fixed at a rate of 3.11%.
- (3) The company maintained a forward-starting interest rate swap agreement that modified the interest obligation associated with these notes so that the interest payable on the notes effectively became fixed at a rate of 4.73%.

Long-term debt maturities, at par value (in U.S. dollar equivalent), were as follows at June 30, 2021:

<i>(in millions)</i>	Par Value
2022	\$ 750.0
2023	17.9
2024	—
2025	750.0
2026	—
Thereafter	1,950.0

7. Contingencies

Legal and Regulatory Matters. In the normal course of business, the company discusses matters with its regulators raised during regulatory examinations or otherwise subject to their inquiry and oversight. These matters could result in censures, fines, penalties or other sanctions. Management believes the outcome of any resulting actions will not have a material impact on its consolidated financial position or results of operations. However, the company is unable to predict the outcome or the timing of the ultimate resolution of these matters, or the potential fines, penalties or injunctive or other equitable relief, if any, that may result from these matters.

In addition, the company is a defendant in, and has potential for, various other legal proceedings arising from its regular business activities. While the ultimate results of such proceedings against the company cannot be predicted with certainty, the company believes that the resolution of any of these matters on an individual or aggregate basis will not have a material impact on its consolidated financial position or results of operations.

No accrual was required for legal and regulatory matters as none were probable and estimable as of June 30, 2021 and December 31, 2020.

Intellectual Property Indemnifications. Certain agreements with customers and other third parties related to accessing the CME Group platforms, utilizing market data services and licensing CME SPAN software may contain indemnifications from intellectual property claims that may be made against them as a result of their use of the applicable products and/or services. The potential future claims relating to these indemnifications cannot be estimated and therefore no liability has been recorded.

8. Leases

The company has operating leases for corporate offices. The operating leases have remaining lease terms of up to 17 years, some of which include options to extend or renew the leases for up to an additional five years, and some of which include options to early terminate the leases in less than 12 months. Management evaluates whether these options are exercisable at least quarterly in order to determine whether the contract term must be reassessed. For a small number of the leases, primarily the international locations, management's approach is to enter into short-term leases for a lease term of 12 months or less in order to provide for greater flexibility in the local environment. For certain office spaces, the company has entered into arrangements to sublease excess space to third parties, while the original lease contract remains in effect with the landlord.

The company also has one finance lease, which is related to the sale of our data center in March 2016. In connection with the sale, the company leased back a portion of the property. The sale leaseback transaction was recognized under the financing method and not as a sale leaseback arrangement.

The right-of-use lease asset is recorded within other assets, and the present value of the lease liability is recorded within other liabilities (segregated between short term and long term) on the consolidated balance sheets. The discount rate applied to the lease payments represents the company's incremental borrowing rate.

The components of lease costs were as follows:

<i>(in millions)</i>	Quarter Ended June 30,		Six Months Ended June 30,	
	2021	2020	2021	2020
Operating lease expense:				
Operating lease cost	\$ 16.3	\$ 16.4	\$ 33.1	\$ 31.3
Short-term lease cost	0.2	0.5	0.4	0.7
Total operating lease expense included in other expense	\$ 16.5	\$ 16.9	\$ 33.5	\$ 32.0
Finance lease expense:				
Interest expense	\$ 0.8	\$ 0.8	\$ 1.6	\$ 1.7
Depreciation expense	2.1	2.1	4.3	4.3
Total finance lease expense	\$ 2.9	\$ 2.9	\$ 5.9	\$ 6.0
Sublease revenue included in other revenue	\$ 2.4	\$ 3.1	\$ 4.9	\$ 6.7

Supplemental cash flow information related to leases was as follows:

<i>(in millions)</i>	Quarter Ended June 30,		Six Months Ended June 30,	
	2021	2020	2021	2020
Cash outflows for operating leases	\$ 14.8	\$ 15.7	\$ 30.1	\$ 31.6
Cash outflows for finance leases	4.3	4.2	8.5	8.4

Supplemental balance sheet information related to leases was as follows:

Operating leases

In January 2021, the net assets that will be contributed to a joint venture with IHS Markit were classified as held for sale. As a result, \$5.6 million of right-of-use assets were reclassified to assets held for sale on the consolidated balance sheet. In addition, \$2.9 million and \$2.2 million of current lease liabilities and other lease liabilities, respectively, were reclassified as held for sale on the consolidated balance sheet.

<i>(in millions)</i>	June 30, 2021	December 31, 2020
Operating lease right-of-use assets	\$ 370.5	\$ 390.3
Operating lease liabilities:		
Other current liabilities	\$ 47.5	\$ 44.5
Other liabilities	477.6	492.2
Total operating lease liabilities	\$ 525.1	\$ 536.7
Weighted average remaining lease term (in months)	135	138
Weighted average discount rate	3.9 %	3.9 %

Finance leases

<i>(in millions)</i>	June 30, 2021	December 31, 2020
Finance lease right-of-use assets	\$ 84.5	\$ 88.8
Finance lease liabilities:		
Other current liabilities	\$ 7.8	\$ 7.7
Other liabilities	79.9	83.8
Total finance lease liabilities	<u>\$ 87.7</u>	<u>\$ 91.5</u>
Weighted average remaining lease term (in months)	117	123
Weighted average discount rate	3.5 %	3.5 %

Future minimum lease payments were as follows as of June 30, 2021 for operating and finance leases:

<i>(in millions)</i>	Operating Leases	
Remainder of 2021	\$	33.4
2022		67.3
2023		66.8
2024		61.8
2025		58.8
2026		54.4
Thereafter		307.5
Total lease payments		<u>650.0</u>
Less: imputed interest		(124.9)
Present value of lease liability	\$	<u>525.1</u>
<i>(in millions)</i>	Finance Leases	
Remainder of 2021	\$	8.5
2022		17.1
2023		17.2
2024		17.4
2025		17.5
2026		17.6
Thereafter		76.7
Total lease payments		<u>172.0</u>
Less: imputed interest		(84.3)
Present value of lease liability	\$	<u>87.7</u>

9. Guarantees

Mutual Offset Agreement. CME and Singapore Exchange Limited (SGX) maintain a mutual offset agreement with a current term through May 2023. This agreement enables market participants to open a futures position on one exchange and liquidate it on the other. The term of the agreement will automatically renew for a one-year period after May 2023 unless either party provides advance notice of their intent to terminate. CME can maintain collateral in the form of irrevocable, standby letters of credit. At June 30, 2021, CME was contingently liable to SGX on letters of credit totaling \$310.0 million. CME also maintains a \$350.0 million line of credit to meet its obligations under this agreement. Regardless of the collateral, CME guarantees all cleared transactions submitted through SGX and would initiate procedures designed to satisfy these financial obligations in the event of a default, such as the use of performance bonds and guaranty fund contributions of the defaulting clearing firm. Management has assessed the fair value of the company's guarantee liability under this mutual offset agreement by taking the following factors into consideration: the design and operations of the clearing risk management process, the financial safeguard packages in place, historical evidence of default by a clearing member and the estimated probability of potential payouts by the

clearing house. Based on the assessment performed, management estimates the guarantee liability to be nominal and therefore has not recorded any liability at June 30, 2021.

Family Farmer and Rancher Protection Fund. In 2012, the company established the Family Farmer and Rancher Protection Fund (the Fund). The Fund is designed to provide payments, up to certain maximum levels, to family farmers, ranchers and other agricultural industry participants who use the company's agricultural commodity products and who suffer losses to their segregated account balances due to their CME clearing member becoming insolvent. Under the terms of the Fund, farmers and ranchers are eligible for up to \$25,000 per participant. Farming and ranching cooperatives are eligible for up to \$100,000 per cooperative. The Fund was established with a maximum of \$100.0 million available for distribution to participants. Since its establishment, the Fund has made payments of approximately \$2.0 million, which leaves \$98.0 million available for future claims. If, at any time, payments due to participants were to exceed the amount remaining in the fund, payments would be pro-rated. Clearing members and customers must register with the company in advance and provide certain documentation in order to substantiate their eligibility. The company believes that its guarantee liability is nominal and therefore has not recorded any liability at June 30, 2021.

10. Accumulated Other Comprehensive Income (Loss)

The following tables present changes in the accumulated balances for each component of other comprehensive income (loss), including current period other comprehensive income (loss) and reclassifications out of accumulated other comprehensive income (loss):

<i>(in millions)</i>	Investment Securities	Defined Benefit Plans	Derivative Investments	Foreign Currency Translation	Total
Balance at December 31, 2020	\$ 1.6	\$ (57.1)	\$ 67.0	\$ 123.4	\$ 134.9
Other comprehensive income (loss) before reclassifications and income tax benefit (expense)	(0.7)	—	—	(29.6)	(30.3)
Amounts reclassified from accumulated other comprehensive income (loss)	—	2.2	(0.6)	—	1.6
Income tax benefit (expense)	0.2	(0.6)	0.2	—	(0.2)
Net current period other comprehensive income (loss)	(0.5)	1.6	(0.4)	(29.6)	(28.9)
Balance at June 30, 2021	\$ 1.1	\$ (55.5)	\$ 66.6	\$ 93.8	\$ 106.0

<i>(in millions)</i>	Investment Securities	Defined Benefit Plans	Derivative Investments	Foreign Currency Translation	Total
Balance at December 31, 2019	\$ 0.8	\$ (55.1)	\$ 69.0	\$ (11.3)	\$ 3.4
Other comprehensive income (loss) before reclassifications and income tax benefit (expense)	0.8	(2.0)	—	(16.2)	(17.4)
Amounts reclassified from accumulated other comprehensive income (loss)	—	2.3	(2.1)	0.6	0.8
Income tax benefit (expense)	(0.2)	(0.1)	0.4	—	0.1
Net current period other comprehensive income (loss)	0.6	0.2	(1.7)	(15.6)	(16.5)
Balance at June 30, 2020	\$ 1.4	\$ (54.9)	\$ 67.3	\$ (26.9)	\$ (13.1)

11. Fair Value Measurements

The company uses a three-level classification hierarchy of fair value measurements for disclosure purposes:

- Level 1 inputs, which are considered the most reliable evidence of fair value, consist of quoted prices (unadjusted) for identical assets or liabilities in active markets.
- Level 2 inputs consist of observable market data, such as quoted prices for similar assets and liabilities in active markets, or inputs other than quoted prices that are directly observable.
- Level 3 inputs consist of unobservable inputs which are derived and cannot be corroborated by market data or other entity-specific inputs.

The company's level 1 assets generally include investments in publicly traded mutual funds, equity securities and corporate debt securities with quoted market prices. In general, the company uses quoted prices in active markets for identical assets to determine the fair value of marketable securities.

The company's level 2 assets and liabilities generally consist of asset-backed securities and long-term debt notes. Asset-backed securities were measured at fair value based on matrix pricing using prices of similar securities with similar inputs such as maturity dates, interest rates and credit ratings. The fair values of the long-term debt notes were based on quoted market prices in an inactive market.

The company's level 3 assets and liabilities include certain fixed assets and investments that were adjusted to fair value.

Recurring Fair Value Measurements. Financial assets and liabilities recorded at fair value on the consolidated balance sheet as of June 30, 2021 were classified in their entirety based on the lowest level of input that was significant to each asset and liability's fair value measurement. The following table presents financial instruments measured at fair value on a recurring basis:

(in millions)	June 30, 2021			
	Level 1	Level 2	Level 3	Total
Assets at Fair Value:				
Marketable securities:				
Corporate debt securities	\$ 17.0	\$ —	\$ —	\$ 17.0
Mutual funds	93.4	—	—	93.4
Equity securities	0.2	—	—	0.2
Asset-backed securities	—	0.3	—	0.3
Total Marketable Securities	110.6	0.3	—	110.9
Total Assets at Fair Value	\$ 110.6	\$ 0.3	\$ —	\$ 110.9

Non-Recurring Fair Value Measurements. The company recognized impairment charges of \$0.5 million related to certain fixed assets in the first six months of 2021. The fair value of these fixed assets was estimated to be zero at June 30, 2021. The company also recognized net unrealized loss on investments of \$0.2 million. The fair value of these investments was estimated to be \$9.2 million at June 30, 2021. These assessments were based on quantitative and qualitative indicators of fair value. The fair value measurements of the fixed assets and investment are considered level 3 and non-recurring.

Fair Values of Long-Term Debt Notes. The following presents the estimated fair values of long-term debt notes, which are carried at amortized cost on the consolidated balance sheets. The fair values below are classified as level 2 under the fair value hierarchy and were estimated using quoted market prices in inactive markets.

At June 30, 2021, the fair values (in U.S. dollar equivalent) were as follows:

(in millions)	Fair Value	Level
\$750.0 million fixed rate notes due September 2022	\$ 774.3	Level 2
€15.0 million fixed rate notes due May 2023	19.3	Level 2
\$750.0 million fixed rate notes due March 2025	804.3	Level 2
\$500.0 million fixed rate notes due June 2028	570.6	Level 2
\$750.0 million fixed rate notes due September 2043	1,076.2	Level 2
\$700.0 million fixed rate notes due June 2048	908.7	Level 2

12. Earnings Per Share

Basic earnings per share is computed by dividing net income by the weighted average number of shares of all classes of CME Group common stock outstanding for each reporting period. Diluted earnings per share reflects the increase in shares using the treasury stock method to reflect the impact of an equivalent number of shares of common stock if stock options were exercised and restricted stock awards were converted into common stock. Anti-dilutive stock awards were as follows for the periods presented:

<i>(in thousands)</i>	Quarter Ended June 30,		Six Months Ended June 30,	
	2021	2020	2021	2020
Stock awards	1	75	117	76
Total	1	75	117	76

The following table presents the earnings per share calculation for the periods presented:

	Quarter Ended June 30,		Six Months Ended June 30,	
	2021	2020	2021	2020
Net Income Attributable to CME Group (in millions)	\$ 510.3	\$ 503.3	\$ 1,084.7	\$ 1,269.5
Weighted Average Number of Common Shares (in thousands):				
Basic	358,261	357,691	358,204	357,607
Effect of stock options, restricted stock and performance shares	627	766	649	846
Diluted	358,888	358,457	358,853	358,453
Earnings per Common Share Attributable to CME Group:				
Basic	\$ 1.42	\$ 1.41	\$ 3.03	\$ 3.55
Diluted	1.42	1.40	3.02	3.54

13. Subsequent Events

The company has evaluated subsequent events through the date the financial statements were issued. The company has determined that there were no subsequent events.

ITEM 2. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion is provided as a supplement to, and should be read in conjunction with, the accompanying unaudited consolidated financial statements and notes in this Quarterly Report on Form 10-Q and our Annual Report on Form 10-K for the year ended December 31, 2020, filed with the SEC on February 26, 2021.

References in this discussion and analysis to “we” and “our” are to CME Group Inc. (CME Group) and its consolidated subsidiaries, collectively. References to “exchange” are to Chicago Mercantile Exchange Inc. (CME), the Board of Trade of the City of Chicago, Inc. (CBOT), New York Mercantile Exchange, Inc. (NYMEX), and Commodity Exchange, Inc. (COMEX), collectively, unless otherwise noted.

RESULTS OF OPERATIONS
Financial Highlights

The following summarizes significant changes in our financial performance for the periods presented.

<i>(dollars in millions, except per share data)</i>	Quarter Ended June 30,			Six Months Ended June 30,		
	2021	2020	Change	2021	2020	Change
Total revenues	\$ 1,179.2	\$ 1,182.3	— %	\$ 2,432.5	\$ 2,704.4	(10)%
Total expenses	504.5	544.8	(7)	1,032.7	1,107.0	(7)
Operating margin	57.2 %	53.9 %		57.5 %	59.1 %	
Non-operating income (expense)	\$ 51.4	\$ 23.8	115	\$ 78.6	\$ 53.2	48
Effective tax rate	29.7 %	23.9 %		26.6 %	23.0 %	
Net income attributable to CME Group	\$ 510.3	\$ 503.3	1	\$ 1,084.7	\$ 1,269.5	(15)
Diluted earnings per common share attributable to CME Group	1.42	1.40	1	3.02	3.54	(15)
Cash flows from operating activities				1,102.5	1,743.9	(37)

Revenues

<i>(dollars in millions)</i>	Quarter Ended June 30,			Six Months Ended June 30,		
	2021	2020	Change	2021	2020	Change
Clearing and transaction fees	\$ 929.9	\$ 940.2	(1)%	\$ 1,936.9	\$ 2,219.0	(13)%
Market data and information services	145.2	134.7	8	289.4	266.2	9
Other	104.1	107.4	(3)	206.2	219.2	(6)
Total Revenues	\$ 1,179.2	\$ 1,182.3	—	\$ 2,432.5	\$ 2,704.4	(10)

Clearing and Transaction Fees
Futures and Options Contracts

The following table summarizes our total contract volume, revenue and average rate per contract for futures and options. Total contract volume includes contracts that are traded on our exchange and cleared through our clearing house and certain cleared-only contracts. Volume is measured in round turns, which is considered a completed transaction that involves a purchase and an offsetting sale of a contract. Average rate per contract is determined by dividing total clearing and transaction fees by total contract volume. Contract volume and average rate per contract disclosures exclude trading volume for the cash markets business and interest rate swaps volume.

	Quarter Ended June 30,			Six Months Ended June 30,		
	2021	2020	Change	2021	2020	Change
Total contract volume (in millions)	1,161.6	1,108.7	5 %	2,493.0	2,783.6	(10)%
Clearing and transaction fees (in millions)	\$ 807.3	\$ 810.9	—	\$ 1,682.9	\$ 1,943.9	(13)
Average rate per contract	\$ 0.695	\$ 0.731	(5)	\$ 0.675	\$ 0.698	(3)

We estimate the following net changes in clearing and transaction fees based on changes in total contract volumes and changes in average rate per contract for futures and options during the second quarter and first six months of 2021 when compared with the same periods in 2020.

<i>(in millions)</i>	Quarter Ended	Six Months Ended
Increase (decrease) due to changes in total contract volumes	\$ 36.8	\$ (196.1)
Decreases due to changes in average rate per contract	(40.4)	(64.9)
Net decreases in clearing and transaction fees	\$ (3.6)	\$ (261.0)

Average rate per contract is impacted by our rate structure, including volume-based incentives; product mix; trading venue, and the percentage of volume executed by customers who are members compared with non-member customers. Due to the relationship between average rate per contract and contract volume, the change in clearing and transaction fees attributable to changes in each is only an approximation.

Contract Volume

The following table summarizes average daily contract volume. Contract volume can be influenced by many factors, including political and economic conditions, the regulatory environment and market competition.

<i>(amounts in thousands)</i>	Quarter Ended June 30,		Change	Six Months Ended June 30,		Change
	2021	2020		2021	2020	
Average Daily Volume by Product Line:						
Interest rates	8,581	6,890	25 %	9,450	10,324	(8)%
Equity indexes	4,926	5,568	(12)	5,512	6,029	(9)
Foreign exchange	769	725	6	810	901	(10)
Agricultural commodities	1,631	1,311	24	1,552	1,408	10
Energy	1,963	2,586	(24)	2,160	2,905	(26)
Metals	568	519	9	621	702	(12)
Aggregate average daily volume	18,438	17,599	5	20,105	22,269	(10)
Average Daily Volume by Venue:						
CME Globex	17,223	16,992	1	18,803	20,757	(9)
Open outcry	646	—	n.m.	662	636	4
Privately negotiated	569	607	(6)	640	876	(27)
Aggregate average daily volume	18,438	17,599	5	20,105	22,269	(10)
Electronic Volume as a Percentage of Total Volume	93%	97 %		94%	93 %	

n.m. not meaningful

Overall market volatility increased throughout the second quarter of 2021 following periods of lower volatility, particularly in the second quarter of 2020. In the second quarter of 2021, the Federal Reserve indicated a potential increase in interest rates earlier than many market participants expected as a result of higher than anticipated inflation data, which resulted in higher volatility within the interest rate market. In addition, increased demand for corn and soybean resulted in higher market volatility within the agricultural commodity market. However, volatility within the equity and energy subsided in the second quarter of 2021 when compared to the same periods in 2020 within the equity and energy markets. We believe these factors led to the changes in contract volume during the second quarter and first six months of 2021, when compared with the same periods in 2020.

Following the Illinois stay at home orders in March 2020, we closed the trading floor in Chicago. We began a limited re-opening of the trading floor in the third quarter of 2020. Only the Eurodollar options trading pit (where options on One-Month and Three-Month Secured Overnight Financing Rate (SOFR) futures also trade) will remain open. We do not plan to reopen the remaining trading floor pits.

Interest Rate Products

The following table summarizes average daily contract volume for our key interest rate products. Eurodollar Front 8 futures include contracts expiring in two years or less. Eurodollar Back 32 futures include contracts with expirations after two years through ten years.

<i>(amounts in thousands)</i>	Quarter Ended June 30,		Change	Six Months Ended June 30,		Change
	2021	2020		2021	2020	
Eurodollar futures and options:						
Front 8 futures	1,165	1,130	3 %	1,213	1,857	(35)%
Back 32 futures	1,011	525	92	1,209	707	71
Options	968	987	(2)	1,036	1,680	(38)
U.S. Treasury futures and options:						
10-Year	2,272	1,653	37	2,542	2,416	5
5-Year	1,165	976	19	1,311	1,335	(2)
Treasury Bond	523	357	47	590	496	19
2-Year	426	465	(8)	464	703	(34)
Federal Funds futures and options	91	186	(51)	96	342	(72)

In the second quarter of 2021, overall interest rate contract volume increased when compared with the same period in 2020, which we believe resulted from increased interest rate volatility due to a change in market expectations. Interest rate volatility increased following the Federal Reserve's indication that it would raise interest rates sooner than expected as a result of higher than anticipated inflation data.

We believe overall interest rate contract volume decreased in the first six months of 2021 due to significant volatility in the first quarter of 2020 as a result of economic uncertainty caused by the governmental and business response to the COVID-19 pandemic.

Equity Index Products

The following table summarizes average daily contract volume for our key equity index products.

<i>(amounts in thousands)</i>	Quarter Ended June 30,		Change	Six Months Ended June 30,		Change
	2021	2020		2021	2020	
E-mini S&P 500 futures and options	2,834	3,635	(22)%	3,154	3,941	(20)%
E-mini Nasdaq 100 futures and options	1,390	1,103	26	1,554	1,197	30
E-mini Russell 2000 futures and options	313	337	(7)	363	324	12

In the second quarter and the first six months of 2021, equity index contract volumes decreased when compared with the same periods in 2020. Volatility within the broad-based indexes, including the S&P 500, subsided in the second quarter of 2021 following significant equity market volatility in early 2020 resulting from uncertainty surrounding the economic impact of governmental and business actions to combat the COVID-19 pandemic. However, there was an increase in volatility within certain narrow-based technology indexes, which resulted from a market repricing of certain stocks in early 2020. We believe this increase in volatility contributed to an increase in E-mini Nasdaq 100 contracts.

Foreign Exchange Products

The following table summarizes average daily contract volume for our key foreign exchange products.

<i>(amounts in thousands)</i>	Quarter Ended June 30,		Change	Six Months Ended June 30,		Change
	2021	2020		2021	2020	
Euro	208	199	4 %	218	242	(10)%
Japanese Yen	112	92	21	112	144	(23)
Australian dollar	99	96	3	109	114	(4)
British Pound	99	93	7	99	113	(12)

Overall foreign exchange contract volume increased in the second quarter of 2021 when compared with the same period in 2020. We believe this is mainly attributable to improvements in the global economic outlook as well as a decline in risk aversion by market participants following the COVID-19 pandemic.

Market volatility subsided in the first six months of 2021 when compared with the same period in 2020 following very high foreign exchange volatility in the first six months of 2020 caused by significant uncertainty surrounding the economic impacts of the governmental and business actions to combat the COVID-19 pandemic. We believe these factors led to the decrease in foreign exchange contract volume.

Agricultural Commodity Products

The following table summarizes average daily contract volume for our key agricultural commodity products.

<i>(amounts in thousands)</i>	Quarter Ended June 30,		Change	Six Months Ended June 30,		Change
	2021	2020		2021	2020	
Corn	604	437	38 %	558	437	28 %
Soybean	322	258	25	325	273	19
Wheat	230	212	9	214	231	(8)

Overall commodity contract volumes increased in the second quarter and the first six months of 2021 when compared with the same periods in 2020. Corn and soybean contract volumes increased due to increased prices, which we believe were caused by expectations of lower than expected crop yields.

Energy Products

The following table summarizes average daily contract volume for our key energy products.

<i>(amounts in thousands)</i>	Quarter Ended June 30,		Change	Six Months Ended June 30,		Change
	2021	2020		2021	2020	
WTI crude oil	1,069	1,456	(27)%	1,166	1,623	(28)%
Natural gas	467	649	(28)	517	695	(26)
Refined products	318	337	(6)	349	416	(16)

Overall energy contract volumes decreased in the second quarter and the first six months of 2021 when compared with the same periods in 2020, largely due to decreases in price volatility within the crude oil markets. The crude oil market exhibited less volatility as the market continued to rebalance from a reduction in demand caused by the COVID-19 pandemic. In addition, forecasts of warmer than expected weather resulted in decreases in natural gas contract volumes.

Metal Products

The following table summarizes average daily volume for our key metal products.

<i>(amounts in thousands)</i>	Quarter Ended June 30,		Change	Six Months Ended June 30,		Change
	2021	2020		2021	2020	
Gold	327	338	(3)%	365	472	(23)%
Copper	119	84	41	119	102	16
Silver	100	80	25	114	102	11

In the second quarter of 2021, metal contract volume increased when compared with the same period in 2020. We believe this volume increase is due to a shift by market participants into copper and silver contracts as gold contract volumes have been under pressure as a result of a high U.S. dollar and an increase in treasury yields.

The decrease in metal contract volume in the first six months of 2021 when compared to the same period in 2020 can be attributed to lower overall market volatility within the gold market. In early 2020, investors were using gold and other precious metals as safe-haven investments as a result of uncertainty within other markets caused by the governmental and business actions to combat the COVID-19 pandemic.

Average Rate per Contract

The average rate per contract decreased in the second quarter of 2021 when compared with the same period in 2020. The decrease was largely due to a shift in product mix. In the second quarter of 2021, interest contract volume increased by 7 percentage points as a percentage of total volume, while contract volume almost all other product lines collectively decreased as a percentage of total volume. Interest rate contracts have a lower average rate per contract compared with other product lines.

In the first six months of 2021 when compared with the same period in 2020, the decrease in the average rate per contract was largely due to the increase in the micro-E-mini equity index contract volume, which have a lower average rate per contract compared with the standard E-mini contracts. Micro-E-mini equity index contracts have a notional size of one-tenth of the traditional E-mini contracts.

Cash Markets Business

Total clearing and transaction fees revenues in the second quarter and the first six months of 2021 include \$105.7 million and \$220.9 million of transaction fees attributable to the cash markets business compared with \$112.4 million and \$236.8 million in the second quarter and first six months of 2020, respectively. This revenue primarily includes BrokerTec Americas LLC's fixed income volume and EBS's foreign exchange volume.

<i>(amounts in millions)</i>	Quarter Ended June 30,		Change	Six Months Ended June 30,		Change
	2021	2020		2021	2020	
BrokerTec U.S.'s fixed income transaction fees	\$ 42.8	\$ 43.2	(1)%	\$ 88.3	\$ 93.5	(6)%
EBS's foreign exchange transaction fees	41.4	42.1	(2)%	86.7	94.6	(8)

The related average daily notional value for the second quarter and first six months of 2021 were as follows:

<i>(amounts in billions)</i>	Quarter Ended June 30,		Change	Six Months Ended June 30,		Change
	2021	2020		2021	2020	
U.S. Treasury	\$ 105.9	\$ 121.4	(13)%	\$ 120.7	\$ 156.8	(23)%
European Repo (in euros)	300.9	274.1	10	294.0	268.2	10
Spot FX	61.7	62.4	(1)	67.1	80.0	(16)

Overall average daily notional value for the cash markets business increased in the second quarter 2021 compared with the same period in 2020. The increases in European Repo transactions are largely due to increases in volatility as a result of higher than expected inflation data.

Overall average daily notional value for the cash markets business decreased in the first six months of 2021 compared with the same period in 2020. The decrease in trading is largely due to lower volatility as the first quarter of 2020 saw high volatility as a result of the uncertainty surrounding the COVID-19 pandemic.

Concentration of Revenue

We bill a substantial portion of our clearing and transaction fees directly to our clearing firms. The majority of clearing and transaction fees received from clearing firms represent charges for trades executed and cleared on behalf of their customers. One individual firm represented approximately 10% of our clearing and transaction fees in the first six months of 2021. Should a clearing firm withdraw, we believe that the customer portion of the firm's trading activity would likely transfer to another clearing firm of the exchange. Therefore, we do not believe we are exposed to significant risk from the ongoing loss of revenue received from or through a particular clearing firm.

Other Sources of Revenue

During the second quarter and first six months of 2021, overall market data and information services revenue increased when compared with the same periods in 2020 largely due to price increases for certain products.

The two largest resellers of our market data represented approximately 33% of our market data and information services revenue in the first six months of 2021. Despite this concentration, we consider exposure to significant risk of revenue loss to be minimal. In the event that one of these vendors no longer subscribes to our market data, we believe the majority of that vendor's customers would likely subscribe to our market data through another reseller. Additionally, several of our largest institutional customers that utilize services from our two largest resellers report usage and remit payment of their fees directly to us.

In the first six months of 2021, the decrease in other revenue when compared with the same period in 2020 was largely due to a decrease in custody fees resulting from a decrease in the overall level of non-cash performance bonds and guaranty fund collateral.

Expenses

<i>(dollars in millions)</i>	Quarter Ended June 30,			Six Months Ended June 30,		
	2021	2020	Change	2021	2020	Change
Compensation and benefits	\$ 211.7	\$ 217.0	(2)%	\$ 436.7	\$ 424.5	3 %
Technology	49.3	49.1	—	97.5	96.8	1
Professional fees and outside services	36.8	51.2	(28)	74.2	92.9	(20)
Amortization of purchased intangibles	59.4	76.6	(23)	120.0	153.9	(22)
Depreciation and amortization	37.1	36.7	1	74.7	72.0	4
Licensing and other fee agreements	54.2	55.4	(2)	118.9	129.3	(8)
Other	56.0	58.8	(5)	110.7	137.6	(20)
Total Expenses	<u>\$ 504.5</u>	<u>\$ 544.8</u>	(7)	<u>\$ 1,032.7</u>	<u>\$ 1,107.0</u>	(7)

Operating expenses decreased by \$40.3 million and \$74.3 million in the second quarter and first six months of 2021 when compared with the same periods in 2020. The following table shows the estimated impacts of key factors resulting in the change in operating expenses:

<i>(dollars in millions)</i>	Quarter Ended, June 30, 2021		Six Months Ended, June 30, 2021	
	Amount of Change	Change as a Percentage of Total Expenses	Amount of Change	Change as a Percentage of Total Expenses
Amortization of purchased intangibles	\$ (17.2)	(3)%	\$ (33.9)	(3)%
Intangible and fixed asset impairments	(2.1)	—	(25.0)	(2)
Professional fees and outside services	(14.4)	(3)	(18.7)	(2)
Licensing and other fee agreements	(1.2)	—	(10.4)	(1)
Non-qualified deferred compensation plans	(4.3)	(1)	7.7	1
Employee separation and retention costs	0.2	1	9.3	1
Other expenses, net	(1.3)	(1)	(3.3)	(1)
Total decrease	<u>\$ (40.3)</u>	<u>(7)%</u>	<u>\$ (74.3)</u>	<u>(7)%</u>

Decreases in operating expenses in the second quarter and first six months of 2021 when compared with the same periods in 2020 were as follows:

- Amortization of purchased intangibles was lower during the second quarter and first six months of 2021, as intangible assets related to CME Group's optimization business were classified as held for sale following approval of the IHS Markit joint venture by the company's Board of Directors. Amortization is no longer taken on intangible assets once they are classified as held for sale.
- In the second quarter and first six months of 2020, we recognized higher impairment charges on certain intangibles and fixed assets related to a subsidiary.
- Professional fees and outside services expenses decreased due to a greater reliance on technology consultants for platform integrations, information security and systems enhancements in 2020 as well as a reduction in legal fees related to our business activities and product offerings.
- A decrease in licensing and other fee agreements expense was due to lower volumes for certain equity products in the second quarter and first six months of 2021 when compared to the same periods in 2020.
- A decrease in our non-qualified deferred compensation liability during the second quarter of 2021 when compared with the same period in 2020, the impact of which does not affect net income because of an equal and offsetting change in investment income, contributed to a decrease in compensation and benefits expense.

Increases in operating expenses in the second quarter and first six months of 2021 when compared with the same periods in 2020 were as follows:

- Employee separation and retention costs were higher during the second quarter and first six months of 2021 due to a higher reduction in workforce compared to the same periods in 2020.

- An increase in our non-qualified deferred compensation liability during the first six months of 2021, the impact of which does not affect net income because of an equal and offsetting change in investment income, contributed to an increase in compensation and benefits expense.

Non-Operating Income (Expense)

(dollars in millions)	Quarter Ended June 30,			Six Months Ended June 30,		
	2021	2020	Change	2021	2020	Change
Investment income	\$ 62.4	\$ 32.1	94 %	\$ 93.3	\$ 128.0	(27)%
Interest and other borrowing costs	(41.7)	(41.9)	—	(83.2)	(82.8)	1
Equity in net earnings of unconsolidated subsidiaries	55.7	48.8	14	111.9	100.0	12
Other non-operating income (expense)	(25.0)	(15.2)	65	(43.4)	(92.0)	(53)
Total Non-Operating	\$ 51.4	\$ 23.8	115	\$ 78.6	\$ 53.2	48

Investment income. Investment income increased in the second quarter of 2021 when compared with the same period in 2020, largely due to an increase in net realized and unrealized gains on investments as well as an increase in earnings from cash performance bond and guaranty fund contributions that are reinvested due to an increase in reinvestment balances.

Overall investment income decreased in first six months of 2021 when compared with the same period in 2020, largely due to a decrease in earnings from cash performance bond and guaranty fund contributions that are reinvested. The decrease in earnings resulted largely from lower rates of interest earned in the cash account at the Federal Reserve Bank of Chicago following significant interest rate cuts in early 2020 by the Federal Reserve, despite an increase in reinvestment balances.

Equity in net earnings (losses) of unconsolidated subsidiaries. In the second quarter and first six months of 2021, when compared with the same periods in 2020, higher income generated from our S&P/Dow Jones Indices LLC (S&P/DJI) business venture contributed to increases in equity in net earnings (losses) of unconsolidated subsidiaries.

Other income (expense). Other expenses increased in the second quarter of 2021 when compared with the same period in 2020 largely due to an increase in the distribution of interest earned on performance bond collateral reinvestments to the clearing firms due to higher interest income earned on our reinvestment. Other expenses decreased in the first six months of 2021 when compared with the same period in 2020 due to a reduction in the distribution of interest earned on performance bond collateral reinvestments to the clearing firms due to lower interest income earned on our reinvestment during the six month period.

Income Tax Provision

The following table summarizes the effective tax rates for the periods presented:

	2021	2020
Quarter ended June 30	29.7 %	23.9 %
Six months ended June 30	26.6 %	23.0 %

The overall effective tax rate increased in the second quarter of 2021 when compared with the same period in 2020. In the second quarter of 2021, we recognized additional deferred tax expense related to the impact of the United Kingdom tax rate increase from 19% to 25%, which is effective as of April 1, 2023.

Liquidity and Capital Resources

Sources and Uses of Cash. Net cash provided by operating activities decreased in the first six months of 2021 when compared with the same period in 2020 largely due to the timing of income tax payments made, as well as a decrease in trading volume. Net cash used in investing activities was lower during the first six months of 2021 when compared with the same period in 2020 largely due to an increase in proceeds from sales of investments. Cash used in financing activities was lower during the first six months of 2021 when compared with the same period in 2020 due to net repayments of commercial paper made during the first six months of 2020.

Debt Instruments. The following table summarizes our debt outstanding at June 30, 2021:

<i>(in millions)</i>	Par Value
Fixed rate notes due September 2022, stated rate of 3.00% ⁽¹⁾	\$ 750.0
Fixed rate notes due May 2023, stated rate of 4.30%	€ 15.0
Fixed rate notes due March 2025, stated rate of 3.00% ⁽²⁾	\$ 750.0
Fixed rate notes due June 2028, stated rate of 3.75%	\$ 500.0
Fixed rate notes due September 2043, stated rate of 5.30% ⁽³⁾	\$ 750.0
Fixed rate notes due June 2048, stated rate of 4.15%	\$ 700.0

- (1) We maintained a forward-starting interest rate swap agreement that modified the interest obligation associated with these notes so that the interest payable on the notes effectively became fixed at a rate of 3.32%.
- (2) We maintained a forward-starting interest rate swap agreement that modified the interest obligation associated with these notes so that the interest payable on the notes effectively became fixed at a rate of 3.11%.
- (3) We maintained a forward-starting interest rate swap agreement that modified the interest obligation associated with these notes so that the interest payable effectively became fixed at a rate of 4.73%.

We maintain a \$2.4 billion multi-currency revolving senior credit facility with various financial institutions, which matures in November 2022. The proceeds from this facility can be used for general corporate purposes, which includes providing liquidity for our clearing house in certain circumstances at CME Group's discretion and, if necessary, for maturities of commercial paper. As long as we are not in default under this facility, we have the option to increase it up to \$3.0 billion with the consent of the agent and lenders providing the additional funds. This facility is voluntarily pre-payable from time to time without premium or penalty. Under this facility, we are required to remain in compliance with a consolidated net worth test, which is defined as our consolidated shareholders' equity at September 30, 2017, giving effect to share repurchases made and special dividends paid during the term of the agreements (and in no event greater than \$2.0 billion in aggregate), multiplied by 0.65. We currently do not have any borrowings outstanding under this facility, but any commercial paper balance if or when outstanding can be backstopped against this facility.

We maintain a 364-day multi-currency revolving secured credit facility with a consortium of domestic and international banks to be used in certain situations by the clearing house. The facility provides for borrowings of up to \$7.0 billion. We may use the proceeds to provide temporary liquidity in the unlikely event a clearing firm fails to promptly discharge an obligation to CME Clearing, in the event of a liquidity constraint or default by a depository (custodian for our collateral), in the event of a temporary disruption with the domestic payments system that would delay payment of settlement variation between us and our clearing firms, or in other cases as provided by the CME rulebook. Clearing firm guaranty fund contributions received in the form of cash or U.S. Treasury securities as well as the performance bond assets (pursuant to the CME rulebook) can be used to collateralize the facility. At June 30, 2021, guaranty fund contributions available to collateralize the facility totaled \$7.6 billion. We have the option to request an increase in the line from \$7.0 billion to \$10.0 billion. Our 364-day facility contains a requirement that CME remain in compliance with a consolidated tangible net worth test, defined as CME consolidated shareholder's equity less intangible assets (as defined in the agreement), of not less than \$800.0 million. We currently do not have any borrowings outstanding under this facility.

The indentures governing our fixed rate notes, our \$2.4 billion multi-currency revolving senior credit facility and our 364-day multi-currency revolving secured credit facility for \$7.0 billion do not contain specific covenants that restrict the ability to pay dividends. These documents, however, do contain other customary financial and operating covenants that place restrictions on the operations of the company that could indirectly affect the ability to pay dividends.

At June 30, 2021, we have excess borrowing capacity for general corporate purposes of approximately \$2.4 billion under our multi-currency revolving senior credit facility.

At June 30, 2021, we were in compliance with the various financial covenant requirements of all our debt facilities.

CME Group, as a holding company, has no operations of its own. Instead, it relies on dividends declared and paid to it by its subsidiaries in order to provide the funds which it uses to pay dividends to its shareholders.

To satisfy our performance bond obligation with Singapore Exchange Limited, we may pledge irrevocable standby letters of credit. At June 30, 2021, the letters of credit totaled \$310.0 million. We also maintain a \$350.0 million line of credit to meet our obligations under this agreement.

The following table summarizes our credit ratings at June 30, 2021:

Rating Agency	Short-Term Debt Rating	Long-Term Debt Rating	Outlook
Standard & Poor's Global Ratings	A1+	AA-	Stable
Moody's Investors Service, Inc.	P1	Aa3	Stable

Given our cash flow generation, our ability to pay down debt levels and our ability to refinance existing debt facilities if necessary, we expect to maintain an investment grade rating. If our ratings are downgraded below investment grade due to a change of control, we are required to make an offer to repurchase our fixed rate notes at a price equal to 101% of the principal amount, plus accrued and unpaid interest.

Liquidity and Cash Management. Cash and cash equivalents totaled \$1.1 billion and \$1.6 billion at June 30, 2021 and December 31, 2020, respectively. The balance retained in cash and cash equivalents is a function of anticipated or possible short-term cash needs, prevailing interest rates, our corporate investment policy and alternative investment choices. A majority of our cash and cash equivalents balance is invested in money market mutual funds that invest only in U.S. Treasury securities, U.S. government agency securities and U.S. Treasury security reverse repurchase agreements and short-term bank deposits. Our exposure to credit and liquidity risk is minimal given the nature of the investments. Cash that is not available for general corporate purposes because of regulatory requirements or other restrictions is classified as restricted cash and is included in other current assets or other assets in the consolidated balance sheets.

Regulatory Requirements. CME is regulated by the CFTC as a U.S. Derivatives Clearing Organization (DCO). DCOs are required to maintain capital, as defined by the CFTC, in an amount at least equal to one year of projected operating expenses as well as cash, liquid securities, or a line of credit at least equal to six months of projected operating expenses. CME was designated by the Financial Stability Oversight Council as a systemically important financial market utility under Title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act. As a result, CME must comply with CFTC regulations applicable to a systemically important DCO for financial resources and liquidity resources. CME is in compliance with all DCO financial requirements.

CME, CBOT, NYMEX and COMEX are regulated by the CFTC as Designated Contract Markets (DCM). DCMs are required to maintain capital, as defined by the CFTC, in an amount at least equal to one year of projected operating expenses as well as cash, liquid securities or a line of credit at least equal to six months of projected operating expenses. Our DCMs are in compliance with all DCM financial requirements.

BrokerTec Americas LLC is required to maintain sufficient net capital under Securities Exchange Act of 1934, as amended (Exchange Act), Rule 15c3-1 (the Net Capital Rule). The Net Capital Rule focuses on liquidity and is designed to protect securities customers, counterparties, and creditors by requiring that broker-dealers have sufficient liquid resources on hand at all times to satisfy claims promptly. Rule 15c3-3, or the customer protection rule, which complements rule 15c3-1, is designed to ensure that customer property (securities and funds) in the custody of broker-dealers is adequately safeguarded. By law, both of these rules apply to the activities of registered broker-dealers, but not to unregistered affiliates. The firm began operating as a (k)(2)(i) broker dealer in November 2017 following notification to the Financial Industry Regulatory Authority and the SEC. A company operating under the (k)(2)(i) exemption is not required to lock up customer funds as would otherwise be required under Exchange Act Rule 15c3-3.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are subject to various market risks, including those caused by changes in interest rates, credit, foreign currency exchange rates and equity prices. There have not been material changes in our exposure to market risk since December 31, 2020. Refer to Item 7A. of CME Group's Annual Report on Form 10-K for the year ended December 31, 2020, filed with the SEC on February 26, 2021, for additional information.

ITEM 4. CONTROLS AND PROCEDURES

(a) Disclosure Controls and Procedures. Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this report. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that, as of the end of such period, our disclosure controls and procedures are effective.

(b) Changes in Internal Control Over Financial Reporting. As required by Rule 13a-15(d) under the Exchange Act, the company's management, including the company's Chief Executive Officer and Chief Financial Officer, have evaluated the company's internal control over financial reporting (as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) to determine whether any changes occurred during the quarter covered by this quarterly report that have

materially affected, or are reasonably likely to materially affect, the company's internal control over financial reporting. There were no changes in the company's internal control over financial reporting which occurred during the fiscal quarter ended June 30, 2021, that have materially affected, or are reasonably likely to materially affect, the company's internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

The disclosure under "Legal and Regulatory Matters" in Note 7. Contingencies in the Notes to Unaudited Consolidated Financial Statements in Item 1 of Part 1 of this report is incorporated herein by reference. Such disclosure includes updates to the legal proceedings disclosed in the company's Annual Report on Form 10-K, for the year ended December 31, 2020, filed with the SEC on February 26, 2021.

ITEM 1A. RISK FACTORS

There have been no material changes in the company's risk factors from those disclosed in the company's Annual Report on Form 10-K for the year ended December 31, 2020, filed with the SEC on February 26, 2021.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

Issuer Purchases of Equity Securities

Period	(a) Total Number of Class A Shares Purchased (1)	(b) Average Price Paid Per Share	(c) Total Number of Class A Shares Purchased as Part of Publicly Announced Plans or Programs	(d) Maximum Number (or Approximate Value) that May Yet Be Purchased Under the Plans or Programs (in millions)
April 1 to April 30	218	\$ 202.77	—	\$ —
May 1 to May 31	187	204.36	—	—
June 1 to June 30	1,303	216.37	—	—
Total	<u>1,708</u>	\$ 213.32	<u>—</u>	<u>—</u>

(1) Shares purchased consist of an aggregate of 1,708 shares of Class A common stock surrendered in the second quarter of 2021 to satisfy employees' tax obligations upon the vesting of restricted stock.

ITEM 5. OTHER INFORMATION

The Company's Board of Directors has amended and restated the Company's Bylaws, effective as of August 4, 2021, to remove the reference to the title of "President" in Article V, Section 5.1 and in Article VI, Section 6.1.

The summary above is qualified in its entirety by the text of the Amended and Restated Bylaws, which are attached as Exhibit 3.1 to this Quarterly Report on Form 10-Q.

ITEM 6. EXHIBITS

3.1	Sixteenth Amended and Restated Bylaws of CME Group Inc.
31.1	Section 302 Certification—Terrence A. Duffy
31.2	Section 302 Certification—John W. Pietrowicz
32.1	Section 906 Certification
101	The following materials from CME Group Inc.'s Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2021, formatted in Inline XBRL (Xtensible Business Reporting Language): (i) the Consolidated Balance Sheets, (ii) the Consolidated Statements of Income, (iii) the Consolidated Statements of Comprehensive Income, (iv) the Consolidated Statements of Equity, (v) Consolidated Statements of Cash Flows and (vi) Notes to Unaudited Consolidated Financial Statements, tagged as blocks of text.
104	Cover Page Interactive Data File included in the Inline XBRL Document Set for Exhibit 101.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

CME Group Inc.
(Registrant)

Dated: August 4, 2021

By: _____ /s/ John W. Pietrowicz
John W. Pietrowicz
**Chief Financial Officer & Senior Managing
Director Finance**
**Principal Financial Officer and
Duly Authorized Officer**

**SIXTEENTH AMENDED AND RESTATED BYLAWS
OF
CME GROUP INC.
Approved as of August 4, 2021**

**ARTICLE I
SHAREHOLDERS' MEETINGS**

Section 1.1 Annual Meetings.

(a) The annual meetings of shareholders shall be held on such date, at such time and at such place, either within or without the state of Delaware, as shall be designated from time to time by the Board of Directors and stated in the notice of the meeting.

(b) Nominations of persons for election to the Board of Directors as Equity Directors (as defined in the Certificate of Incorporation) may be made at an annual meeting of shareholders only (i) by or at the direction of the Board of Directors, (ii) by any shareholder of the Corporation who (1) was a shareholder of record at the time of giving of notice provided for in this Section 1.1 and at the time of the annual meeting, (2) is entitled to vote at the meeting and (3) complies with all of the procedures set forth in this Section 1.1 as to such nomination, or (iii) by any Eligible Shareholder (as defined in Section 1.13(d) of these Bylaws) who complies with all of the procedures set forth in Section 1.13 of these Bylaws as to such nomination. Clauses (ii) and (iii) of the immediately preceding sentence shall be the exclusive means for a shareholder to make nominations before an annual meeting of shareholders.

(c) The proposal of business to be considered by the shareholders (other than nominations of persons for election to the Board of Directors as (x) Equity Directors, which may be made only in accordance with the provisions of Section 1.1(b) and (y) Class B Directors (as defined in the Certificate of Incorporation), which may be made only in accordance with the provisions of Article IV) may be made at an annual meeting of shareholders only (i) pursuant to the Corporation's notice of meeting, (ii) by or at the direction of the Board of Directors or (iii) by any shareholder of the Corporation who (1) was a shareholder of record at the time of giving of notice provided for in this Section 1.1 and at the time of the annual meeting, (2) is entitled to vote at the meeting and (3) complies with all of the procedures set forth in this Section 1.1 as to such business. Clause (iii) of the immediately preceding sentence shall be the exclusive means for a shareholder to submit business other than nominations (other than matters brought under Rule 14a-8 under the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), and included in the Corporation's notice of meeting) before an annual meeting of shareholders.

(d) In addition to any other applicable requirements, for any Equity Director nominations or any other business to be properly brought before an annual meeting by a shareholder pursuant to clause (ii) of Section 1.1(b) of these Bylaws or clause (iii) of Section 1.1(c) of these Bylaws, the shareholder must have given timely notice thereof in proper written form to the Secretary and such other business must otherwise be a proper matter for shareholder action. To be timely, such shareholder's notice shall be delivered to the Secretary at the principal executive offices of the Corporation not earlier than the open of business on the 120th day and not later than the close of business on the 90th day prior to the first anniversary of the preceding year's annual meeting; provided, however, that in the event that the date of the annual meeting is more than 30 days before or more than 60 days after such anniversary date,

notice by the shareholder to be timely must be so delivered not earlier than the open of business on the 120th day prior to the date of such annual meeting and not later than the close of business on the later of the 90th day prior to the date of such annual meeting or, if the first public announcement of the date of such annual meeting is less than 100 days prior to the date of such annual meeting, the 10th day following the day on which public announcement of the date of such meeting is first made by the Corporation. In no event shall any adjournment or postponement of an annual meeting or the announcement thereof commence a new time period (or extend any time period) for the giving of a shareholder's notice as described above.

(e) To be in proper written form, a shareholder's notice to the Secretary given pursuant to this Section 1.1 must: (i) set forth, as to the shareholder giving the notice and the beneficial owner, if any, on whose behalf the nomination or proposal is made, (1) the name and address of such person (including, if applicable, the name and address of such person as they appear on the Corporation's books), (2) (A) the class or series and number of shares of the Corporation which are, directly or indirectly, owned beneficially and of record by such person, or any affiliates of such person, (B) any option, warrant, convertible security, stock appreciation right, or similar right with an exercise or conversion privilege or a settlement payment or mechanism at a price related to any class or series of shares of the Corporation or with a value derived in whole or in part from the value of any class or series of shares of the Corporation, whether or not such instrument or right shall be subject to settlement in the underlying class or series of capital stock of the Corporation or otherwise (a "**Derivative Instrument**") directly or indirectly owned beneficially by such person and any other direct or indirect opportunity to profit or share in any profit derived from any increase or decrease in the value of shares of the Corporation, (C) any proxy, contract, arrangement, understanding or relationship pursuant to which such person has a right to vote any shares of any security of the Corporation, (D) any short interest in any security of the Corporation (for purposes of these Bylaws, a person shall be deemed to have a short interest in a security if such person directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has the opportunity to profit or share in any profit derived from any decrease in the value of the subject security), (E) any rights to dividends on the shares of the Corporation owned beneficially by such person that are separated or separable from the underlying shares of the Corporation, (F) any proportionate interest in shares of the Corporation or Derivative Instruments held, directly or indirectly, by a general or limited partnership in which such person is a general partner or, directly or indirectly, beneficially owns an interest in a general partner and (G) any performance-related fees (other than an asset-based fee) that such person is entitled to based on any increase or decrease in the value of shares of the Corporation or Derivative Instruments, if any, as of the date of such notice, including without limitation any such interests held by members of such person's immediate family sharing the same household, and (3) any other information relating to such person, if any, that would be required to be disclosed in a proxy statement or other filings required to be made in connection with solicitations of proxies for, as applicable, the proposal and/or the election of directors in a contested election pursuant to Section 14 of the Exchange Act and the rules and regulations promulgated thereunder; (ii) if the notice relates to any business other than a nomination of one or more Equity Directors that the shareholder proposes to bring before the meeting, set forth (1) a brief description of the business desired to be brought before the meeting, the reasons for conducting such business at the meeting and any material interest in such business of such shareholder and the beneficial owner, if any, on whose behalf the proposal is made, and (2) a description of all agreements, arrangements and understandings between such shareholder and beneficial owner, if any, and any other person or persons (including their names) in connection with the proposal of such business by such

shareholder; (iii) set forth, as to each person, if any, whom the shareholder proposes to nominate for election or reelection to the Board of Directors (1) all information relating to such person that would be required to be disclosed in a proxy statement or other filings required to be made in connection with solicitations of proxies for the election of directors in a contested election pursuant to Section 14 of the Exchange Act and the rules and regulations promulgated thereunder (including such person's written consent to being named in the proxy statement as a nominee and to serving as a Director if elected) and (2) a description of all direct and indirect compensation and other material monetary agreements, arrangements and understandings during the past three years, and any other material relationships, between or among such shareholder and the beneficial owner, if any, on whose behalf the nomination is made, and their respective affiliates and associates, or others acting in concert therewith, on the one hand, and each proposed nominee, and his or her respective affiliates and associates, or others acting in concert therewith, on the other hand, including, without limitation all information that would be required to be disclosed pursuant to Item 404 promulgated under Regulation S-K if the shareholder making the nomination and any beneficial owner on whose behalf the nomination is made, if any, or any affiliate or associate thereof or person acting in concert therewith, were the "registrant" for purposes of such rule and the nominee were a director or executive officer of such registrant; (iv) with respect to each nominee for election or reelection to the Board of Directors, include a completed and signed questionnaire, representation and agreement required by Section 1.3 of these Bylaws; (v) include a representation that the proponent (or a qualified representative thereof) will appear in person at the meeting to present such nomination or propose such business; and (vi) include a statement as to whether the proponent intends to deliver a proxy statement and/or form of proxy to holders of at least the percentage of the Corporation's outstanding shares required to elect its nominee(s) or approve the proposal, as applicable, and/or otherwise to solicit proxies from shareholders in support of the nominee(s) or the proposal.

(f) In addition to the information required pursuant to Section 1.1(e) or any other provision of these Bylaws, the Corporation may require any proposed nominee to furnish any other information (i) that may reasonably be requested by the Corporation to determine whether the nominee would be independent under the rules and listing standards of the securities exchanges upon which the stock of the Corporation is listed or traded, any applicable rules of the Securities and Exchange Commission or any publicly disclosed standards used by the Board of Directors in determining and disclosing the independence of the Corporation's Directors (collectively, the "**Independence Standards**"), (ii) that could be material to a reasonable shareholder's understanding of the independence, or lack thereof, of such nominee or (iii) that may reasonably be requested by the Corporation to determine the eligibility of such nominee to serve as a Director of the Corporation.

(g) Any person providing any information to the Corporation pursuant to this Section 1.1 shall further update and supplement such information, if necessary, so that all such information shall be true and correct as of the record date for the annual meeting, and such update and supplement shall be delivered to the Secretary at the principal executive offices of the Corporation not later than 10 days following the record date.

(h) Only such persons who are nominated in accordance with the provisions of Section 1.1(b) or Section 1.2(b) of these Bylaws and any applicable procedures set forth in Section 1.1, Section 1.2 or Section 1.13 of these Bylaws shall be eligible to serve as an Equity Director, and only such business shall be conducted at a meeting of shareholders as shall have

been brought before the meeting in accordance with the provisions of Section 1.1(c) or Section 1.2(a) of these Bylaws and any applicable procedures set forth in this Section 1.1. Except as otherwise provided by law, the Certificate of Incorporation or these Bylaws, the chairman of the meeting shall have the power and duty to determine whether a nomination or any business proposed to be brought before the meeting was made or proposed, as the case may be, in accordance with the such provisions and procedures and, if any proposed nomination or business is not in compliance therewith, to declare that such defective nomination or proposal shall be disregarded, notwithstanding that proxies in respect of such vote may have been received by the Corporation. For the avoidance of doubt, if the shareholder providing notice of a nomination or other business proposed to be brought before the meeting and/or any of such shareholder's nominees breaches any of its agreements or representations or fails to comply with any of its obligations under this Section 1.1 or Section 1.2 of these Bylaws, as determined by the Board of Directors or the chairman of the meeting, then such nomination or business shall be deemed not to have been made or proposed, as the case may be, in accordance with the applicable procedures set forth in this Section 1.1 or Section 1.2 of these Bylaws, and such defective nomination or proposal shall be disregarded, notwithstanding that proxies in respect of such vote may have been received by the Corporation.

(i) For purposes of this Section 1.1 and Section 1.2 of these Bylaws, "public announcement" shall mean disclosure in a press release reported by a national news service or in a document publicly filed by the Corporation with the Securities and Exchange Commission pursuant to Section 13, 14 or 15(d) of the Exchange Act and the rules and regulations promulgated thereunder.

(j) Notwithstanding the other provisions of Section 1.1, Section 1.2 and Section 1.13 of these Bylaws, a shareholder shall also comply with all applicable requirements of the Exchange Act and the rules and regulations thereunder with respect to the matters set forth in Section 1.1, Section 1.2 and Section 1.13 of these Bylaws; provided, however, that any references in Section 1.1, Section 1.2 and Section 1.13 of these Bylaws to the Exchange Act or the rules and regulations promulgated thereunder are not intended to and shall not limit the requirements applicable to nominations or proposals as to any other business to be considered pursuant to Section 1.1, Section 1.2 and Section 1.13 of these Bylaws. Nothing in these Bylaws shall be deemed to affect any rights (i) of shareholders to request inclusion of proposals in the Corporation's proxy statement pursuant to Rule 14a-8 under the Exchange Act or (ii) of the holders of any series of Preferred Stock if and to the extent provided for under law, the Certificate of Incorporation or these Bylaws.

Section 1.2 Special Meetings.

(a) Special meetings of shareholders for any purpose or purposes may be called at any time only by the Chairman of the Board or by a majority of the total number of authorized Directors. Only such business shall be conducted at a special meeting of shareholders as shall have been brought before the meeting pursuant to the Corporation's notice of meeting.

(b) Nominations of persons for election to the Board of Directors as Equity Directors may be made at a special meeting of shareholders at which Directors are to be elected pursuant to the Corporation's notice of meeting (i) by or at the direction of the Board of Directors or (ii) provided that the Board of Directors has determined that Directors shall be

elected at such meeting, by any shareholder of the Corporation who (1) is a shareholder of record at the time of giving of notice provided for in this Section 1.2 and at the time of the special meeting, (2) is entitled to vote at the meeting and (3) complies with all of the procedures set forth in this Section 1.2 as to such nomination. In the event the Corporation calls a special meeting of shareholders for the purpose of electing one or more Equity Directors to the Board of Directors, any such shareholder may nominate a person or persons (as the case may be) for election to such position(s) as specified in the Corporation's notice of meeting.

(c) In addition to any other applicable requirements, for any Equity Director nominations to be properly brought before a special meeting by a shareholder pursuant to clause (ii) of Section 1.2(b) of these Bylaws, the shareholder must have given timely notice thereof in proper written form to the Secretary. To be timely, such shareholder's notice shall be delivered to the Secretary at the principal executive offices of the Corporation not earlier than the open of business on the 120th day prior to the date of such special meeting and not later than the close of business on the later of the 90th day prior to the date of such special meeting or, if the first public announcement of the date of such special meeting is less than 100 days prior to the date of such special meeting, the 10th day following the day on which public announcement is first made of the date of the special meeting and of the nominees proposed by the Board of Directors to be elected at such meeting. In no event shall any adjournment or postponement of a special meeting or the announcement thereof commence a new time period (or extend any time period) for the giving of a shareholder's notice as described above.

(d) To be in proper written form, a shareholder's notice to the Secretary given pursuant to this Section 1.2 must set forth or be accompanied by the information, representations, agreements and other documents that are required to be set forth in or included with a shareholder's notice of a nomination given pursuant to Section 1.1 of these Bylaws (including the completed and signed questionnaire, representation and agreement required by Section 1.3 of these Bylaws).

(e) In addition to the information required pursuant to Section 1.2(d) or any other provision of these Bylaws, the Corporation may require any proposed nominee to furnish any other information (i) that may reasonably be requested by the Corporation to determine whether the nominee would be independent under the Independence Standards, (ii) that could be material to a reasonable shareholder's understanding of the independence, or lack thereof, of such nominee or (iii) that may reasonably be requested by the Corporation to determine the eligibility of such nominee to serve as a Director of the Corporation.

(f) Any person providing any information to the Corporation pursuant to this Section 1.2 shall further update and supplement such information, if necessary, so that all such information shall be true and correct as of the record date for the special meeting, and such update and supplement shall be delivered to the Secretary at the principal executive offices of the Corporation not later than 10 days following the record date.

Section 1.3 Submission of Questionnaire, Representation and Agreement. To be eligible to be a nominee for election or reelection as a Director of the Corporation, a person must deliver (in accordance with the time periods prescribed for delivery of notice under Section 1.1, Section 1.2 or Section 1.13 of these Bylaws, as applicable) to the Secretary at the principal executive offices of the Corporation a written questionnaire with respect to the background and qualification of such person and the background of any other person or entity

on whose behalf the nomination is being made (which questionnaire shall be provided by the Secretary upon written request) and a written representation and agreement (in the form provided by the Secretary upon written request) that such person (a) is not and will not become a party to (i) any agreement, arrangement or understanding with, and has not given any commitment or assurance to, any person or entity as to how such person, if elected as a Director of the Corporation, will act or vote on any issue or question (a "**Voting Commitment**") that has not been disclosed to the Corporation in such representation and agreement or (ii) any Voting Commitment that could limit or interfere with such person's ability to comply, if elected as a Director of the Corporation, with such person's fiduciary duties under applicable law, (b) is not and will not become a party to any agreement, arrangement or understanding with any person or entity other than the Corporation with respect to any direct or indirect compensation, reimbursement or indemnification in connection with such person's nomination, candidacy, service or action as a Director that has not been disclosed to the Corporation in such representation and agreement, (c) in such person's individual capacity and on behalf of any person or entity on whose behalf the nomination is being made, would be in compliance, if elected as a Director of the Corporation, and will comply with all applicable publicly disclosed corporate governance, conflict of interest, confidentiality and stock ownership and trading policies and guidelines of the Corporation, (d) is not a Disqualified Person, as defined in Section 2.1 of these Bylaws and (e) will make such other acknowledgments, enter into such agreements and provide such information as the Board of Directors requires of all the Corporation's Directors.

Section 1.4 Notice of Meetings. A written notice of each annual or special meeting of shareholders shall be given stating the place, date and time of the meeting, and, in the case of a special meeting, the purpose or purposes for which the meeting is called. Unless otherwise provided by law, the Certificate of Incorporation or these Bylaws, such notice of meeting shall be given not less than 10 nor more than 60 days before the date of the meeting to each shareholder of record entitled to vote at such meeting. If mailed, such notice shall be deemed to be given when deposited in the mail, postage prepaid, directed to the shareholder at such shareholder's address as it appears on the records of the Corporation. An affidavit of the Secretary or an Assistant Secretary or of the transfer agent of the Corporation that the notice has been given shall, in the absence of fraud, be prima facie evidence of the facts stated therein.

Section 1.5 Adjournments. Any annual or special meeting of shareholders may be adjourned from time to time to reconvene at the same or some other place, and notice need not be given of any such adjourned meeting if the date, time and place thereof are announced at the meeting at which the adjournment is taken. At the adjourned meeting any business may be transacted which might have been transacted at the original meeting. If the adjournment is for more than 30 days, or if after the adjournment a new record date is fixed for the adjourned meeting, a notice of the adjourned meeting shall be given to each shareholder of record entitled to vote at the adjourned meeting in accordance with Section 1.4 of these Bylaws.

Section 1.6 Quorum. Except as otherwise provided by law, the Certificate of Incorporation or these Bylaws, the presence in person or by proxy of the holders of stock having not less than one-third of the votes which could be cast by the holders of all outstanding stock entitled to vote at the meeting shall constitute a quorum at each meeting of shareholders. In the absence of a quorum, then either (i) the chairman of the meeting or (ii) the shareholders may, by the affirmative vote of the holders of stock having a majority of the votes which could be cast by

all such holders, adjourn the meeting from time to time in the manner provided in Section 1.5 of these Bylaws until a quorum is present. If a quorum is present when a meeting is convened, the subsequent withdrawal of shareholders, even though less than a quorum remains, shall not affect the ability of the remaining shareholders lawfully to transact business.

Section 1.7 Organization. Meetings of shareholders shall be presided over by the Chairman of the Board or the Chief Executive Officer (in that order), or in their absence, inability or unwillingness, by a chairman designated by the Board of Directors, or in the absence of such designation, by a chairman chosen at the meeting. The Secretary shall act as secretary of the meeting, but in his or her absence, the chairman of the meeting may appoint any person to act as secretary of the meeting. The chairman of any meeting of the shareholders shall determine the order of business and the procedure at the meeting, including such regulation of the manner of voting and the conduct of business.

Section 1.8 Voting.

(a) The shareholders entitled to vote at any meeting of shareholders shall be determined in accordance with the provisions of Section 1.11 of these Bylaws, subject to the provisions of Sections 217 and 218 of the Delaware General Corporation Law (relating to voting rights of fiduciaries, pledgors and joint owners of stock and to voting trusts and other voting agreements).

(b) Except as may be otherwise provided in the Certificate of Incorporation or in these Bylaws, or as may be otherwise required by applicable law: (i) in all matters other than the election of Directors, the affirmative vote of the holders of shares representing a majority of the votes present in person or represented by proxy at the meeting and entitled to vote on the subject matter shall be the act of the shareholders; (ii) each Equity Director shall be elected to the Board of Directors if the votes cast for such nominee's election exceed the votes cast against such nominee's election; provided, however, that the Equity Directors shall be elected by a plurality of the votes cast at any meeting of shareholders for which the Secretary of the Corporation determines that the number of nominees for election as Equity Directors exceeds the number of Equity Directors to be elected as of the date that is ten days prior to the scheduled mailing date of the proxy statement for such meeting; (iii) each Class B Director shall be elected by a plurality of the votes cast at any meeting of shareholders; and (iv) where a separate vote by a class or series is required, other than with respect to the election of Directors, the affirmative vote of the holders of shares of such class or series representing a majority of the votes present in person or represented by proxy at the meeting shall be the act of such class or series.

(c) Voting at meetings of shareholders need not be by written ballot and need not be conducted by inspectors of election unless so required by Section 1.10 of these Bylaws or so determined by the holders of stock having a majority of the votes which could be cast by the holders of all outstanding stock entitled to vote which are present in person or represented by proxy at such meeting.

(d) Stock of the Corporation belonging to the Corporation, or to another Corporation, a majority of the shares entitled to vote in the election of Directors of which are held by the Corporation, shall not be voted at any meeting of shareholders and shall not be counted in the total number of outstanding shares for the purpose of determining whether a

quorum is present. Nothing in this Section 1.8 shall limit the right of the Corporation to vote shares of stock of the Corporation held by it in a fiduciary capacity.

Section 1.9 Proxies.

(a) Each shareholder entitled to vote at a meeting of shareholders may authorize another person or persons to act for such shareholder by proxy filed with the Secretary before or at the time of the meeting. No such proxy shall be voted or acted upon after three years from its date, unless the proxy provides for a longer period. A duly executed proxy shall be irrevocable if it states that it is irrevocable and if, and only as long as, it is coupled with an interest sufficient in law to support an irrevocable power. A shareholder may revoke any proxy which is not irrevocable by attending the meeting and voting in person or by filing with the Secretary an instrument in writing revoking the proxy or another duly executed proxy bearing a later date.

(b) A shareholder may authorize another person or persons to act for such shareholder as proxy (i) by executing a writing authorizing such person or persons to act as such, which execution may be accomplished by such shareholder or such shareholder's authorized officer, Director, partner, employee or agent (or, if the stock is held in a trust or estate, by a trustee, executor or administrator thereof) signing such writing or causing his or her signature to be affixed to such writing by any reasonable means, including, but not limited to, facsimile signature, or (ii) by transmitting or authorizing the transmission of a telegram, cablegram or other means of electronic transmission (a "**Transmission**") to the person who will be the holder of the proxy or to a proxy solicitation firm, proxy support service organization or like agent duly authorized by the person who will be the holder of the proxy to receive such Transmission; provided that any such Transmission must either set forth or be submitted with information from which it can be determined that such Transmission was authorized by such shareholder.

(c) Any inspector or inspectors appointed pursuant to Section 1.10 of these Bylaws shall examine each Transmission to determine whether it is valid. If no inspector or inspectors are so appointed, the Secretary or such other person or persons as shall be appointed from time to time by the Board of Directors shall examine Transmissions to determine if they are valid. If it is determined a Transmission is valid, the person or persons making that determination shall specify the information upon which such person or persons relied. Any copy, facsimile telecommunication or other reliable reproduction of such a writing or Transmission may be substituted or used in lieu of the original writing or Transmission for any and all purposes for which the original writing or Transmission could be used; provided that such copy, facsimile telecommunication or other reproduction shall be a complete reproduction of the entire original writing or Transmission.

Section 1.10 Voting Procedures and Inspectors of Elections.

(a) Unless otherwise provided in the Certificate of Incorporation or required by law, the following provisions of this Section 1.10 shall apply only if and when the Corporation has a class of voting stock that is (i) listed on a national securities exchange, (ii) authorized for quotation on an interdealer quotation system of a registered national securities association or (iii) held of record by more than 2,000 shareholders.

(b) The Corporation shall, in advance of any meeting of shareholders, appoint one or more inspectors of election (individually an “**inspector**,” and collectively the “**inspectors**”) to act at such meeting and make a written report thereof. The Board of Directors may designate one or more persons as alternate inspectors to replace any inspector who fails to act. If no inspector or alternate is able to act at such meeting, the chairman of the meeting shall appoint one or more inspectors to act at the meeting. Each inspector of election, before entering upon the discharge of his duties, shall take and sign an oath to execute faithfully the duties of inspector with strict impartiality and according to the best of his ability.

(c) The inspectors shall (i) ascertain the number of shares of stock of the Corporation outstanding and the voting power of each, (ii) determine the number of shares of stock of the Corporation present in person or by proxy at such meeting and the validity of proxies and ballots, (iii) count all votes and ballots, (iv) determine and retain for a reasonable period a record of the disposition of any challenges made to any determination by the inspectors and (v) certify their determination of the number of such shares present in person or by proxy at such meeting and their count of all votes and ballots. The inspectors may appoint or retain other persons or entities to assist them in the performance of their duties.

(d) The date and time of the opening and the closing of the polls for each matter upon which the shareholders will vote at a meeting shall be announced at such meeting. No ballots, proxies or votes, nor any revocations thereof or changes thereto, shall be accepted by the inspectors after the closing of the polls unless the Court of Chancery of the State of Delaware upon application by any shareholder shall determine otherwise.

(e) In determining the validity and counting of proxies and ballots, the inspectors shall be limited to an examination of the proxies, any envelopes submitted with such proxies, any information referred to in Section 1.9(b) and Section 1.9(c) of these Bylaws, ballots and the regular books and records of the Corporation, except that the inspectors may consider other reliable information for the limited purpose of reconciling proxies and ballots submitted by or on behalf of banks, brokers, their nominees or similar persons which represent more votes than the holder of a proxy is authorized by a shareholder of record to cast or more votes than such shareholder holds of record. If the inspectors consider other reliable information for the limited purpose permitted herein, the inspectors, at the time they make their certification pursuant to Section 1.10(c) of these Bylaws, shall specify the precise information considered by them, including the person or persons from whom such information was obtained, when and the means by which such information was obtained and the basis for the inspectors' belief that such information is accurate and reliable.

Section 1.11 Fixing Date of Determination of Shareholders of Record.

(a) In order that the Corporation may determine the shareholders entitled (i) to notice of or to vote at any meeting of shareholders or any adjournment thereof, (ii) to receive payment of any dividend or other distribution or allotment of any rights, (iii) to exercise any rights in respect of any change, conversion or exchange of stock or (iv) to take, receive or participate in any other action, the Board of Directors may fix a record date, which shall not be earlier than the date upon which the resolution fixing the record date is adopted by the Board of Directors and which (1) in the case of a determination of shareholders entitled to notice of or to vote at any meeting of shareholders or adjournment thereof, shall, unless otherwise required by

law, be not more than 60 nor less than 10 days before the date of such meeting; and (2) in the case of any other action, shall be not more than 60 days before such action.

(b) If no record date is fixed, (i) the record date for determining shareholders entitled to notice of or to vote at a meeting of shareholders shall be at the close of business on the day next preceding the day on which notice is given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held; and (ii) the record date for determining shareholders for any other purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

(c) A determination of shareholders of record entitled to notice of or to vote at a meeting of shareholders shall apply to any adjournment of the meeting, but the Board of Directors may fix a new record date for the adjourned meeting.

Section 1.12 List of Shareholders Entitled to Vote. The Secretary shall prepare, at least 10 days before every meeting of shareholders, a complete list of the shareholders entitled to vote at the meeting, arranged in alphabetical order, and showing the address and the number of shares registered in the name of each shareholder. Such list shall be open to the examination of any shareholder, for any purpose germane to the meeting, during ordinary business hours, for a period of at least 10 days prior to the meeting, either at a place within the city where the meeting is to be held, which place shall be specified in the notice of meeting, or, if not so specified, at the place where the meeting is to be held. The list shall also be produced and kept at the time and place of the meeting during the whole time thereof and may be inspected by any shareholder who is present. The stock ledger shall be the only evidence as to who are the shareholders entitled to examine the stock ledger or to vote in person or by proxy at any meeting of shareholders.

Section 1.13 Proxy Access for Director Nominations.

(a) Whenever the Board of Directors solicits proxies with respect to the election of Equity Directors at an annual meeting of shareholders, subject to the provisions of this Section 1.13, the Corporation shall include in its proxy statement for such annual meeting, in addition to any persons nominated for election by or at the direction of the Board of Directors, the name, together with the Required Information (as defined below), of any person nominated for election to the Board of Directors as an Equity Director by an Eligible Shareholder pursuant to and in accordance with this Section 1.13 (a "Shareholder Nominee"). For purposes of this Section 1.13, the "Required Information" that the Corporation will include in its proxy statement is (i) the information provided to the Secretary concerning the Shareholder Nominee and the Eligible Shareholder that is required to be disclosed in the Corporation's proxy statement pursuant to Section 14 of the Exchange Act and the rules and regulations promulgated thereunder and (ii) if the Eligible Shareholder so elects, a Supporting Statement (as defined in Section 1.13(h)). For the avoidance of doubt, nothing in this Section 1.13 shall limit the Corporation's ability to solicit against any Shareholder Nominee or include in its proxy materials the Corporation's own statements or other information relating to any Eligible Shareholder or Shareholder Nominee, including any information provided to the Corporation pursuant to this Section 1.13. Subject to the provisions of this Section 1.13, the name of any Shareholder Nominee included in the Corporation's proxy statement for an annual meeting of shareholders shall also be set forth on the form of proxy distributed by the Corporation in connection with such annual meeting.

(b) In addition to any other applicable requirements, for a nomination to be made by an Eligible Shareholder pursuant to this Section 1.13, the Eligible Shareholder must have given timely notice thereof (a **"Notice of Proxy Access Nomination"**) in proper written form to the Secretary and must expressly request in the Notice of Proxy Access Nomination to have such nominee included in the Corporation's proxy materials pursuant to this Section 1.13. To be timely, a Notice of Proxy Access Nomination shall be delivered to the Secretary at the principal executive offices of the Corporation not earlier than the open of business on the 150th day and not later than the close of business on the 120th day prior to the first anniversary of the date that the Corporation first distributed its proxy statement to shareholders for the preceding year's annual meeting of shareholders. In no event shall any adjournment or postponement of an annual meeting or the announcement thereof commence a new time period (or extend any time period) for the giving of a Notice of Proxy Access Nomination as described above.

(c) The maximum number of Shareholder Nominees nominated by all Eligible Shareholders that will be included in the Corporation's proxy materials with respect to an annual meeting of shareholders shall not exceed the greater of (i) two or (ii) 20% of the number of Equity Directors in office as of the last day on which a Notice of Proxy Access Nomination may be delivered pursuant to and in accordance with this Section 1.13 (the **"Final Proxy Access Nomination Date"**) or, if such amount is not a whole number, the closest whole number below 20% (such greater number, as it may be adjusted pursuant to this Section 1.13(c), the **"Permitted Number"**). In the event that one or more vacancies on the Board of Directors occurs with respect to any Equity Directors for any reason after the Final Proxy Access Nomination Date but before the date of the annual meeting and the Board of Directors resolves to reduce the size of the Board of Directors in connection therewith, the Permitted Number shall be calculated based on the number of Equity Directors in office as so reduced. In addition, the Permitted Number shall be reduced by (i) the number of individuals who will be included in the Corporation's proxy materials as Equity Director nominees recommended by the Board of Directors pursuant to an agreement, arrangement or other understanding with a shareholder or group of shareholders (other than any such agreement, arrangement or understanding entered into in connection with an acquisition of stock from the Corporation by such shareholder or group of shareholders) and (ii) the number of Equity Directors in office as of the Final Proxy Access Nomination Date who were included in the Corporation's proxy materials as Shareholder Nominees for any of the two preceding annual meetings of shareholders (including any persons counted as Shareholder Nominees pursuant to the immediately succeeding sentence) and whose reelection at the upcoming annual meeting is being recommended by the Board of Directors. For purposes of determining when the Permitted Number has been reached, any individual nominated by an Eligible Shareholder for inclusion in the Corporation's proxy materials pursuant to this Section 1.13 whose nomination is subsequently withdrawn or whom the Board of Directors decides to nominate for election to the Board of Directors as an Equity Director shall be counted as one of the Shareholder Nominees. Any Eligible Shareholder submitting more than one Shareholder Nominee for inclusion in the Corporation's proxy materials pursuant to this Section 1.13 shall rank such Shareholder Nominees based on the order in which the Eligible Shareholder desires such Shareholder Nominees to be selected for inclusion in the Corporation's proxy materials in the event that the total number of Shareholder Nominees submitted by Eligible Shareholders pursuant to this Section 1.13 exceeds the Permitted Number. In the event that the number of Shareholder Nominees submitted by Eligible Shareholders pursuant to this Section 1.13 exceeds the Permitted Number, the highest ranking Shareholder Nominee who meets the requirements of this Section 1.13 from each Eligible Shareholder will be selected for inclusion in the Corporation's proxy materials until the Permitted

Number is reached, going in order of the amount (largest to smallest) of shares of Common Stock each Eligible Shareholder disclosed as Owned in its Notice of Proxy Access Nomination. If the Permitted Number is not reached after the highest ranking Shareholder Nominee who meets the requirements of this Section 1.13 from each Eligible Shareholder has been selected, then the next highest ranking Shareholder Nominee who meets the requirements of this Section 1.13 from each Eligible Shareholder will be selected for inclusion in the Corporation's proxy materials, and this process will continue as many times as necessary, following the same order each time, until the Permitted Number is reached. Notwithstanding anything to the contrary contained in this Section 1.13, the Corporation shall not be required to include any Shareholder Nominees in its proxy materials pursuant to this Section 1.13 for any meeting of shareholders for which the Secretary receives a notice (whether or not subsequently withdrawn) that a shareholder intends to nominate one or more persons for election to the Board of Directors pursuant to clause (ii) of Section 1.1(b) of these Bylaws.

(d) An "**Eligible Shareholder**" is a shareholder or group of no more than 20 shareholders (counting as one shareholder, for this purpose, any two or more funds that are part of the same Qualifying Fund Group (as defined below)) that (i) has Owned (as defined in Section 1.13(e)) continuously for at least three years (the "**Minimum Holding Period**") a number of shares of Common Stock (as defined in the Certificate of Incorporation) that represents at least three percent of the outstanding shares of Common Stock as of the date the Notice of Proxy Access Nomination is received at the principal executive offices of the Corporation in accordance with this Section 1.13 (the "**Required Shares**"), (ii) continues to Own the Required Shares through the date of the annual meeting and (iii) meets all other requirements of this Section 1.13. A "**Qualifying Fund Group**" means two or more funds that are (i) under common management and investment control, (ii) under common management and funded primarily by the same employer or (iii) a "group of investment companies" as such term is defined in Section 12(d)(1)(G) (ii) of the Investment Corporation Act of 1940, as amended. Whenever the Eligible Shareholder consists of a group of shareholders (including a group of funds that are part of the same Qualifying Fund Group), (i) each provision in this Section 1.13 that requires the Eligible Shareholder to provide any written statements, representations, undertakings, agreements or other instruments or to meet any other conditions shall be deemed to require each shareholder (including each individual fund) that is a member of such group to provide such statements, representations, undertakings, agreements or other instruments and to meet such other conditions (except that the members of such group may aggregate the shares that each member has Owned continuously for the Minimum Holding Period in order to meet the three percent Ownership requirement of the "Required Shares" definition) and (ii) a breach of any obligation, agreement or representation under this Section 1.13 by any member of such group shall be deemed a breach by the Eligible Shareholder. No shareholder may be a member of more than one group of shareholders constituting an Eligible Shareholder with respect to any annual meeting.

(e) For purposes of this Section 1.13, a shareholder shall be deemed to "**Own**" only those outstanding shares of Common Stock as to which the shareholder possesses both (i) the full voting and investment rights pertaining to the shares and (ii) the full economic interest in (including the opportunity for profit from and risk of loss on) such shares; provided that the number of shares calculated in accordance with clauses (i) and (ii) shall not include any shares (1) sold by such shareholder or any of its affiliates in any transaction that has not been settled or closed, (2) borrowed by such shareholder or any of its affiliates for any purposes or purchased by such shareholder or any of its affiliates pursuant to an agreement to resell, or

(3) subject to any option, warrant, forward contract, swap, contract of sale, or other derivative or similar instrument or agreement entered into by such shareholder or any of its affiliates, whether any such instrument or agreement is to be settled with shares or with cash based on the notional amount or value of shares of outstanding Common Stock, in any such case which instrument or agreement has, or is intended to have, the purpose or effect of (A) reducing in any manner, to any extent or at any time in the future, such shareholder's or its affiliates' full right to vote or direct the voting of any such shares and/or (B) hedging, offsetting or altering to any degree any gain or loss realized or realizable from maintaining the full economic ownership of such shares by such shareholder or affiliate. A shareholder shall "Own" shares held in the name of a nominee or other intermediary so long as the shareholder retains the right to instruct how the shares are voted with respect to the election of Equity Directors and possesses the full economic interest in the shares. A shareholder's Ownership of shares shall be deemed to continue during any period in which (i) the shareholder has loaned such shares, provided that the shareholder has the power to recall such loaned shares on five Business Days' notice and includes in the Notice of Proxy Access Nomination an agreement that it (1) will promptly recall such loaned shares upon being notified that any of its Shareholder Nominees will be included in the Corporation's proxy materials and (2) will continue to hold such recalled shares through the date of the annual meeting or (ii) the shareholder has delegated any voting power by means of a proxy, power of attorney or other instrument or arrangement which is revocable at any time by the shareholder. The terms "Owned," "Owning" and other variations of the word "Own" shall have correlative meanings. Whether outstanding shares of Common Stock are "Owned" for these purposes shall be decided by the Board of Directors. As used in these Bylaws, the term "Business Day" means any calendar day, except a Saturday, Sunday or other day on which commercial banks are required or authorized by law to be closed in the City of Chicago, Illinois.

(f) To be in proper written form, a Notice of Proxy Access Nomination must set forth or be accompanied by the following:

(i) a statement by the Eligible Shareholder (1) setting forth and certifying as to the number of shares it Owns and has Owned continuously for the Minimum Holding Period, (2) agreeing to continue to Own the Required Shares through the date of annual meeting and (3) indicating whether it intends to continue to own the Required Shares for at least one year following the annual meeting;

(ii) one or more written statements from the record holder of the Required Shares (and from each intermediary through which the Required Shares are or have been held during the Minimum Holding Period) verifying that, as of a date within seven calendar days prior to the date the Notice of Proxy Access Nomination is delivered to the Secretary at the principal executive offices of the Corporation, the Eligible Shareholder Owns, and has Owned continuously for the Minimum Holding Period, the Required Shares, and the Eligible Shareholder's agreement to provide, within 10 days following the record date for the annual meeting, one or more written statements from the record holder and such intermediaries verifying the Eligible Shareholder's continuous Ownership of the Required Shares through the record date;

(iii) a copy of the Schedule 14N that has been or is concurrently being filed with the Securities and Exchange Commission as required by Rule 14a-18 under the Exchange Act;

(iv) the information, representations, agreements and other documents that are required to be set forth in or included with a shareholder's notice of a nomination given pursuant to Section 1.1 of these Bylaws (including the completed and signed questionnaire, representation and agreement required by Section 1.3 of these Bylaws);

(v) a representation that the Eligible Shareholder (1) acquired the Required Shares in the ordinary course of business and not with the intent to change or influence control of the Corporation, and does not presently have such intent, (2) has not nominated and will not nominate for election to the Board of Directors as an Equity Director at the annual meeting any person other than the Shareholder Nominee(s) it is nominating pursuant to this Section 1.13, (3) has not engaged and will not engage in, and has not and will not be a "participant" in another person's, "solicitation" within the meaning of Rule 14a-1(l) under the Exchange Act in support of the election of any individual as an Equity Director at the annual meeting other than its Shareholder Nominee(s) or a nominee of the Board of Directors, (4) has not distributed and will not distribute to any shareholder of the Corporation any form of proxy for the annual meeting other than the form distributed by the Corporation, (5) has complied and will comply with all laws, rules and regulations applicable to solicitations and the use, if any, of soliciting material in connection with the annual meeting and (6) has provided and will provide facts, statements and other information in all communications with the Corporation and its shareholders that are or will be true and correct in all material respects and do not and will not omit to state a material fact necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading;

(vi) an undertaking that the Eligible Shareholder agrees to (1) assume all liability stemming from any legal or regulatory violation arising out of the Eligible Shareholder's communications with the shareholders of the Corporation or out of the information that the Eligible Shareholder provided to the Corporation, (2) indemnify and hold harmless the Corporation and each of its Directors, officers and employees individually against any liability, loss or damages in connection with any threatened or pending action, suit or proceeding, whether legal, administrative or investigative, against the Corporation or any of its Directors, officers or employees arising out of any nomination submitted by the Eligible Shareholder pursuant to this Section 1.13 or any solicitation or other activity in connection therewith and (3) file with the Securities and Exchange Commission any solicitation or other communication with the shareholders of the Corporation relating to the meeting at which its Shareholder Nominee(s) will be nominated, regardless of whether any such filing is required under Regulation 14A of the Exchange Act or whether any exemption from filing is available for such solicitation or other communication under Regulation 14A of the Exchange Act;

(vii) in the case of a nomination by an Eligible Shareholder consisting of a group of shareholders, the designation by all group members of one member of the group that is authorized to receive communications, notices and inquiries from the Corporation and to act on behalf of all members of the group with respect to all matters relating to the nomination under this Section 1.13 (including withdrawal of the nomination); and

(viii) in the case of a nomination by an Eligible Shareholder consisting of a group of shareholders in which two or more funds are intended to be treated as one shareholder for purposes of qualifying as an Eligible Shareholder, documentation reasonably satisfactory to the Corporation that demonstrates that the funds are part of the same Qualifying Fund Group.

(g) In addition to the information required or requested pursuant to Section 1.13(f) or any other provision of these Bylaws, (i) the Corporation may require any proposed Shareholder Nominee to furnish any other information (1) that may reasonably be requested by the Corporation to determine whether the Shareholder Nominee would be independent under the Independence Standards, (2) that could be material to a reasonable shareholder's understanding of the independence, or lack thereof, of such Shareholder Nominee or (3) that may reasonably be requested by the Corporation to determine the eligibility of such Shareholder Nominee to be included in the Corporation's proxy materials pursuant to this Section 1.13 or to serve as a Director of the Corporation, and (ii) the Corporation may require the Eligible Shareholder to furnish any other information that may reasonably be requested by the Corporation to verify the Eligible Shareholder's continuous Ownership of the Required Shares for the Minimum Holding Period and through the date of the annual meeting.

(h) The Eligible Shareholder may, at its option, provide to the Secretary, at the time the Notice of Proxy Access Nomination is provided, a written statement, not to exceed 500 words, in support of its Shareholder Nominee(s)' candidacy (a "**Supporting Statement**"). Only one Supporting Statement may be submitted by an Eligible Shareholder (including any group of shareholders together constituting an Eligible Shareholder) in support of its Shareholder Nominee(s). Notwithstanding anything to the contrary contained in this Section 1.13, the Corporation may omit from its proxy materials any information or Supporting Statement (or portion thereof) that it, in good faith, believes would violate any applicable law, rule or regulation.

(i) In the event that any information or communications provided by an Eligible Shareholder or a Shareholder Nominee to the Corporation or its shareholders is not, when provided, or thereafter ceases to be true and correct in all material respects or omits to state a material fact necessary to make the statements made, in light of the circumstances under which they were made, not misleading, such Eligible Shareholder or Shareholder Nominee, as the case may be, shall promptly notify the Secretary of any such defect and of the information that is required to correct any such defect. Without limiting the foregoing, an Eligible Shareholder shall provide immediate notice to the Corporation if the Eligible Shareholder ceases to Own any of the Required Shares prior to the date of the annual meeting. In addition, any person providing any information to the Corporation pursuant to this Section 1.13 shall further update and supplement such information, if necessary, so that all such information shall be true and correct as of the record date for the annual meeting, and such update and supplement shall be delivered to the Secretary at the principal executive offices of the Corporation not later than 10 days following the record date. For the avoidance of doubt, no notification, update or supplement provided pursuant to this Section 1.13(i) or otherwise shall be deemed to cure any defect in any previously provided information or communications or limit the remedies available to the Corporation relating to any such defect (including the right to omit a Shareholder Nominee from its proxy materials pursuant to this Section 1.13).

(j) Notwithstanding anything to the contrary contained in this Section 1.13, the Corporation shall not be required to include in its proxy materials, pursuant to this Section 1.13, any Shareholder Nominee (i) who would not be an independent Director under the Independence Standards, (ii) who is a Disqualified Person or whose election as a member of the Board of Directors would otherwise cause the Corporation to be in violation of these Bylaws, the Certificate of Incorporation, the rules and listing standards of the securities exchanges upon which the stock of the Corporation is listed or traded, or any applicable law, rule or regulation,

(iii) who is or has been, within the past three years, an officer or director of a competitor, as defined in Section 8 of the Clayton Antitrust Act of 1914, (iv) who is a named subject of a pending criminal proceeding (excluding traffic violations and other minor offenses) or has been convicted in such a criminal proceeding within the past 10 years, (v) who is subject to any order of the type specified in Rule 506(d) of Regulation D promulgated under the Securities Act of 1933, as amended, or (vi) who shall have provided any information to the Corporation or its shareholders that was untrue in any material respect or that omitted to state a material fact necessary to make the statements made, in light of the circumstances in which they were made, not misleading.

(k) Notwithstanding anything to the contrary contained in these Bylaws, if (i) a Shareholder Nominee and/or the applicable Eligible Shareholder breaches any of its agreements or representations or fails to comply with any of its obligations under this Section 1.13 or (ii) a Shareholder Nominee otherwise becomes ineligible for inclusion in the Corporation's proxy materials pursuant to this Section 1.13, or dies, becomes disabled or otherwise becomes ineligible or unavailable for election at the annual meeting, in each case as determined by the Board of Directors or the chairman of the meeting, (1) the Corporation may omit or, to the extent feasible, remove the information concerning such Shareholder Nominee and the related Supporting Statement from its proxy materials and/or otherwise communicate to its shareholders that such Shareholder Nominee will not be eligible for election at the annual meeting, (2) the Corporation shall not be required to include in its proxy materials any successor or replacement nominee proposed by the applicable Eligible Shareholder or any other Eligible Shareholder and (3) the chairman of the meeting shall declare such nomination to be invalid and such nomination shall be disregarded, notwithstanding that proxies in respect of such vote may have been received by the Corporation.

(l) Any Shareholder Nominee who is included in the Corporation's proxy materials for a particular annual meeting of shareholders but either (i) withdraws from or becomes ineligible or unavailable for election at the annual meeting, or (ii) does not receive at least 25% of the votes cast in favor of such Shareholder Nominee's election, will be ineligible to be a Shareholder Nominee pursuant to this Section 1.13 for the next two annual meetings of shareholders. For the avoidance of doubt, the immediately preceding sentence shall not prevent any shareholder from nominating any person to the Board of Directors pursuant to clause (ii) of Section 1.1(b) of these Bylaws.

(m) This Section 1.13 provides the exclusive method for a shareholder to include nominees for election to the Board of Directors as Equity Directors in the Corporation's proxy materials. For the avoidance of doubt, nothing in this Section 1.13 shall affect the rights of holders of shares Class B-1 Common Stock, Class B-2 Common Stock or Class B-3 Common Stock as set forth in Article IV of these Bylaws.

ARTICLE II BOARD OF DIRECTORS

Section 2.1 Number; Qualifications. The Board of Directors shall consist of the number of Directors as provided in the Certificate of Incorporation, and no person shall serve as a Director unless he or she (a) meets the requirements, if any, provided in the Certificate

of Incorporation for service on the Board of Directors and (b) is not a Disqualified Person. A **"Disqualified Person"** is any person who (i) if elected, intends to resign as a Director of the Corporation prior to the end of the full term for which he or she is standing for election, (ii) is or has been subject to any statutory disqualification under Section 3(a)(39) of the Exchange Act or Sections 8a(2)-(4) of the Commodity Exchange Act, (iii) is or has been subject to disqualification under 17 CFR § 1.63 or (iv) otherwise would be ineligible to serve on the governing boards of Chicago Mercantile Exchange Inc. ("**CME**"), Board of Trade of the City of Chicago, Inc. ("**CBOT**"), New York Mercantile Exchange, Inc. ("**NYMEX**") or Commodity Exchange, Inc. ("**COMEX**") under their respective rulebooks, as in effect from time to time.

Section 2.2 Election; Resignation; Vacancies.

(a) Subject to the provisions of the Certificate of Incorporation, at each annual meeting of shareholders, the shareholders shall elect, pursuant to the terms of the Certificate of Incorporation, the successors to the Directors whose terms expire at that meeting, and each Director shall hold office until the annual meeting at which such Director's term expires and the election and qualification of his or her successor, or until his or her earlier death, resignation or removal. Any Director may resign at any time by giving written notice to the Chairman of the Board, if any, the Chief Executive Officer or the Secretary. Unless otherwise stated in a notice of resignation, it shall take effect when received by the officer to whom it is directed, without any need for its acceptance.

(b) Only persons who are nominated in accordance with the provisions of Section 1.1(b) or Section 1.2(b) of these Bylaws and any applicable procedures set forth in Section 1.1, Section 1.2 or Section 1.13 these Bylaws shall be eligible for election as Equity Directors (as defined in the Certificate of Incorporation).

(c) Nominees for election as Class B-1 Directors, Class B-2 Directors and Class B-3 Directors (as such terms are defined in the Certificate of Incorporation) shall be selected as provided in Article IV of these Bylaws.

(d) A vacancy, howsoever occurring, in a directorship shall be filled in the manner specified in the Certificate of Incorporation.

Section 2.3 Regular Meetings. Regular meetings of the Board of Directors may be held without call or notice at such times and at such places, within or without the state of Delaware, as shall be fixed by resolution of the Board of Directors.

Section 2.4 Special Meetings. Special meetings of the Board of Directors may be called by the Chairman of the Board, the Chief Executive Officer, the Lead Director or a majority of the members of the Board of Directors then in office and may be held at any time, date or place, within or without the State of Delaware, as the person or persons calling the meeting shall fix. Notice of the time and place of special meetings shall be delivered personally, by telephone or by electronic transmission to each Director or sent by first-class mail or telegram, charges prepaid, addressed to each Director at that Director's address as it is shown on the records of the Corporation. If the notice is mailed, it shall be deposited in the United States mail at least four days before the time of the holding of the meeting. If the notice is delivered personally, by telephone, by electronic transmission or by telegram, it shall be delivered personally or by telephone or to the telegraph company at least 48 hours before the time of the holding of the

meeting. Any oral notice given personally or by telephone may be communicated either to the Director or to a person at the office of the Director who the person giving the notice has reason to believe will promptly communicate it to the Director. The notice need not specify the purpose or the place of the meeting, if the meeting is to be held at the principal executive office of the Corporation.

Section 2.5 Organization. Meetings of the Board of Directors shall be presided over by the Chairman of the Board, the Chief Executive Officer or the Lead Director (in that order), or in their absence, inability or unwillingness, by a chairman chosen at the meeting. The Secretary shall act as secretary of the meeting, but in his or her absence the chairman of the meeting may appoint any person to act as secretary of the meeting. A majority of the Directors present at a meeting, whether or not they constitute a quorum, may adjourn such meeting to any other date, time or place without notice other than announcement at the meeting.

Section 2.6 Quorum; Vote Required for Action.

(a) At all meetings of the Board of Directors, a majority of the whole Board of Directors shall constitute a quorum for the transaction of business. Unless the Certificate of Incorporation or these Bylaws otherwise provide, the vote of a majority of the Directors present at a meeting at which a quorum is present shall be the act of the Board of Directors. A meeting at which a quorum is initially present may continue to transact business notwithstanding the withdrawal of Directors, if any action taken is approved by at least a majority of the required quorum for that meeting.

(b) If a quorum is not present at any meeting of the Board of Directors, then the Directors present thereat may adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum is present.

(c) Whenever notice is required to be given under any provision of the General Corporation Law of Delaware, the Certificate of Incorporation or these Bylaws, a written waiver thereof, signed by the person entitled to notice, whether before or after the time stated therein, shall be deemed equivalent to notice. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the Directors, or members of a committee of Directors, need be specified in any written waiver of notice unless so required by the Certificate of Incorporation or these Bylaws.

Section 2.7 Telephonic Meetings. Directors, or any committee of Directors designated by the Board of Directors, may participate in a meeting of the Board of Directors or such committee by means of conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other, and participation in a meeting pursuant to this Section 2.7 shall constitute presence in person at such meeting.

Section 2.8 Informal Action by Directors. Unless otherwise restricted by the Certificate of Incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof, may be taken without a meeting if all members of the Board of Directors or such committee, as the case may be, consent thereto

in writing (which may be in counterparts), and the written consent or consents are filed with the minutes of proceedings of the Board of Directors or such committee.

Section 2.9 Reliance Upon Records. Every Director, and every member of any committee of the Board of Directors, shall, in the performance of his or her duties, be fully protected in relying in good faith upon the records of the Corporation and upon such information, opinions, reports or statements presented to the Corporation by any of its officers or employees, or committees of the Board of Directors, or by any other person as to matters the Director or member reasonably believes are within such other person's professional or expert competence and who has been selected with reasonable care by or on behalf of the Corporation, including, but not limited to, such records, information, opinions, reports or statements as to the value and amount of the assets, liabilities and/or net profits of the Corporation, or any other facts pertinent to the existence and amount of surplus or other funds from which dividends might properly be declared and paid, or with which the Corporation's capital stock might properly be purchased or redeemed.

Section 2.10 Interested Directors. No contract or transaction between the Corporation and one or more of its Directors or officers, or between the Corporation and any other corporation, partnership, association or other organization in which one or more of its Directors or officers are Directors or officers, or have a financial interest, shall be void or voidable solely for this reason, or solely because the Director or officer is present at or participates in the meeting of the Board of Directors or committee thereof which authorizes the contract or transaction, or solely because such person's or their votes are counted for such purpose if (i) the material facts as to such person's or their relationship or interest and as to the contract or transaction are disclosed or are known to the Board of Directors or the committee, and the Board of Directors or committee in good faith authorizes the contract or transaction by the affirmative votes of a majority of the disinterested Directors, even though the disinterested Directors be less than a quorum; or (ii) the material facts as to such person's or their relationship or interest and as to the contract or transaction are disclosed or are known to the shareholders entitled to vote thereon, and the contract or transaction is specifically approved in good faith by vote of the shareholders; or (iii) the contract or transaction is fair as to the Corporation as of the time it is authorized, approved or ratified, by the Board of Directors, a committee thereof or the shareholders. Common or interested Directors may be counted in determining the presence of a quorum at a meeting of the Board of Directors or of a committee which authorizes the contract or transaction.

Section 2.11 Compensation. Unless otherwise restricted by the Certificate of Incorporation, the Board of Directors shall have the authority to fix the compensation of Directors. The Directors shall be paid their reasonable expenses, if any, of attendance at each meeting of the Board of Directors or a committee thereof and may be paid a fixed sum for attendance at each such meeting and an annual retainer or salary for services as a Director or committee member. No such payment shall preclude any Director from serving the Corporation in any other capacity and receiving compensation therefor.

Section 2.12 Presumption of Assent. Unless otherwise provided by the laws of the State of Delaware, a Director who is present at a meeting of the Board of Directors or of a committee thereof at which action is taken on any matter shall be presumed to have assented to the action taken unless his or her dissent shall be entered in the minutes of such meeting or unless he or she shall file his or her written dissent to such action with the person acting as

secretary of such meeting before the adjournment thereof or shall forward such dissent by registered mail to the Secretary immediately after the adjournment of such meeting. Such right to dissent shall not apply to a Director who voted in favor of such action.

ARTICLE III COMMITTEES OF THE BOARD OF DIRECTORS

Section 3.1 Committees. The Board of Directors shall have an Executive Committee, an Audit Committee, a Compensation Committee, a Nominating and Governance Committee and any additional committees it may designate from time to time by resolution passed by a majority of the whole Board of Directors, with each committee to consist of one or more of the Directors of the Corporation.

Section 3.2 Executive Committee. The Executive Committee shall consist of such number of Directors as may be elected from time to time by the Board. Whenever the Board is not in session, and subject to the provisions of applicable law, the Certificate of Incorporation or these Bylaws, the Executive Committee shall have and exercise the authority of the Board in the management of the Corporation. A majority of the Executive Committee shall constitute a quorum necessary to transact business.

Section 3.3 Audit Committee. The Audit Committee shall consist of such number of Directors (none of whom shall be an employee of the Corporation) as may be elected from time to time by the Board and who shall meet independence requirements of the applicable listing standards. The Board of Directors shall adopt a charter setting forth the responsibilities of the Audit Committee. A majority of the Audit Committee shall constitute a quorum necessary to transact business.

Section 3.4 Compensation Committee. The Compensation Committee shall consist of such number of Directors (none of whom shall be an employee of the Corporation) as may be elected from time to time by the Board and who shall meet independence requirements of the applicable listing standards. The Compensation Committee shall oversee the compensation and benefits of the employees and management of the Corporation. A majority of the Compensation Committee shall constitute a quorum necessary to transact business.

Section 3.5 Nominating and Governance Committee. The Nominating and Governance Committee shall consist of such number of Directors as may be determined from time to time by the Board and who shall meet independence requirements of the applicable listing standards. The Nominating and Governance Committee shall review the qualifications of potential candidates for the Equity Directors and shall propose nominees for the Equity Directors who are nominated by the Board. After the 2020 annual meeting of the shareholders of the Corporation (the "2020 Annual Meeting"), the Nominating and Governance Committee shall also review the qualifications of potential candidates for Class B Directors and shall propose nominees for Class B Directors. In making their nominations, the Nominating and Governance Committee and the Board of Directors shall take into consideration applicable board of directors composition requirements of the Commodity Futures Trading Commission. Notwithstanding the foregoing, the Nominating and Governance Committee shall include the Chairman and Chief Executive Officer as a nominee for Equity Director. The Nominating and Governance Committee shall also oversee the Corporation's policies, procedures and practices in the area of corporate

governance, including its Corporate Governance Principles. A majority of the Nominating and Governance Committee shall constitute a quorum necessary to transact business.

Section 3.6 Committee Governance. The Board may designate one or more Directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. In the absence or disqualification of a member of a committee, the member or members thereof present at any meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board to act at the meeting in the place of any such absent or disqualified member. Subject to the provisions of law, any such committee, to the extent provided in the resolution of the Board or in these Bylaws, shall have and may exercise all the powers and authority of the Board in the management of the business and affairs of the Corporation. Each committee shall keep regular minutes of its meetings and report the same to the Board of Directors when required. Each committee may adopt rules for its governance not inconsistent with the provisions of these Bylaws.

ARTICLE IV CLASS B NOMINATIONS

Section 4.1 Class B Nominating Committees. At each annual meeting of shareholders prior to the 2020 Annual Meeting, the holders of shares of Class B-1 Common Stock; Class B-2 Common Stock; and Class B-3 Common Stock, shall each elect a nominating committee for their respective class (each, a "Class B Nominating Committee"). Each Class B Nominating Committee shall be composed of five members. This Section 4.1 shall expire and be of no further effect immediately prior to the 2020 Annual Meeting.

Section 4.2 Director Nominations. Each Class B Nominating Committee shall be responsible for assessing the qualifications of candidates to serve as Directors to be elected by the applicable class. Not less than 90 days but not more than 120 days prior to an annual meeting of shareholders at which a Class B-1 Director, a Class B-2 Director or a Class B-3 Director is to be elected, the applicable Class B Nominating Committee(s) shall select nominees for election to such directorship. Such Class B Nominating Committee(s) shall select, subject to the provisions of the Certificate of Incorporation, up to two nominees for each directorship to be filled by the applicable class of Class B Common Stock at such meeting. In addition to such nominee(s), the nominations in the proxy statement mailed to shareholders in conjunction with the annual meeting of shareholders shall include, as part of or in addition to such nominee(s), (i) any nominee who is nominated by the holders of at least 100 shares of Class B-1 Common Stock, in the case of the Class B Nominating Committee representing such class, (ii) any nominee who is nominated by the holders of at least 100 shares of Class B-2 Common Stock, in the case of the Class B Nominating Committee representing such class, and (iii) any nominee who is nominated by the holders of at least 150 shares of Class B-3 Common Stock, in the case of the Class B Nominating Committee representing such class; provided, however, in the case of any such nominations, the nomination is submitted in writing and accompanied by a description of the proposed nominee's qualifications and other relevant biographical information and evidence of the consent of the proposed nominee and is submitted to the Corporate Secretary no later than ten days from the date of the announcement of the Class B nominees. All nominees shall meet the requirements, if any, in the Certificate of Incorporation, in these Bylaws or in the rulebook of CME for service on the Board of Directors. No nominee shall be a

candidate for more than one directorship. If a nominee withdraws, dies, becomes incapacitated or disqualified to serve, the applicable Class B Nominating Committee shall, as quickly as practicable, submit a new nominee to the Chairman of the Board. Each Class B Nominating Committee shall submit its nominee(s) in writing to the Chairman of the Board. Such writing shall set forth as to each nominee for election or reelection as a Director: (1) the name, age, business address and residence address of such person, (2) the principal occupation or employment of such person, (3) the class and number of shares of stock of the Corporation which are owned (or, under the rules of the Corporation, would be recognized as a permitted transferee), and (4) such person's written consent to serving as a Director if elected. A nominee may be disqualified if the nominee does not abide by the proxy rules and regulations under Section 14(a) of the Securities Exchange Act of 1934 and the rules established by the Corporation. This Section 4.2 shall expire and be of no further effect upon the conclusion of the 2020 Annual Meeting.

Section 4.3 Director Nominations. After the 2020 Annual Meeting, not less than 90 days but not more than 120 days prior to an annual meeting of shareholders at which a Class B-1 Director, a Class B-2 Director or a Class B-3 Director is to be elected by the applicable class, the Nominating and Governance Committee shall select nominees for election to such directorship who are eligible to serve as directors for each such class. The Nominating and Governance Committee shall select, subject to the provisions of the Certificate of Incorporation, up to two nominees for each directorship to be filled by the applicable class of Class B Common Stock at such meeting. In addition to such nominee(s), the nominations in the proxy statement mailed to shareholders in conjunction with the annual meeting of shareholders shall include, as part of or in addition to such nominee(s), (i) any nominee for a Class B-1 Director who is nominated by the holders of at least 100 shares of Class B-1 Common Stock, (ii) any nominee for a Class B-2 Director who is nominated by the holders of at least 100 shares of Class B-2 Common Stock, and (iii) any nominee for a Class B-3 Director who is nominated by the holders of at least 150 shares of Class B-3 Common Stock; provided, however, in the case of any such nominations, the nomination is submitted in writing and accompanied by a description of the proposed nominee's qualifications and other relevant biographical information and evidence of the consent of the proposed nominee and is submitted to the Corporate Secretary no later than 10 Business Days from the date of the Corporation's announcement of the Class B nominees. All nominees shall meet the requirements, if any, in the Certificate of Incorporation, in these Bylaws or in the rulebook of CME for service on the Board of Directors. No nominee shall be a candidate for more than one directorship. If a nominee selected by the Nominating and Governance Committee withdraws, dies, becomes incapacitated or disqualified to serve, the Nominating and Governance Committee shall, as quickly as practicable, submit a new nominee to the Board. A nominee may be disqualified if the nominee does not abide by the proxy rules and regulations under Section 14(a) of the Securities Exchange Act of 1934 and the rules established by the Corporation. This Section 4.3 shall become effective upon the conclusion of, and be effective from and after, the 2020 Annual Meeting.

ARTICLE V BOARD OFFICERS; EXECUTIVE OFFICERS

Section 5.1 Board Officers; Executive Officers; Election; Qualification; Term of Office. The Board of Directors shall elect from among its members a Chairman of the Board. The Board of Directors shall also elect a Chief Executive Officer, a Secretary and such other

additional executive officers with such titles as the Board of Directors shall determine. The Board of Directors shall also have the authority to elect a Lead Director with the responsibilities set forth in the Corporation's Corporate Governance Principles. Any number of offices may be held by the same person. Each Board officer and executive officer of the Corporation shall hold office until his or her successor is elected and qualified or until his or her earlier death, resignation or removal.

Section 5.2 Resignation; Removal; Vacancies. Any Board officer or executive officer of the Corporation may resign at any time by giving written notice to the Chairman of the Board, the Chief Executive Officer or the Secretary. Unless otherwise stated in a notice of resignation, it shall take effect when received by the Board officer or executive officer to whom it is directed, without any need for its acceptance. Any resignation is without prejudice to the rights, if any, of the Corporation under any contract to which such officer is a party. The Board of Directors may remove any Board officer or executive officer with or without cause at any time by an affirmative vote of the majority of the Board of Directors, but such removal shall be without prejudice to the contractual rights, if any, of such officer with the Corporation. A vacancy occurring in any Board or executive office of the Corporation may be filled for the unexpired portion of the term thereof by the Board of Directors at any regular or special meeting.

Section 5.3 Powers and Duties of Board Officers and Executive Officers. The Board officers and executive officers of the Corporation shall have such powers and duties in the management of the Corporation as may be prescribed by the Board of Directors and, to the extent not so provided, as generally pertain to their respective offices, subject to the control of the Board of Directors. The Board of Directors may require any officer, agent or employee to give security for the faithful performance of his or her duties.

ARTICLE VI STOCK CERTIFICATES AND TRANSFERS

Section 6.1 Certificates; Uncertificated Shares. The shares of the Corporation's stock shall be represented either by book entries on the Corporation's books, if authorized by the Board of Directors, or by certificates signed by, or in the name of the Corporation by its Chairman of the Board, a Vice Chairman of the Board, its Chief Executive Officer, or a Managing Director, and may be countersigned by its Secretary or an Assistant Secretary, certifying the number of shares owned by such shareholder in the Corporation. Any of or all the signatures on a certificate may be facsimile. In case any officer, transfer agent, or registrar who has signed or whose facsimile signature has been placed upon a certificate shall have ceased to be such officer, transfer agent or registrar before such certificate is issued, it may be issued by the Corporation with the same effect as if such officer, transfer agent or registrar continued to be such at the date of issue. Upon the request of the registered owner of uncertificated shares, the Chief Executive Officer or his designee shall send to the registered owner a certificate representing such shares.

In the case of uncertificated shares, within a reasonable time after the issuance or transfer thereof, the Chief Executive Officer or his designee shall send to the registered owner of shares of Common Stock of the Corporation a written notice containing (i) (A) a full statement of the designations, relative rights, preferences and limitations of the shares of the class and series issued or transferred, so far as the same have been determined and the authority of the

Board of Directors to divide the shares into classes or series and to determine and change the relative rights, preferences and limitations of any class or series; or (B) a declaration that the Corporation will furnish to the shareholder, upon request and without charge, a statement containing the information described in the preceding clause (A); (ii) a statement that the Corporation is organized under the laws of the State of Delaware; (iii) the name of the person to whom the uncertificated shares have been issued or transferred; (iv) the number and class of shares, and the designation of the series, if any, to which such notice applies; and (v) any restrictions on transfer of the shares, in accordance with Section 202 of the Delaware General Corporation Law. The notice referred to in the preceding sentence shall also contain the following statement: "This notice is merely a record of the rights of the addressee as of the time of its issuance. Delivery of this statement, of itself, confers no rights on the recipient. This notice is neither a negotiable instrument nor a security."

Section 6.2 Lost, Stolen or Destroyed Certificates; Issuance of New Certificates. The Corporation may issue a new certificate for stock in the place of any certificate theretofore issued by it, alleged to have been lost, stolen or destroyed, and the Corporation may require the owner of the lost, stolen or destroyed certificate, or such shareholder's legal representative, to indemnify the Corporation and/or to give the Corporation a bond sufficient to indemnify it against any claim that may be made against it on account of the alleged loss, theft or destruction of any such certificate or the issuance of such new certificate.

Section 6.3 Transfers of Stock. Upon surrender to the Corporation or the transfer agent of the Corporation of a certificate for stock of the Corporation duly endorsed or accompanied by proper evidence of succession, assignment or authority to transfer or, if the relevant stock certificate is claimed to have been lost, stolen or destroyed, upon compliance with the provisions of Section 6.2 of these Bylaws, and upon payment of applicable taxes with respect to such transfer, and in compliance with the transfer restrictions applicable to such shares under the Certificate of Incorporation, these Bylaws or rules of the Corporation and any other applicable transfer restrictions of which the Corporation shall have notice, the Corporation shall issue a new certificate or certificates for such stock to the person entitled thereto, cancel the old certificate and record the transaction upon its books. Transfers of stock shall be made only on the books of the Corporation by the registered holder thereof or by such holder's attorney or successor duly authorized as evidenced by documents filed with the Secretary. Whenever any transfer of stock shall be made for collateral security, and not absolutely, it shall be so expressed in the entry of transfer if, when the certificate or certificates representing such stock are presented to the Corporation for transfer, both the transferor and transferee request the Corporation to do so.

Section 6.4 Transfers of Uncertificated Stock. Except as otherwise required by law, uncertificated shares of the Corporation's stock shall be transferable in the manner prescribed in these Bylaws. Transfers of uncertificated stock shall be made on the books of the Corporation only by the person then registered on the books of the Corporation as the owner of such shares or by such person's attorney lawfully constituted in writing and written instruction to the Corporation containing the following information: (i) the class of shares, and the designation of the series, if any, to which such notice applies; (ii) the number of shares transferred; and (iii) the name, address and taxpayer identification number, if any, of the party to whom the shares have been transferred and who, as a result of such transfer, is to become the new registered owner of the shares. No transfer of uncertificated stock shall be valid as against the Corporation for any

purpose until it shall have been entered in the stock records of the Corporation by an entry showing from and to whom transferred.

Section 6.5 Special Designation on Certificates. The designations, preferences and relative, participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights shall be set forth in full or summarized on the face or back of the certificate that the Corporation shall issue to represent such class or series of stock; provided, however, that, except as otherwise provided in Section 202 of the General Corporation Law of Delaware, in lieu of the foregoing requirements there may be set forth on the face or back of the certificate that the Corporation shall issue to represent such class or series of stock a statement that the Corporation will furnish without charge to each shareholder who so requests the powers, designations, preferences, and the relative, participating, optional or other special rights of each class of stock, or series thereof, and the qualifications limitations or restrictions of such preferences and/or rights.

Section 6.6 Stock Transfer Agreements. Subject to the provisions of the Certificate of Incorporation, the Corporation shall have power to enter into and perform any agreement with any number of shareholders of any one or more classes, or series thereof, of stock of the Corporation to restrict the transfer of such shares owned by such shareholders in any manner not prohibited by the General Corporation Law of Delaware.

Section 6.7 Registered Shareholders. The Corporation shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares to receive dividends and to vote as such owner, shall be entitled to hold liable for calls and assessments the person registered on its books as the owner of shares, and shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of another person, whether or not it shall have express or other notice thereof, except as otherwise provided by the laws of Delaware.

Section 6.8 Other Regulations. The issue, transfer, conversion and registration of stock certificates shall be governed by such other regulations as the Board of Directors may establish.

ARTICLE VII NOTICES

Section 7.1 Manner of Notice. Except as otherwise provided by law, the Certificate of Incorporation or these Bylaws, whenever notice is required to be given to any shareholder, Director or member of any committee of the Board of Directors, such notice may be given by personal delivery or by depositing it, in a sealed envelope, in the United States mails, first class, postage prepaid, addressed, or by transmitting it via telecopier, to such shareholder, Director or member, either at the address of such shareholder, Director or member as it appears on the records of the Corporation or, in the case of such a Director or member, at his or her business address; and such notice shall be deemed to be given at the time when it is thus personally delivered, deposited or transmitted, as the case may be. Such requirement for notice shall also be deemed satisfied, except in the case of shareholder meetings, if actual notice is received orally or by other writing by the person entitled thereto as far in advance of the event with

respect to which notice is being given as the minimum notice period required by law or these Bylaws.

Section 7.2 Dispensation with Notice.

(a) Whenever notice is required to be given by law, the Certificate of Incorporation or these Bylaws to any shareholder to whom (i) notice of two consecutive annual meetings of shareholders, and all notices of meetings of shareholders or (ii) all, and at least two, payments (if sent by first class mail) of dividends or interest on securities of the Corporation during a 12-month period, have been mailed addressed to such shareholder at the address of such shareholder as shown on the records of the Corporation and have been returned undeliverable, the giving of such notice to such shareholder shall not be required. Any action or meeting which shall be taken or held without notice to such shareholder shall have the same force and effect as if such notice had been duly given. If any such shareholder shall deliver to the Corporation a written notice setting forth the then current address of such shareholder, the requirement that notice be given to such shareholder shall be reinstated.

(b) Whenever notice is required to be given by law, the Certificate of Incorporation or these Bylaws to any person with whom communication is unlawful, the giving of such notice to such person shall not be required, and there shall be no duty to apply to any governmental authority or agency for a license or permit to give such notice to such person. Any action or meeting which shall be taken or held without notice to any such person with whom communication is unlawful shall have the same force and effect as if such notice had been duly given.

Section 7.3 Waiver of Notice. Any written waiver of notice, signed by the person entitled to notice, whether before or after the time stated therein, shall be deemed equivalent to notice. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of any regular or special meeting of the shareholders, Directors, or members of a committee of Directors need be specified in any written waiver of notice.

**ARTICLE VIII
INDEMNIFICATION**

Section 8.1 Right to Indemnification. In addition and subject to the indemnification provisions contained in the Certificate of Incorporation, and subject to applicable law, the following Sections of this Article VIII shall apply with respect to any person subject to the indemnification provisions of the Corporation. For purposes of the right to indemnification granted under the Certificate of Incorporation and these Bylaws, the term "officer" shall be as defined in Rule 16a-1(f) promulgated under the Exchange Act, as determined by the Board of Directors or a committee thereof.

Section 8.2 Prepayment of Expenses. The Corporation may pay or reimburse the reasonable expenses incurred in defending any proceeding in advance of its final disposition if the Corporation has received in advance an undertaking by the person receiving such payment or reimbursement to repay all amounts advanced if it should be ultimately determined that he or

she is not entitled to be indemnified under this Article VIII or otherwise. The Corporation may require security for any such undertaking.

Section 8.3 Claims. If a claim for indemnification or payment of expenses under this Article VII is not paid in full within 60 days after a written claim therefor has been received by the Corporation, the claimant may file suit to recover the unpaid amount of such claim and, if successful in whole or in part, shall be entitled to be paid the expense of prosecuting such claim. In any such action the Corporation shall have the burden of proving that the claimant was not entitled to the requested indemnification or payment of expenses under applicable law.

Section 8.4 Non-Exclusivity of Rights. The rights conferred on any person by this Article VIII shall not be exclusive of any other rights which such person may have or hereafter acquire under any statute, provision of the Certificate of Incorporation, these Bylaws, agreement, vote of shareholders or disinterested Directors or otherwise.

Section 8.5 Other Indemnification. The Corporation's obligation, if any, to indemnify any person who was or is serving at its request as a Director, officer, employee, partner or agent of another corporation, partnership, joint venture or other enterprise shall be reduced by any amount such person may collect as indemnification from such other corporation, partnership, joint venture or other enterprise.

Section 8.6 Amendment or Repeal. Any repeal or modification of the foregoing provisions of this Article VIII shall not adversely affect any right or protection hereunder of any person in respect of any act or omission occurring prior to the time of such repeal or modification.

ARTICLE IX FORUM FOR ADJUDICATION OF CERTAIN DISPUTES

Section 9.1 Forum for Adjudication of Certain Disputes. Unless the Corporation consents in writing to the selection of an alternative forum (an "**Alternative Forum Consent**"), the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (i) any derivative action or proceeding brought on behalf of the Corporation, (ii) any action asserting a claim of breach of a fiduciary duty owed by any Director, officer, shareholder, employee or agent of the Corporation to the Corporation or the Corporation's shareholders, (iii) any action asserting a claim against the Corporation or any Director, officer, shareholder, employee or agent of the Corporation arising out of or relating to any provision of the General Corporation Law of Delaware or the Certificate of Incorporation or these Bylaws, or (iv) any action asserting a claim against the Corporation or any Director, officer, shareholder, employee or agent of the Corporation governed by the internal affairs doctrine of the State of Delaware; provided, however, that, in the event that the Court of Chancery of the State of Delaware lacks subject matter jurisdiction over any such action or proceeding described in clauses (i) through (iv), the sole and exclusive forum for such action or proceeding shall be another state or federal court located within the State of Delaware, in each such case, unless the Court of Chancery (or such other state or federal court located within the State of Delaware, as applicable) has dismissed a prior action by the same plaintiff asserting the same claims because such court lacked personal jurisdiction over an indispensable party named as a defendant therein. Failure to enforce the foregoing provisions would cause the Corporation irreparable harm and the Corporation shall be

entitled to equitable relief, including injunctive relief and specific performance, to enforce the foregoing provisions. The existence of any prior Alternative Forum Consent shall not act as a waiver of the Corporation's ongoing consent right as set forth above in this Section 9.1 with respect to any current or future actions or claims. For the avoidance of doubt, this Section 9.1 does not supersede any of the rules of any of the Corporation's exchanges or the bylaws or charters of any of the Corporation's subsidiaries, including, but not limited to, with respect to the jurisdiction and venue provisions of such rules, bylaws or charters applicable to claims brought by members of such exchanges or shareholders of such subsidiaries.

ARTICLE X GENERAL

Section 10.1 Form of Records. Any records maintained by the Corporation in the regular course of its business, including its stock ledger, books of account, and minute books, may be kept on, or be in the form of, magnetic tape, diskette, photographs, microphotographs, or any other information storage device, provided that the records so kept can be converted into clearly legible form within a reasonable time. The Corporation shall so convert any records so kept upon the request of any person entitled to inspect the same.

Section 10.2 Execution of Corporate Contracts and Instruments. The Board of Directors, except as otherwise provided in these Bylaws, may authorize any officer or officers, or agent or agents, to enter into any contract or execute any instrument in the name of and on behalf of the Corporation; such authority may be general or confined to specific instances. Unless so authorized or ratified by the Board of Directors or within the agency power of an officer, no officer, agent or employee shall have any power or authority to bind the Corporation by any contract or engagement or to pledge its credit or to render it liable for any purpose or for any amount.

Section 10.3 Severability. If any provision of these Bylaws shall be held to be invalid, illegal, unenforceable or in conflict with the provisions of the Corporation's Certificate of Incorporation, then such provision shall nonetheless be enforced to the maximum extent possible consistent with such holding and the remaining provisions of these Bylaws (including without limitation, all portions of any Section of these Bylaws containing any such provision held to be invalid, illegal, unenforceable or in conflict with the Certificate of Incorporation, that are not themselves invalid, illegal, unenforceable or in conflict with the Certificate of Incorporation) shall remain in full force and effect.

Section 10.4 Construction; Definitions. Unless the context requires otherwise, the general provisions, rules of construction, and definitions in the General Corporation Law of Delaware shall govern the construction of these Bylaws. Without limiting the generality of this provision, the singular number includes the plural, the plural number includes the singular, and the term "person" includes both a corporation and a natural person.

Section 10.5 Dividends. The Board of Directors, subject to any restrictions contained in the General Corporation Law of Delaware or the Certificate of Incorporation, may declare and pay dividends upon the shares of its capital stock. Dividends may be paid only in cash or in property. The Board of Directors may set apart out of any of the funds of the Corporation available for dividends a reserve or reserves for any proper purpose and may abolish any such

reserve. Such purposes shall include, but not be limited to, equalizing dividends, repairing or maintaining any property of the Corporation, and meeting contingencies.

Section 10.6 Notice and Consent. Any person or entity owning, purchasing, or otherwise acquiring any interest in shares of capital stock of the Corporation shall be deemed to have notice of and consented to the provisions of these Bylaws, including, but not limited to, Article IX.

CERTIFICATION

I, Terrence A. Duffy, certify that:

1. I have reviewed this report on Form 10-Q of CME Group Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent function):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: August 4, 2021

/s/ Terrence A. Duffy

Name: Terrence A. Duffy

Title: Chief Executive Officer

CERTIFICATION

I, John W. Pietrowicz, certify that:

1. I have reviewed this report on Form 10-Q of CME Group Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent function):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: August 4, 2021

/s/ John W. Pietrowicz

Name: John W. Pietrowicz

Title: Chief Financial Officer

**Certification of CEO and CFO Pursuant to
18 U.S.C. Section 1350,
as Adopted Pursuant to
Section 906 of the Sarbanes-Oxley Act of 2002**

In connection with the Quarterly Report on Form 10-Q of CME Group Inc. (the "Company") for the quarter ended June 30, 2021 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Terrence A. Duffy, as Chief Executive Officer of the Company, and John W. Pietrowicz, as Chief Financial Officer of the Company, each hereby certifies, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to the best of his knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Terrence A. Duffy

Name: Terrence A. Duffy

Title: Chief Executive Officer

Dated: August 4, 2021

/s/ John W. Pietrowicz

Name: John W. Pietrowicz

Title: Chief Financial Officer

Dated: August 4, 2021

This certification accompanies the Report pursuant to § 906 of the Sarbanes-Oxley Act of 2002 and shall not, except to the extent required by the Sarbanes-Oxley Act of 2002, be deemed filed by the Company for purposes of §18 of the Securities Exchange Act of 1934, as amended.

A signed original of this written statement required by § 906 of the Sarbanes-Oxley Act of 2002 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.