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

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**FORM 8-K**

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**CURRENT REPORT**

**Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

**Date of Report (Date of earliest event reported): June 21, 2018**

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**CME GROUP INC.**

(Exact name of registrant as specified in its charter)

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**Delaware**  
(State or other jurisdiction of  
incorporation)

**001-31553**  
(Commission File  
Number)

**36-4459170**  
(IRS Employer  
Identification No.)

**20 South Wacker Drive, Chicago, Illinois 60606**  
(Address of principal executive offices) (Zip Code)

**Registrant's telephone number, including area code: (312) 930-1000**

**Not Applicable**

(Former name or former address, if changed since last report)

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Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (17 CFR §230.405) or Rule 12b-2 of the Securities Exchange Act of 1934 (17 CFR §240.12b-2 of this chapter).

Emerging growth company

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.

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## **Item 1.01. Entry into a Material Definitive Agreement.**

On June 21, 2018, CME Group Inc. (the “Company”) completed its previously announced public offering of \$500,000,000 aggregate principal amount of 3.750% Notes due 2028 (the “2028 Notes”) and \$700,000,000 aggregate principal amount of 4.150% Notes due 2048 (the “2048 Notes” and, together with the 2028 Notes, the “Notes”). The Notes were offered by the Company pursuant to its automatic shelf registration statement on Form S-3 (File No. 333-208334) and the prospectus included therein, filed with the Securities and Exchange Commission on December 4, 2015 and supplemented by the prospectus supplement dated June 14, 2018. The Company intends to use the net proceeds from the offering, together with cash on hand, to finance the payment of the cash consideration due in respect of its previously announced proposed cash and share acquisition of NEX Group plc (the “NEX Acquisition”) by the Company and CME London Limited, a wholly-owned subsidiary of the Company. The Company still expects the NEX Acquisition to close in the second half of 2018.

The Notes were issued under the Indenture, dated as of August 12, 2008 (the “Base Indenture”), between the Company and U.S. Bank National Association, as trustee (the “Trustee”), as supplemented by the Eighth Supplemental Indenture, dated as of June 21, 2018, between the Company and the Trustee, with regard to the 2028 Notes (the “Eighth Supplemental Indenture”), and the Ninth Supplemental Indenture, dated as of June 21, 2018, between the Company and the Trustee, with regard to the 2048 Notes (together with the Eighth Supplemental Indenture, the “Supplemental Indentures” and, together with the Base Indenture, the “Indenture”).

The Underwriters offered the 2028 Notes and the 2048 Notes to the public at prices of 99.984% and 99.541% of the principal amount thereof, respectively. Interest is payable on the Notes on June 15 and December 15 of each year, commencing on December 15, 2018.

The Company may issue additional debt from time to time pursuant to the Indenture. The Indenture contains covenants that limit the Company’s ability to, among other things, incur certain liens securing indebtedness, engage in certain sale and leaseback transactions, and enter into certain consolidations, mergers, conveyances, transfers or leases of all or substantially all the Company’s assets. The Indenture also contains customary event of default provisions. In addition, upon the occurrence of certain change of control triggering events, the Company will be required to offer to repurchase the Notes at a purchase price equal to 101% of the principal amount thereof plus accrued and unpaid interest to, but excluding, the purchase date applicable to such Notes.

Prior to March 15, 2028, in the case of the 2028 Notes, and December 15, 2047, in the case of the 2048 Notes, the Company may redeem the Notes, at its option, at any time in whole or from time to time in part, at a redemption price equal to the greater of (i) 100% of the principal amount of the Notes to be redeemed and (ii) a make-whole amount as set forth in the Indenture, plus, in each case, accrued and unpaid interest on the Notes to be redeemed to, but excluding, the redemption date. Commencing on March 15, 2028, in the case of the 2028 Notes, and December 15, 2047, in the case of the 2048 Notes, the Company may redeem the Notes, at any time in whole or from time to time in part, at a redemption price equal to 100% of the principal amount of the Notes to be redeemed, plus, in each case, accrued and unpaid interest on the Notes to be redeemed to, but excluding, the redemption date.

If (i) the NEX Acquisition is not consummated on or before 11:59 p.m. (New York City time) on June 30, 2019 or (ii) the NEX Acquisition is withdrawn, terminated or lapses in accordance with its terms, the Company will be required to redeem all of the outstanding Notes at a redemption price equal to 101% of the aggregate principal amount of the Notes being redeemed, plus accrued and unpaid interest to, but excluding, the date of repurchase.

The foregoing descriptions of the Base Indenture, the Supplemental Indentures and the Notes do not purport to be complete and are qualified in their entirety by reference to the full text of the Base Indenture and the Supplemental Indentures (including the form of the Notes), which are filed or incorporated by reference as Exhibits 4.1, 4.2 and 4.3 hereto, respectively, and incorporated herein by reference. A copy of the opinion of Skadden, Arps, Slate, Meagher & Flom LLP relating to the legality of the issuance and sale of the Notes is attached as Exhibit 5.1 to this report.

U.S. Bank National Association has from time to time performed various services, including serving as trustee in connection with other issuances of debt securities and as a lender under the Company’s senior credit facility and the Chicago Mercantile Exchange Inc. clearing house facility, and may in the future perform various services, for the Company and its subsidiaries, for which it has received or will receive customary fees and expenses.

**Item 2.03 Creation of a Direct Financial Obligation or an Obligation under an Off-Balance Sheet Arrangement of a Registrant.**

The information set forth in Item 1.01 above with respect to the Notes, the Indenture and the Supplemental Indentures is hereby incorporated by reference under this Item 2.03, insofar as it relates to the creation of a direct financial obligation.

**Item 9.01. Financial Statements and Exhibits.**

(d) Exhibits

<u>Exhibit Number</u>	<u>Description</u>
4.1	<a href="#"><u>Indenture, dated as of August 12, 2008, between CME Group Inc. and U.S. Bank National Association (incorporated by reference to Exhibit 4.1 to CME Group Inc.'s Current Report on Form 8-K filed with the SEC on August 13, 2008).</u></a>
4.2	<a href="#"><u>Eighth Supplemental Indenture (including the form of 3.750% Notes due 2028), dated as of June 21, 2018, between CME Group Inc. and U.S. Bank National Association.</u></a>
4.3	<a href="#"><u>Ninth Supplemental Indenture (including the form of 4.150% Notes due 2048), dated as of June 21, 2018, between CME Group Inc. and U.S. Bank National Association.</u></a>
5.1	<a href="#"><u>Opinion of Skadden, Arps, Slate, Meagher &amp; Flom LLP.</u></a>
12.1	<a href="#"><u>Ratio of Earnings to Fixed Charges.</u></a>
23.1	<a href="#"><u>Consent of Skadden, Arps, Slate, Meagher &amp; Flom LLP (included in Exhibit 5.1).</u></a>

**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 hereunto duly authorized.

**CME Group Inc.**

By: /s/ Kathleen M. Cronin

Kathleen M. Cronin

Senior Managing Director, General Counsel and Corporate Secretary

Date: June 21, 2018

**CME GROUP INC.**

and

**U.S. BANK NATIONAL ASSOCIATION,**  
as Trustee

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**Eighth Supplemental Indenture**

Dated as of June 21, 2018

to Senior Debt Indenture  
Dated as of August 12, 2008

Establishing a series of Securities designated  
3.750% Notes due 2028

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EIGHTH SUPPLEMENTAL INDENTURE, dated as of June 21, 2018 (herein called the “**Eighth Supplemental Indenture**”), between CME Group Inc., a corporation duly organized and existing under the laws of the State of Delaware (herein called the “**Company**”), and U.S. Bank National Association, a nationally chartered banking association, as Trustee under the Base Indenture referred to below (herein called the “**Trustee**”).

WITNESSETH:

WHEREAS, the Company has heretofore executed and delivered to the Trustee an indenture dated as of August 12, 2008 (herein called the “**Base Indenture**” and, together with this Eighth Supplemental Indenture, the “**Indenture**”), to provide for the issuance from time to time of its unsecured debentures, notes or other evidences of indebtedness (herein called the “**Securities**”), the form and terms of which are to be established as set forth in Sections 201 and 301 of the Base Indenture;

WHEREAS, Section 901 of the Base Indenture provides, among other things, that the Company and the Trustee may enter into indentures supplemental to the Base Indenture to, among other things, establish the form and terms of the Securities of any series as permitted in Sections 201 and 301 of the Base Indenture;

WHEREAS, the Company desires to create a series of the Securities in an aggregate principal amount of \$500,000,000 to be designated the “3.750% Notes due 2028” (herein called the “**Notes**”) and all action on the part of the Company necessary to authorize the issuance of the Notes under the Base Indenture and this Eighth Supplemental Indenture has been duly taken;

WHEREAS, the Company desires to issue the Notes in accordance with Section 2.3 of this Eighth Supplemental Indenture and treat the Notes as a single series of Securities for all purposes, as amended or supplemented from time to time in accordance with the terms of this Eighth Supplemental Indenture and the Base Indenture; and

WHEREAS, all acts and things necessary to make the Notes, when executed by the Company and completed, authenticated and delivered by the Trustee as provided in the Base Indenture and this Eighth Supplemental Indenture, the valid and binding obligations of the Company and to constitute a valid and binding supplemental indenture and agreement according to its terms, have been done and performed.

NOW, THEREFORE, THIS EIGHTH SUPPLEMENTAL INDENTURE WITNESSETH:

That in consideration of the premises and of the acceptance and purchase of the Notes by the Holders thereof and of the acceptance of this trust by the Trustee, the Company covenants and agrees with the Trustee, for the equal benefit of Holders of the Notes, as follows:

## ARTICLE 1.

### DEFINITIONS

Except to the extent such terms are otherwise defined in this Eighth Supplemental Indenture or the context clearly requires otherwise, all terms used in this Eighth Supplemental Indenture which are defined in the Base Indenture or the form of Note attached hereto as Exhibit A have the meanings assigned to them therein. With respect to the Notes, the term “**Managing Director**” shall mean, when used in the Indenture with respect to the Company, any managing director, whether or not designated by a number or a word or words added before or after the title “managing director.” For purposes of any requirement under the Base Indenture or this Eighth Supplemental Indenture for the Trustee to have its Corporate Trust Office in New York, New York, “**Corporate Trust Office**” means, and for purposes of the Place of Payment in respect of the Notes, the office or agency of the Trustee when acting as the Paying Agent shall be, the office or agency of the Trustee in The City of New York, State of New York, which as of the date hereof is located at U.S. Bank Global Corporate Trust Services, New York, 100 Wall St., 16th floor, New York, NY 10005.

In addition, as used in this Eighth Supplemental Indenture, the following terms have the following meanings:

“**Applicable Procedures**” has the meaning specified in Section 2.6 hereof.

“**Attributable Debt**” with regard to a Sale and Lease-Back Transaction with respect to any Principal Property means, at the time of determination, the present value of the total net amount of rent required to be paid under such lease during the remaining term thereof (including any period for which such lease has been extended), discounted at the rate of interest set forth or implicit in the terms of such lease (or, if not practicable to determine such rate, the weighted average interest rate per annum borne by the Securities of all series then Outstanding under the Indenture) compounded semi-annually. In the case of any lease which is terminable by the lessee upon the payment of a penalty, such net amount shall be the lesser of (x) the net amount determined assuming termination upon the first date such lease may be terminated (in which case the net amount shall also include the amount of the penalty, but shall not include any rent that would be required to be paid under such lease subsequent to the first date upon which it may be so terminated) or (y) the net amount determined assuming no such termination.

“**Bankruptcy Law**” means Title 11, U.S. Code or any similar federal or state law for the relief of debtors.

“**Base Indenture**” has the meaning provided in the recitals hereof.

“**Below Investment Grade Rating Event**” means the Notes are rated below an Investment Grade Rating by each of the Rating Agencies on any date during the period commencing upon the first public notice of the occurrence of a Change of Control or the Company’s intention to effect a Change of Control and ending 60 days following public notice of the occurrence of the related Change of Control (which 60-day period shall be extended so long as the rating of the Notes is under publicly announced consideration for possible downgrade by any of the Rating Agencies, *provided* that no such extension shall occur if on such 60th day the Notes have an Investment Grade Rating from at least one Rating Agency and are not subject to review for possible downgrade by such Rating Agency); *provided further*, that a Below Investment Grade Rating Event otherwise arising by virtue of a particular reduction in rating shall not be deemed to have occurred in respect of a particular Change of Control (and thus shall not be deemed a Below Investment Grade Rating Event for purposes of the definition of Change of Control Triggering Event hereunder) if the Rating Agencies making the reduction in rating to which this definition would otherwise apply do not announce or publicly confirm or inform the Holders of the Notes in writing at their request that the reduction was the result, in whole or in part, of any event or circumstance comprising or arising as a result of, or in respect of, the applicable Change of Control (whether or not the applicable Change of Control shall have occurred at the time of the Below Investment Grade Rating Event).

“**Business Day**” means any calendar day that is not a Saturday, Sunday or a day on which banking institutions in New York City are authorized or obligated by law or regulation to close.

“**Capital Stock**” means (i) in the case of a corporation or a company, corporate stock or shares; (ii) in the case of an association or business entity, any and all shares, interests, participations, rights or other equivalents (however designated) of corporate stock; (iii) in the case of a partnership or limited liability company, partnership or membership interests (whether general or limited); and (iv) any other interest or participation that confers on a person the right to receive a share of the profits and losses of, or distributions of assets of, the issuing person.

“**Change of Control**” means the occurrence of any of the following: (1) the direct or indirect sale, transfer, conveyance or other disposition (other than by way of merger or consolidation), in one or a series of related transactions, of all or substantially all of the assets of the Company and its Subsidiaries taken as a whole to any Person or group of related Persons for purposes of Section 13(d) of the Exchange Act (a “**Group**”) other than the Company or one of its Subsidiaries; (2) the approval by the holders of the Company’s common stock of any plan or proposal for the liquidation or dissolution of the Company; or (3) the consummation of any transaction (including, without limitation, any merger or consolidation) the result of which is that any Person or Group becomes the beneficial owner, directly or indirectly, of more than 50% of the Company’s Voting Stock (measured by voting power rather than the number of shares); *provided, however*, that a transaction will not be deemed to involve a Change of Control if (1) the Company becomes a direct or indirect wholly owned Subsidiary of a holding company

and (2)(A) the direct or indirect holders of the Voting Stock of such holding company immediately following that transaction are substantially the same as the holders of the Company's Voting Stock immediately prior to that transaction, or (B) immediately following that transaction, no Person or Group (other than a holding company satisfying the requirements of this proviso) is the beneficial owner, directly or indirectly of more than 50% of the Voting Stock (measured by voting power rather than the number of shares) of such holding company.

**"Change of Control Offer"** has the meaning specified in Section 2.8 hereof.

**"Change of Control Payment"** has the meaning specified in Section 2.8 hereof.

**"Change of Control Payment Date"** has the meaning specified in Section 2.8 hereof.

**"Change of Control Triggering Event"** means the occurrence of both a Change of Control and a Below Investment Grade Rating Event occurring in respect of that Change of Control.

**"Clearing House Facility"** means the Credit Agreement, dated as of November 2, 2017, among Chicago Mercantile Exchange Inc., the Banks (as defined therein), Bank of America, N.A., as administrative agent and Citibank, N.A., as collateral agent, as amended, restated, supplemented, increased, extended, renewed, replaced, refinanced (with the same or other lenders) or otherwise modified from time to time.

**"Company"** means the person named as such in the preamble hereof and, subject to the provisions of Article VIII of the Base Indenture as amended by this Eighth Supplemental Indenture, any successor to that person.

**"Comparable Treasury Issue"** means the United States Treasury security selected by a Reference Treasury Dealer as having an actual or interpolated maturity comparable to the remaining term of the Notes (assuming for this purpose that the Notes mature on the Par Call Date) called for redemption, that would be utilized, at the time of selection and in accordance with customary financial practice, in pricing new issues of corporate debt securities of comparable maturity to the remaining term of the Notes called for redemption.

**"Comparable Treasury Price"** means, with respect to any Redemption Date, the average, as determined by the Company, of the Reference Treasury Dealer Quotations for that Redemption Date after excluding the highest and lowest Reference Treasury Dealer Quotation.

**"Consolidated Net Tangible Assets"** means, at any date, the aggregate amount of assets (less applicable reserves) of the Company and its Significant Subsidiaries after deducting therefrom (a) all goodwill, trade names, trademarks, patents, unamortized debt discount and expense and other like intangibles and (b) all current liabilities (excluding any current liabilities for money borrowed having a maturity of less than 12 months but by its terms being renewable or extendible beyond 12 months from such date at the option of the borrower), all as reflected in the Company's most recent consolidated balance sheet as of the end of the Company's fiscal quarter ending not more than 135 days prior to such date, prepared in accordance with United States generally accepted accounting principles, *provided*, that Consolidated Net Tangible Assets will be calculated after giving pro forma effect to any investments, acquisitions or dispositions occurring outside the ordinary course of business and subsequent to the date of such balance sheet, as well as any transaction giving rise to the need to calculate Consolidated Net Tangible Assets (including the application of the proceeds therefrom, as applicable).

**"Definitive Securities"** means certificated Securities registered in the name of the Holder thereof and issued in accordance with Section 2.2(b) hereof, substantially in the form of Exhibit A hereto, except that such Security shall not bear the Global Security Legend.

**"Depository"** means DTC, together with any Person succeeding thereto by merger, consolidation or acquisition of all or substantially all of its assets, including substantially all of its securities payment and transfer operations.

**"DTC"** means The Depository Trust Company, a New York corporation, having a principal office at 55 Water Street, New York, New York 10041-0099.



“**Eighth Supplemental Indenture**” has the meaning provided in the preamble hereof.

“**Global Security Legend**” means the legend set forth in Section 202 of the Base Indenture.

“**Group**” has the meaning given to such term in the definition of “Change of Control” herein.

“**Indebtedness**” means any indebtedness (whether being principal, premium, interest or other amounts) for or in respect of any notes, bonds, debentures or other instruments for money borrowed or any borrowed money or any liability under or in respect of any banker’s acceptance (other than a daylight overdraft).

“**Indenture**” has the meaning provided in the recitals hereof.

“**Indirect Participant**” means a Person who holds a beneficial interest in a Global Security through a Participant.

“**Investment Grade Rating**” means a rating equal to or higher than Baa3 (or the equivalent) by Moody’s and BBB- (or the equivalent) by S&P or the equivalent investment grade credit rating from any additional Rating Agency or Rating Agencies selected by the Company.

“**Issue Date**” means June 21, 2018, the date on which the Notes are originally issued under this Eighth Supplemental Indenture.

“**Lien**” means any lien, mortgage, deed of trust, hypothecation, pledge, security interest, charge or encumbrance of any kind.

“**Moody’s**” means Moody’s Investors Service, Inc. and its successors.

“**NEX Acquisition**” means the cash and share acquisition of NEX Group plc by the Company and CME London Limited, a wholly-owned subsidiary of the Company.

“**Notes**” has the meaning given to such term in the recitals hereof.

“**Optional Redemption Price**” has the meaning specified in Section 4.1 hereof.

“**Par Call Date**” has the meaning specified in Section 4.1 hereof.

“**Participant**” means, with respect to the Depository, a Person who has an account with the Depository.

“**Permitted Liens**” means (a) Liens imposed by law or any governmental authority for taxes, assessments, levies or charges that are not yet overdue by more than 60 days or are being contested in good faith (and, if necessary, by appropriate proceedings) or for commitments that have not been violated; (b) carriers’, warehousemen’s, mechanics’, materialmen’s, repairmen’s, landlords’ and similar Liens imposed by law or which arise by operation of law and which are incurred in the ordinary course of business or where the validity or amount thereof is being contested in good faith (and, if necessary, by appropriate proceedings); (c) Liens incurred or pledges or deposits made in compliance with workers’ compensation, unemployment insurance and other social security laws or regulations; (d) Liens incurred or pledges or deposits made to secure the performance of bids, trade contracts, tenders, leases, statutory obligations, surety, customs and appeal bonds, performance bonds, customer deposits and other obligations of a similar nature, in each case in the ordinary course of business; (e) judgment Liens in respect of judgments that do not constitute an Event of Default under the Indenture; (f) Liens securing Indebtedness incurred under the Clearing House Facility from time to time; (g) Liens securing Indebtedness incurred in connection with the obligations of the Company or any Subsidiary relating to clearing, settlement or regulated exchange activities; (h) Liens on (1) any property or asset prior to the acquisition thereof, *provided* that such Lien may only extend to such property or asset, or (2) property of a Significant Subsidiary where (A) such Significant Subsidiary becomes a Subsidiary after June 14, 2018, (B) the Lien exists at the time such Significant Subsidiary becomes a Subsidiary, (C) the Lien was not created in contemplation of such Significant Subsidiary becoming a

Subsidiary, and (D) the Lien in effect at the time such Significant Subsidiary becomes a Subsidiary is not subsequently extended to any Principal Property acquired by such Significant Subsidiary after the time such Significant Subsidiary becomes a Subsidiary; (i) any Lien existing on June 21, 2018; (j) Liens upon fixed, capital, real and/or tangible personal property acquired after June 21, 2018 (by purchase, construction, development, improvement, capital lease, Synthetic Lease or otherwise) by the Company or any Significant Subsidiary, each of which Liens was created for the purpose of securing Indebtedness representing, or incurred to finance, refinance or refund, the cost (including the cost of construction, development or improvement) of such property; *provided* that no such Lien shall extend to or cover any property other than the property so acquired and improvements thereon; (k) Liens in favor of the Company or any Subsidiary; (l) Liens arising from the sale of accounts receivable for which fair equivalent value is received; (m) any extension, renewal or replacement (or successive extensions, renewals or replacements) in whole or in part, of any Liens referred to in the foregoing clauses (f), (g), (h), (i), (j), (k) and (l); *provided* that the principal amount of Indebtedness secured thereby and not otherwise authorized as a Permitted Lien shall not exceed the principal amount of Indebtedness, plus any costs, expenses, premiums, fees, prepayment penalties or similar charges payable in connection with any such extension, renewal or replacement, so secured at the time of such extension, renewal or replacement; (n) Liens securing obligations of the Company or any Subsidiary in respect of any swap agreements entered into (1) in the ordinary course of business and for non-speculative purposes or (2) solely in order to serve as a clearinghouse in respect thereof; (o) easements, zoning restrictions, minor title defects, irregularities or imperfections, restrictions on use, rights of way, leases, subleases and similar charges and other similar encumbrances on real property imposed by law or arising in the ordinary course of business that do not secure any monetary obligations (other than customary maintenance requirements) and which could not reasonably be expected to have a material adverse effect on the business or financial condition of the Company and its Subsidiaries taken as a whole; (p) Liens created in connection with any share repurchase program in favor of any broker, dealer, custodian, trustee and/or agent administering or effecting transactions pursuant to a share repurchase program; (q) Liens on (1) the land, improvements, fixtures and buildings located at 141 West Jackson Boulevard and 333 S. LaSalle St. (formerly part of 141 West Jackson Boulevard) in Chicago, (2) the land, improvements, fixtures and buildings located at One North End Ave., New York, New York 10282 and (3) the land, improvements, fixtures and buildings comprising the data center located in Aurora, Illinois and any additional data center facility that the Company or any Significant Subsidiary acquires or leases after the Issue Date (excluding any data center facility (other than the data center located in Aurora, Illinois) that the Company or any Significant Subsidiary owns or leases as of the Issue Date); and (r) Liens consisting of an agreement to sell, transfer or dispose of any asset or property (to the extent such sale, transfer or disposition is not prohibited by Article VIII of the Base Indenture as amended by this Eighth Supplemental Indenture).

**“Person”** means any “person” as that term is used in Section 13(d)(3) of the Exchange Act.

**“Principal Property”** means the land, improvements, buildings and fixtures (including any leasehold interest therein) constituting a corporate office, facility or other capital asset within the United States (including its territories and possessions) which is owned by the Company or any of its Significant Subsidiaries unless the Company’s Board of Directors has determined in good faith that such office or facility is not of material importance to the total business conducted by the Company and its Significant Subsidiaries taken as a whole; *provided* that, with respect to any Sale and Lease-Back Transaction or series of related Sale and Lease-Back Transactions, the determination of whether any property is a Principal Property shall be determined by reference to all properties affected by such transaction or series of transactions.

**“Rating Agencies”** means (1) each of Moody’s and S&P; and (2) if any of Moody’s or S&P ceases to rate the Notes or fails to make a rating of the Notes publicly available for reasons outside of the Company’s control, a “nationally recognized statistical rating organization” within the meaning of Section 3(a)(62) under the Exchange Act, selected by the Company (as certified by an executive officer of the Company) as a replacement agency for Moody’s or S&P, or both of them, as the case may be.

**“Reference Treasury Dealer”** means (i) each of J.P. Morgan Securities LLC, Barclays Capital Inc. and Merrill Lynch, Pierce, Fenner & Smith Incorporated, and each of their respective successors and (ii) two Primary Treasury Dealers (as defined below) selected by the Company. If any one shall cease to be a primary U.S. Government securities dealer (a **“Primary Treasury Dealer”**), the Company will substitute another nationally recognized investment banking firm that is a primary U.S. Government securities dealer.

**“Reference Treasury Dealer Quotation”** means, with respect to each Reference Treasury Dealer and any Redemption Date, the average, as determined by the Company, of the bid and asked prices for the Comparable Treasury Issue (expressed in each case as a percentage of its principal amount) quoted in writing to the Company by such Reference Treasury Dealer at 3:30 p.m., New York City time, on the third Business Day preceding that Redemption Date.

**“Regular Record Date”** for the interest payable on any Interest Payment Date means the fifteenth day, whether or not a Business Day, immediately preceding the applicable Interest Payment Date.

**“Remaining Scheduled Payments”** means the remaining scheduled payments of principal of and interest on the Notes called for redemption that would be due after the related Redemption Date but for that redemption (assuming the Notes called for redemption matured on the Par Call Date); *provided* that if that Redemption Date is not an Interest Payment Date with respect to the Notes called for redemption, the amount of the next succeeding scheduled interest payment on such Notes will be reduced by the amount of interest accrued to such Redemption Date.

**“S&P”** means S&P Global Ratings Inc. and its successors.

**“Sale and Lease-Back Transaction”** means any arrangement with any Person providing for the leasing by the Company or any of its Significant Subsidiaries of any Principal Property, whether now owned or hereafter acquired, which Principal Property has been or is to be sold or transferred by the Company or such Significant Subsidiary to such Person.

**“Securities”** has the meaning given to such term in the recitals hereof.

**“Senior Credit Facility”** means the Credit Agreement, dated as of November 21, 2017, among the Company, Bank of America, N.A., as administrative agent, and the several banks, financial institutions and other entities from time to time parties thereto as lenders, as amended, restated, supplemented, increased, extended, renewed, replaced, refinanced (with the same or other lenders) or otherwise modified from time to time.

**“Significant Subsidiary,”** with respect to any Person, means any Subsidiary of such person that satisfies the criteria for a “significant subsidiary” set forth in Rule 1-02(w)(1) or (2) of Regulation S-X under the Exchange Act.

**“Special Acquisition Redemption”** has the meaning specified in Section 4.2 hereof.

**“Special Acquisition Redemption Date”** has the meaning specified in Section 4.2 hereof.

**“Special Acquisition Redemption Price”** has the meaning specified in Section 4.2 hereof.

**“Subsidiary”** means any corporation, limited liability company or other similar type of business entity in which the Company and/or one or more of its Subsidiaries together own more than 50% of the total voting power of shares of Capital Stock entitled (without regard to the occurrence of any contingency) to vote in the election of the board of directors or similar governing body of such corporation, limited liability company or other similar type of business entity, directly or indirectly. Unless the context otherwise requires, as used herein, “Subsidiary” shall mean a Subsidiary of the Company.

**“Synthetic Lease”** means any tax retention or other synthetic lease which is treated as an operating lease under United States generally accepted accounting principles, but the liabilities under which are or would be characterized as indebtedness for tax purposes.

**“Treasury Rate”** means, with respect to any Redemption Date, the rate per annum equal to the semiannual equivalent yield to maturity (computed as of the third Business Day immediately preceding that Redemption Date) of the Comparable Treasury Issue, assuming a price for the Comparable Treasury Issue (expressed as a percentage of its principal amount) equal to the Comparable Treasury Price for that Redemption Date.

“**Trustee**” means the person named as such in the preamble hereof and, subject to the provisions of Article VI of the Base Indenture, any successor to that person.

“**Voting Stock**” of any specified Person as of any date means the Capital Stock of such Person that is at the time entitled to vote generally in the election of the Board of Directors of such Person. Notwithstanding the foregoing clauses or any provision of Rule 13(d)(3) or 13(d)(5) of the Exchange Act, a Person or Group shall not be deemed to beneficially own Voting Stock subject to a stock or asset purchase agreement, merger agreement, option agreement, warrant agreement or similar agreement (or voting, support, option or similar agreement related thereto) until the consummation of the acquisition of the Voting Stock in connection with the transactions contemplated by such agreement.

## ARTICLE 2.

### THE NOTES

Section 2.1 *Issue of Notes.* A series of Securities which shall be designated the “3.750% Notes due 2028” shall be executed, authenticated and delivered in accordance with the provisions of, and shall in all respects be subject to, the terms, conditions and covenants of, the Base Indenture and this Eighth Supplemental Indenture (including the form of Notes set forth hereto as Exhibit A). The aggregate principal amount of Notes which may be authenticated and delivered under this Eighth Supplemental Indenture shall not, except as permitted by the provisions of the Base Indenture, initially exceed \$500,000,000; *provided* that the Company may from time to time or at any time, without the consent of the Holders of the Notes, issue additional Notes, which additional Notes shall increase the aggregate principal amount of, and shall be consolidated and form a single series with, the Notes; *provided further that* if the additional Notes are not fungible with the Notes for United States federal income tax purposes, the additional Notes will have a separate CUSIP number.

Section 2.2 *Form of Notes; Incorporation of Terms.* (a) The Notes shall be issued initially in the form of one or more Global Securities and, together with the Trustee’s certificate of authentication thereon, shall be in substantially the form set forth in Exhibit A attached hereto. The Notes may have such notations, legends or endorsements approved as to form by the Company and required, as applicable, by law, stock exchange or depository rules and agreements to which the Company is subject and/or usage. The terms of the Notes set forth in Exhibit A are herein incorporated by reference and are part of the terms of this Eighth Supplemental Indenture. The Notes shall be issuable in definitive, fully registered form without coupons only in minimum denominations of \$2,000 and any integral multiples of \$1,000 in excess thereof.

(b) Notes issued in global form shall be substantially in the form of Exhibit A attached hereto (including the Global Security Legend thereon). Notes issued in definitive certificated form in accordance with the terms of the Base Indenture and this Eighth Supplemental Indenture, if any, shall be substantially in the form of Exhibit A attached hereto (but without the Global Security Legend thereon). Each Global Security shall represent such of the Outstanding Notes as shall be specified therein and each shall provide that it shall represent the aggregate principal amount of Outstanding Notes from time to time endorsed thereon and that the aggregate principal amount of Outstanding Notes represented thereby may from time to time be reduced or increased, as appropriate, to reflect exchanges and redemptions. Any endorsement of a Global Security to reflect the amount of any increase or decrease in the aggregate principal amount of Outstanding Notes represented thereby shall be made by the Trustee in accordance with instructions given by the Holder thereof as required by Section 2.6 hereof.

Section 2.3 *Execution and Authentication.* The Trustee, upon a Company Order and pursuant to the terms of the Base Indenture and this Eighth Supplemental Indenture, shall authenticate and deliver the Notes for original issue in an initial aggregate principal amount of \$500,000,000. Such Company Order shall specify the amount of the Notes to be authenticated and the date on which the original issue of Notes is to be authenticated. All of the Notes issued under this Eighth Supplemental Indenture shall be treated as a single series for all purposes under the Base Indenture and this Eighth Supplemental Indenture, including, without limitation, waivers, amendments and offers to purchase.

Section 2.4 *Global Securities*. The Depositary for the Global Securities issued under this Eighth Supplemental Indenture shall be DTC in the City of New York. The provisions of clauses (1), (2), (3) and (4) below shall apply only to Global Securities:

(1) Each Global Security authenticated under this Eighth Supplemental Indenture shall be registered in the name of the Depositary designated for such Global Security or a nominee thereof and delivered to such Depositary or a nominee thereof or custodian therefor, and each such Global Security shall constitute a single Security for all purposes of the Indenture.

(2) Notwithstanding any other provision in the Indenture, no Global Security may be exchanged in whole or in part for Securities registered, and no transfer of a Global Security in whole or in part may be registered, in the name of any Person other than the Depositary for such Global Security or a nominee thereof unless (A) such Depositary has notified the Company that it is unwilling or unable or no longer permitted under applicable law to continue as Depositary for such Global Security and the Company has not appointed a successor Depositary within 90 days of receipt of such notice, (B) there shall have occurred and be continuing an Event of Default with respect to such Global Security or (C) the Company so directs the Trustee by Company Order.

(3) Subject to clause (2) above, any exchange of a Global Security for other Securities may be made in whole or in part, and all Securities issued in exchange for a Global Security or any portion thereof shall be registered in such names as the Depositary for such Global Security shall direct.

(4) Every Security authenticated and delivered upon registration of transfer of, or in exchange for or in lieu of, a Global Security or any portion thereof, shall be authenticated and delivered in the form of, and shall be, a Global Security, unless such Security is registered in the name of a Person other than the Depositary for such Global Security or a nominee thereof.

Section 2.5 *Place of Payment*. The Place of Payment in respect of the Notes will be at the office or agency of the Company in The City of New York, State of New York or at the office or agency of the Paying Agent in The City of New York, State of New York.

Section 2.6 *Transfer and Exchange*.

(a) The transfer and exchange of beneficial interests in the Global Securities shall be effected through the Depositary, in accordance with the provisions of the Base Indenture, this Eighth Supplemental Indenture and the then applicable procedures of the Depositary (the "**Applicable Procedures**"). In connection with all transfers and exchanges of beneficial interests, the transferor of such beneficial interest must deliver to the Trustee either (A)(1) a written order from a Participant or an Indirect Participant given to the Depositary in accordance with the Applicable Procedures directing the Depositary to credit or cause to be credited a beneficial interest in another Global Security in an amount equal to the beneficial interest to be transferred or exchanged and (2) instructions given in accordance with the Applicable Procedures containing information regarding the Participant account to be credited with such increase or, if Definitive Securities are at such time permitted to be issued pursuant to this Eighth Supplemental Indenture and the Base Indenture, (B)(1) a written order from a Participant or an Indirect Participant given to the Depositary in accordance with the Applicable Procedures directing the Depositary to cause to be issued a Definitive Security in an amount equal to the beneficial interest to be transferred or exchanged and (2) instructions given by the Depositary to the Security Registrar containing information regarding the Person in whose name such Definitive Security shall be registered to effect the transfer or exchange referred to in (1) above. Upon satisfaction of all of the requirements for transfer or exchange of beneficial interests in Global Securities contained in the Base Indenture, this Eighth Supplemental Indenture and the Notes or otherwise applicable under the Securities Act, the Security Registrar shall adjust the principal amount of the relevant Global Securities pursuant to Section 2.7 hereof.

(b) Upon request by a Holder of Definitive Securities and such Holder's compliance with the provisions of this Section 2.6(b), the Security Registrar shall register the transfer or exchange of Definitive Securities. Prior to such registration of transfer or exchange, the requesting Holder shall present or surrender to the Trustee the Definitive Securities duly endorsed or accompanied by a written instruction of transfer in form satisfactory to the Security Registrar duly executed by such Holder or by its attorney, duly authorized in writing. The Trustee shall cancel any such Definitive Securities so surrendered, and the Company shall execute and, upon

receipt of a Company Order pursuant to Section 303 of the Base Indenture, the Trustee shall authenticate and deliver to the Person designated in the instructions a new Definitive Security in the appropriate principal amount. Any Definitive Security issued pursuant to this Section 2.6(b) shall be registered in such name or names and in such authorized denomination or denominations as the Holder of such beneficial interest shall instruct the Security Registrar through instructions from the Depository and the Participant or Indirect Participant. The Trustee shall deliver such Definitive Securities to the Persons in whose names such Definitive Securities are so registered. In addition, the requesting Holder shall provide any additional certifications, documents and information, as applicable, required pursuant to Section 305 of the Base Indenture.

*Section 2.7 Cancellation and/or Adjustment of Global Securities.* At such time as all beneficial interests in a particular Global Security have been exchanged for Definitive Securities or a particular Global Security has been redeemed, repurchased or cancelled in whole and not in part, each such Global Security shall be returned to or retained and cancelled by the Trustee in accordance with Section 309 of the Base Indenture. At any time prior to such cancellation, if any beneficial interest in a Global Security is exchanged for or transferred to a Person who will take delivery thereof in the form of a beneficial interest in another Global Security or for Definitive Securities, the principal amount of Securities represented by such Global Security shall be reduced accordingly and an endorsement shall be made on such Global Security by the Trustee or by the Depository at the direction of the Trustee to reflect such reduction; and if the beneficial interest is being exchanged for or transferred to a Person who will take delivery thereof in the form of a beneficial interest in another Global Security, such other Global Security shall be increased accordingly and an endorsement shall be made on such Global Security by the Security Registrar or by the Depository at the direction of the Security Registrar to reflect such increase.

*Section 2.8 Repurchase upon Change of Control Triggering Event.*

(a) If a Change of Control Triggering Event occurs with respect to the Notes, unless the Company shall have exercised its right pursuant to Section 4.1 hereof to redeem the Notes, the Company shall make an offer to each Holder of the Notes to repurchase all or, at such Holder's option, any part (equal to \$2,000 or any integral multiple of \$1,000 in excess thereof) of such Holder's Notes (the "**Change of Control Offer**") for payment in cash equal to 101% of the aggregate principal amount of the Notes repurchased plus accrued and unpaid interest, if any, on the Notes repurchased to, but excluding, the date of purchase (the "**Change of Control Payment**").

(b) Within 30 days following any Change of Control Triggering Event with respect to the Notes or, at the Company's option, prior to any Change of Control but after the public announcement of the transaction or transactions that constitutes or may constitute a Change of Control, the Company shall cause a notice to be mailed to Holders of the Notes, with a copy to the Trustee for the Notes, describing the transaction or transactions that constitute or may constitute the Change of Control Triggering Event and offering to repurchase the Notes on the date specified in the notice, which date shall be no earlier than 30 days and no later than 60 days from the date such notice is mailed (the "**Change of Control Payment Date**"), pursuant to the procedures required by the Notes and described in such notice. The notice shall, if mailed prior to the date of consummation of the Change of Control, state that the offer to purchase is conditioned on the Change of Control Triggering Event occurring on or prior to the Change of Control Payment Date. Upon 10 Business Days' advance notice to the Trustee, the Company may request the Trustee to mail the notice to Holders described in this Section 2.8(b) in the name of and at the expense of the Company.

(c) The Company shall comply with the requirements of Rule 14e-1 under the Exchange Act and any other securities laws and regulations thereunder to the extent such laws and regulations are applicable in connection with the repurchase of Notes as a result of a Change of Control Triggering Event. To the extent that the provisions of any such securities laws or regulations conflict with this Section 2.8, the Company shall comply with those securities laws and regulations and shall not be deemed to have breached its obligations under this Section 2.8 by virtue of such conflict.

(d) On the Change of Control Payment Date, the Company shall, to the extent lawful:

- (i) accept for payment all Notes or portions of Notes properly tendered pursuant to the Change of Control Offer;

(ii) deposit with the Paying Agent an amount equal to the Change of Control Payment in respect of all Notes or portions of Notes properly tendered; and

(iii) deliver or cause to be delivered to the Trustee the Notes properly accepted together with an Officer's Certificate stating the aggregate principal amount of Notes or portions of Notes being purchased by the Company.

(e) The Paying Agent shall promptly deliver, to each Holder who properly tendered Notes, the purchase price for such Notes, and the Trustee shall promptly authenticate and mail (or cause to be transferred by book entry) to each such Holder a new Note equal in principal amount to any unpurchased portion of the Notes surrendered, if any; *provided* that each new Note will be in a principal amount of \$2,000 or an integral multiple of \$1,000 in excess thereof.

(f) The Company shall not be required to make a Change of Control Offer upon a Change of Control Triggering Event if a third party makes a Change of Control Offer in the manner, at the times and otherwise in compliance with the requirements set forth in this Eighth Supplemental Indenture applicable to a Change of Control Offer made by the Company and purchases all Notes properly tendered and not withdrawn under such Change of Control Offer. In the event that such third party terminates or defaults on its Change of Control Offer, the Company shall be required to make a Change of Control Offer treating the date of such termination or default as though it were the date of the Change of Control Triggering Event.

(g) If Holders of not less than 90% in aggregate principal amount of the outstanding Notes validly tender and do not withdraw such Notes in a Change of Control Offer and the Company, or any third party making such an offer in lieu of the Company, purchases all of such Notes properly tendered and not withdrawn by such Holders, the Company or such third party will have the right, upon not less than 10 days' nor more than 60 days' prior notice, *provided* that such notice is given not more than 30 days following such repurchase pursuant to the Change of Control Offer, to redeem all Notes that remain outstanding following such purchase on a date specified in such notice (the "**Second Change of Control Payment Date**") and at a price in cash equal to 101% of the aggregate principal amount of the Notes repurchased plus accrued and unpaid interest, if any, on the Notes repurchased to, but excluding, the Second Change of Control Payment Date.

### ARTICLE 3.

#### COVENANTS

Section 3.1 *Limitations on Liens*. The Company shall not (nor shall it permit any of its Significant Subsidiaries to) create any Lien on any Principal Property of the Company or any of its Significant Subsidiaries (or on any Capital Stock of a Significant Subsidiary), whether such Principal Property or Capital Stock is now existing or owned or hereafter acquired, to secure any Indebtedness, unless the Company shall contemporaneously secure the Notes (together with, if the Company so determines, any other Indebtedness of or guaranty by the Company or such Significant Subsidiary then existing or thereafter created which is not subordinated to the Notes) equally and ratably with (or, at the Company's option, prior to) such secured Indebtedness. Any Lien that is granted to secure the Notes under this Section 3.1 shall be automatically released and discharged at the same time as the release of the Lien that gave rise to the obligation to secure the Notes under this Section 3.1.

The foregoing restriction, however, shall not require the Company to secure the Notes if the Lien consists of either of the following:

(a) Permitted Liens; or

(b) Liens securing Indebtedness if at the time of determination, after giving pro forma effect to the incurrence, creation, assumption or guaranty of such Indebtedness or the securing of outstanding Indebtedness and to the retirement of Indebtedness which is concurrently being retired, the sum of (without duplication) (i) the aggregate principal amount of all Indebtedness of the Company and its Subsidiaries secured by Liens (other than Permitted Liens) and (ii) all Attributable Debt in respect of Sale and Lease-Back Transactions not otherwise permitted under the first sentence of Section 3.2 hereof, does not exceed fifteen percent of Consolidated Net Tangible Assets.

Section 3.2 *Limitations on Sale and Lease-Back Transactions.* The Company shall not, and shall not permit any of its Significant Subsidiaries to, enter into any Sale and Lease-Back Transaction with respect to any Principal Property, other than (x) any such Sale and Lease-Back Transaction with respect to (i) the land, improvements, fixtures and buildings located at 141 West Jackson Boulevard and 333 S. LaSalle St. (formerly part of 141 West Jackson Boulevard) in Chicago, (ii) the land, improvements, fixtures and buildings located at One North End Ave., New York, New York 10282 or (iii) the land, improvements, fixtures and buildings comprising the data center located in Aurora, Illinois and any additional data center facility that the Company or any Significant Subsidiary acquires or leases after the Issue Date (excluding any data center facility (other than the data center located in Aurora, Illinois) that the Company or any Significant Subsidiary owns or leases as of the Issue Date), (y) any such Sale and Lease-Back Transaction involving a lease for a term of not more than three years or (z) any such Sale and Lease-Back Transaction between the Company and one of its Subsidiaries or between its Subsidiaries, unless:

(a) the Company or such Significant Subsidiary, as applicable, could have incurred Indebtedness secured by a Lien on the Principal Property involved in such Sale and Lease-Back Transaction in an amount at least equal to the Attributable Debt with respect to such Sale and Lease-Back Transaction, without equally and ratably securing the Notes, pursuant to Section 3.1 hereof; or

(b) the proceeds of such Sale and Lease-Back Transaction are at least equal to the fair market value of the affected Principal Property (as determined in good faith by the Company's Board of Directors) and the Company applies an amount equal to the net proceeds of such Sale and Lease-Back Transaction within 365 days of such Sale and Lease-Back Transaction to any (or a combination) of:

(i) the prepayment or retirement of the Notes,

(ii) the prepayment or retirement (other than any mandatory retirement, mandatory prepayment or sinking fund payment or by payment at maturity) of other Indebtedness of the Company or of one of its Subsidiaries (other than Indebtedness that is subordinated to the Notes or Indebtedness owed to the Company or one of its Subsidiaries) that matures more than 12 months after its creation; or

(iii) the purchase, construction, development, expansion or improvement of other comparable property.

Notwithstanding the foregoing, the Company and its Significant Subsidiaries shall be allowed to enter into any Sale and Lease-Back Transaction if, after giving pro forma effect to such Sale and Lease-Back Transaction, the sum of (without duplication) (i) the aggregate principal amount of all Indebtedness of the Company and its Subsidiaries secured by Liens (other than Permitted Liens) and (ii) all Attributable Debt in respect of Sale and Lease-Back Transactions not otherwise permitted under the first sentence of this Section 3.2, does not exceed fifteen percent of Consolidated Net Tangible Assets.

Section 3.3 *Limitations on Mergers and Other Transactions.* With respect to the Notes only, the provisions of Section 801 of Article VIII of the Base Indenture are amended and restated in their entirety as follows:

“SECTION 801. *Company May Merge, Etc., Only on Certain Terms.*

The Company shall not merge with or into or consolidate with any other Person or sell, assign, transfer, lease or convey all or substantially all of its properties and assets to any Person (other than a direct or indirect wholly-owned subsidiary of the Company), unless:

(1) the Company is the surviving corporation or, in case the Company shall merge into or consolidate with another Person or sell, assign, transfer, lease or convey all or substantially all of its properties and assets to any Person, the Person into which the Company is merged or formed by such consolidation or the Person which acquires by sale, assignment, transfer or conveyance, or which leases, all or substantially all of its properties and assets of the Company shall be a corporation, partnership or trust, organized and validly



existing under the laws of the United States of America, any State thereof or the District of Columbia and shall expressly assume, by an indenture supplemental hereto, executed and delivered to the Trustee, in form satisfactory to the Trustee, the due and punctual payment of the principal of and any premium and interest on all the Notes and the performance or observance of every covenant of the Base Indenture and the Eighth Supplemental Indenture on the part of the Company to be performed or observed;

(2) immediately after giving effect to such transaction and treating any Indebtedness which becomes an obligation of the Company or any Subsidiary as a result of such transaction as having been incurred by the Company or such Subsidiary at the time of such transaction, no Event of Default, and no event which, after notice or lapse of time or both, would become an Event of Default, shall have happened and be continuing;

(3) the Company has delivered to the Trustee an Officers' Certificate and an Opinion of Counsel, each stating that such consolidation, merger, conveyance, transfer or lease and, if a supplemental indenture is required in connection with such transaction, such supplemental indenture comply with this Article and that all conditions precedent herein provided for relating to such transaction have been complied with."

#### ARTICLE 4.

#### REDEMPTION

##### Section 4.1 *Optional Redemption by Company.*

(a) Subject to Article XI of the Base Indenture, the Company shall have the right to redeem the Notes, at any time in whole or from time to time in part, prior to March 15, 2028 at a redemption price equal to the greater of:

(i) 100% of the principal amount of the Notes to be redeemed and

(ii) the sum of the present values of the Remaining Scheduled Payments of principal and interest in respect of the Notes to be redeemed discounted to the Redemption Date (excluding interest accrued to the Redemption Date) on a semiannual basis (assuming a 360-day year consisting of twelve 30-day months) at a rate equal to the Treasury Rate plus 15 basis points,

plus, in each case, accrued and unpaid interest on the Notes to be redeemed to, but excluding, the Redemption Date.

Subject to Article XI of the Base Indenture, commencing on March 15, 2028 (the "**Par Call Date**"), the Company shall have the right to redeem the Notes, at any time in whole or from time to time in part, at a redemption price equal to 100% of the principal amount of the Notes to be redeemed, plus accrued and unpaid interest thereon to, but excluding, the Redemption Date.

The applicable redemption price in connection with a redemption of Notes under either of the first two paragraphs of this Section 4.1(a) is referred to herein as the "**Optional Redemption Price**" with respect to such redemption.

On and after a Redemption Date, interest will cease to accrue on the Notes called for redemption (unless the Company defaults in the payment of the Optional Redemption Price and accrued interest). On or before a Redemption Date, the Company will deposit with a Paying Agent (or the Trustee) money sufficient to pay the Optional Redemption Price of and accrued interest on the Notes to be redeemed on that date. If less than all of the Notes are to be redeemed, the Notes to be redeemed shall be selected by the Trustee pro rata or by lot or by a method the Trustee deems to be fair and appropriate; *provided* that if at the time of redemption the Notes to be redeemed are registered as one or more Global Securities, the Depositary shall determine, in accordance with its procedures, the principal amount of the Notes to be redeemed held by each Holder of such Notes.

(b) Notice of any redemption pursuant to this Section 4.1 shall be given as provided in Section 1104 of the Base Indenture, except that (i) any notice of such redemption shall not specify the related Optional Redemption Price but only the manner of calculation thereof and (ii) notice shall be given not less than 10 days prior to the Redemption Date. The Trustee shall not be responsible for the calculation of such Optional Redemption Price. The Company shall calculate such Optional Redemption Price and promptly notify the Trustee thereof.

Section 4.2 *Special Acquisition Redemption*. If (i) the NEX Acquisition is not consummated on or before 11:59 p.m. (New York City time) on June 30, 2019 or (ii) the NEX Acquisition is withdrawn, terminated or lapses in accordance with its terms, the Company will redeem (the “**Special Acquisition Redemption**”) all outstanding Notes at a redemption price equal to 101% of the aggregate principal amount of the Notes being redeemed (the “**Special Acquisition Redemption Price**”), plus accrued and unpaid interest to, but excluding, the Special Acquisition Redemption Date. The “**Special Acquisition Redemption Date**” means the earlier to occur of (1) July 31, 2019 or (2) the 30th day (or if such day is not a Business Day, the first Business Day thereafter) following the date that the NEX Acquisition is withdrawn, terminated or lapses in accordance with its terms.

If the Company is required to redeem the Notes pursuant to the Special Acquisition Redemption, it will cause the notice of Special Acquisition Redemption to be delivered to each registered Holder of such Notes, with a copy to the Trustee, within five Business Days after the occurrence of the event that requires the Company to redeem. If funds sufficient to pay the Special Acquisition Redemption Price of all Notes to be redeemed on the Special Acquisition Redemption Date are deposited with the Trustee on or before such Special Acquisition Redemption Date, plus accrued and unpaid interest, if any, to, but excluding, the Special Acquisition Redemption Date, such Notes will cease to bear interest and all rights under such Notes shall terminate (other than in respect of the right to receive the Special Acquisition Redemption Price, plus accrued and unpaid interest to, but excluding, the Special Acquisition Redemption Date).

## ARTICLE 5.

### REMEDIES

Section 5.1 *Events of Default*. The provisions of Section 501 of the Base Indenture shall be applicable to the Notes; *provided, however*, that clauses (1), (2), (3), (4), (5) and (6) of Section 501 of the Base Indenture shall, with respect to the Notes only, read as follows:

“(1) default in the payment of any interest on any Note when it becomes due and payable, and continuance of such default for a period of 30 days;

(2) default in the payment of the principal of or premium, if any, on any Note when it becomes due and payable, at its Maturity, upon acceleration, upon redemption or otherwise (including the failure to make a payment to purchase the Notes tendered pursuant to a Change of Control Offer);

(3) default in the performance, or breach, of any covenant or warranty contained in the Indenture (other than a covenant or warranty a default in the performance or the breach of which is specifically dealt with elsewhere in the Indenture or which is expressly included in the Indenture solely for the benefit of a particular series of debt instruments other than the Notes), and continuance of such default or breach for a period of 90 days after there has been given to the Company by the Trustee or to the Company and the Trustee by the Holders of at least 25% in principal amount of the Outstanding Notes a written notice specifying such default or breach (and demanding that such default be remedied) and stating that such notice is a “Notice of Default” under the Indenture;

(4) default on any Indebtedness of the Company or any of its Significant Subsidiaries having an aggregate amount of at least \$500,000,000, constituting a default either (a) of payment of principal when due and payable at the final stated maturity of such Indebtedness (or on or before the expiration of any grace period provided in such Indebtedness on the date of such default) or (b) which results in acceleration of the Indebtedness prior to its final stated maturity, and continuance of such default for a period of 30 days after there has been given to the Company by the Trustee or to the Company and the Trustee by the Holders of at least 25% in principal amount of the Outstanding Notes a written notice specifying such default and stating that such notice is a “Notice of Default” under the Indenture;

(5) the entry by a court having jurisdiction in the premises of (A) a decree or order for relief in respect of the Company or any of its Significant Subsidiaries in an involuntary case or proceeding under any

applicable Bankruptcy Law, insolvency, reorganization or other similar law or (B) a decree or order adjudging the Company or any of its Significant Subsidiaries as bankrupt or insolvent, or approving as properly filed a petition seeking reorganization, arrangement, adjustment or composition of or in respect of the Company or any of its Significant Subsidiaries under any applicable Bankruptcy Law, or appointing a custodian, receiver, liquidator, assignee, trustee, sequestrator or other similar official of the Company or any of its Significant Subsidiaries or of any substantial part of its or their property, or ordering the winding up or liquidation of its or their affairs, and the continuance of any such decree or order for relief or any such other decree or order unstayed and in effect for a period of 60 consecutive days; or

(6) the commencement by the Company or any of its Significant Subsidiaries of a voluntary case or proceeding under any applicable Bankruptcy Law or of any other case or proceeding to be adjudicated a bankrupt or insolvent, or the consent by it or any of them to the entry of a decree or order for relief in respect of the Company or any of its Significant Subsidiaries in an involuntary case or proceeding under any applicable Bankruptcy Law, insolvency, reorganization or other similar law or to the commencement of any bankruptcy or insolvency case or proceeding against it or any of them, or the filing by it or any of them of a petition or answer or consent seeking reorganization or relief under any applicable Federal or State law, or the consent by it or any of them to the filing of such petition or to the appointment of or taking possession by a custodian, receiver, liquidator, assignee, trustee, sequestrator or other similar official of the Company or any of its Significant Subsidiaries or of any substantial part of its property, or the making by it or any of them of an assignment for the benefit of creditors, or the admission by it or any of them in writing of its inability to pay its debts generally as they become due, or the taking of corporate action by the Company or any of its Significant Subsidiaries in furtherance of any such action.”

Section 5.2 *Acceleration of Maturity; Rescission and Annulment.* The provisions of Section 502 of the Base Indenture shall be applicable to the Notes; *provided, however,* that with respect to the Notes only, the amount that shall become due and payable pursuant to any acceleration under Section 502 of the Base Indenture shall include the principal amount of and premium, if any, on the Notes plus accrued and unpaid interest through the date of such acceleration.

## **ARTICLE 6.**

### **RANKING**

Section 6.1 *Senior in Right of Payment.* The Notes shall be direct senior obligations of the Company and shall rank (a) senior in right of payment to all existing and future indebtedness that is, by its terms, expressly subordinated in right of payment to the Notes and (b) *pari passu* in right of payment with all other unsecured senior indebtedness of the Company. The Notes are not guaranteed.

## **ARTICLE 7.**

### **REPORTS**

Section 7.1 *Reports by Company.* The Base Indenture is hereby amended, with respect to the Notes only, by replacing the text of Section 704 thereof with the following text:

“The Company shall file with the Trustee and the Commission, and transmit to Holders, such information, documents and other reports, and such summaries thereof, as may be required pursuant to the Trust Indenture Act at the times and in the manner provided pursuant to the Trust Indenture Act; *provided* that any such information, documents or reports required to be filed with the Commission pursuant to Section 13 or 15(d) of the Exchange Act shall be filed with the Trustee within 15 days after the same is filed with the Commission. For purposes of this provision, any such information, document or report that the Company has filed with the Commission and that is publicly accessible on the Commission’s EDGAR system (or any successor thereto) shall be deemed to be filed with the Trustee.”

## ARTICLE 8.

### AMENDMENTS

Section 8.1 *Amendments.* Supplemental indentures modifying the Indenture and the terms of the Notes may be entered into as set forth in Article IX of the Base Indenture, *provided* that the Base Indenture is hereby amended, with respect to the Notes only, by replacing the text of Section 902(1)-(4) thereof with the following text:

- “(1) Reduce the percentage in principal amount of affected Notes the consent of whose Holders is required for an amendment of the Indenture or for waiver of compliance with some provisions of the Indenture or for waiver of some defaults under the Indenture;
- (2) Reduce the rate of interest on any Note or change the time for payment of interest;
- (3) Reduce the principal amount of, or premium, if any, due on the Notes or change the Stated Maturity thereof;
- (4) Change the Place of Payment where, or the coin or currency in which, any Note or any premium or interest thereon is payable;
- (5) Change the provisions relating to waiver of defaults under the Indenture;
- (6) Modify the provisions of the Indenture relating to the ranking of the Notes in a manner materially adverse to Holders;
- (7) Modify the redemption provisions of the Indenture and the Notes in a manner adverse to Holders;
- (8) Impair the right of Holders to institute suit for the enforcement of any payment on or after the Stated Maturity thereof (or, in the case of redemption, on or after the Redemption Date); or
- (9) Modify any of the provisions of this Section, Section 513 or Section 1008, except to increase any such percentage or to provide that certain other provisions of the Indenture cannot be modified or waived without the consent of the Holder of each Outstanding Security affected thereby; *provided, however*, that this Clause shall not be deemed to require the consent of any Holder with respect to changes in the references to “the Trustee” and concomitant changes in this Section and Section 1008, or the deletion of this proviso, in accordance with the requirements of Sections 611 and 901(7).”

## ARTICLE 9.

### MISCELLANEOUS

Section 9.1 *Execution as Supplemental Indenture.* This Eighth Supplemental Indenture is executed and shall be construed as an indenture supplemental to the Base Indenture and, as provided in the Base Indenture, this Eighth Supplemental Indenture forms a part thereof.

Section 9.2 *Conflict with Trust Indenture Act.* If any provision hereof limits, qualifies or conflicts with another provision hereof, or with a provision of the Base Indenture, which is required to be included in this Eighth Supplemental Indenture, or in the Base Indenture, respectively, by any of the provisions of the Trust Indenture Act, such required provision shall control to the extent it is applicable.

Section 9.3 *Certificates, Opinions, Etc.* In any case where, pursuant to the Base Indenture with respect to the Notes and/or this Eighth Supplemental Indenture or pursuant to the Indenture, several matters are required to be certified by, or covered by an opinion of, any specified Person, it is not necessary that all such matters be certified by, or covered by the opinion of, only one such Person, or that they be so certified or covered by only one document, but one such Person may certify or give an opinion with respect to some matters and one or more other such Persons as to other matters, and any such Person may certify or give an opinion as to such matters in one or several documents. Where any Person is required to make, give or execute two or more applications, requests, consents, certificates, statements, opinions or other instruments under the Base Indenture with respect to the Notes and/or this Eighth Supplemental Indenture or under the Indenture, they may, but need not, be consolidated and form one instrument.

Section 9.4 *Effect of Headings.* The Article and Section headings herein are for convenience only and shall not affect the construction hereof.

Section 9.5 *Successors and Assigns.* All covenants and agreements by the Company and the Trustee in this Eighth Supplemental Indenture shall bind its successors and assigns, whether so expressed or not.

Section 9.6 *Separability Clause.* In case any provision in this Eighth Supplemental Indenture or in the Notes shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

Section 9.7 *Benefits of Eighth Supplemental Indenture.* Nothing in this Eighth Supplemental Indenture or in the Notes, express or implied, shall give to any Person, other than the parties hereto and their successors hereunder and the Holders, any benefit or any legal or equitable right, remedy or claim under this Eighth Supplemental Indenture.

Section 9.8 *Execution and Counterparts.* This Eighth Supplemental Indenture may be executed in any number of counterparts, each of which shall be deemed to be an original, but all such counterparts shall together constitute but one and the same instrument.

Section 9.9 *Governing Law.* This Eighth Supplemental Indenture and the Notes shall be governed by and construed in accordance with the laws of the State of New York.

IN WITNESS WHEREOF, the parties hereto have caused this Eighth Supplemental Indenture to be duly executed as of the day and year first above written.

CME GROUP INC.

By: /s/ John W. Pietrowicz  
Name: John W. Pietrowicz  
Title: Senior Managing Director and Chief Financial Officer

By: /s/ Lynne Fitzpatrick  
Name: Lynne Fitzpatrick  
Title: Managing Director, Corporate Development & Treasurer

*Eighth Supplemental Indenture Signature Page*

U.S. BANK NATIONAL ASSOCIATION,  
as Trustee

By: /s/ Linda E. Garcia

Name: Linda E. Garcia

Title: Vice President

*Eighth Supplemental Indenture Signature Page*

## [FORM OF FACE OF SECURITY]

[THIS SECURITY IS A GLOBAL SECURITY WITHIN THE MEANING OF THE INDENTURE HEREINAFTER REFERRED TO AND IS REGISTERED IN THE NAME OF A DEPOSITARY OR A NOMINEE THEREOF. THIS SECURITY MAY NOT BE EXCHANGED IN WHOLE OR IN PART FOR A SECURITY REGISTERED, AND NO TRANSFER OF THIS SECURITY IN WHOLE OR IN PART MAY BE REGISTERED, IN THE NAME OF ANY PERSON OTHER THAN SUCH DEPOSITARY OR A NOMINEE THEREOF, EXCEPT IN THE LIMITED CIRCUMSTANCES DESCRIBED IN THE INDENTURE.]

[UNLESS THIS CERTIFICATE IS PRESENTED BY AN AUTHORIZED REPRESENTATIVE OF THE DEPOSITARY TRUST COMPANY, A NEW YORK CORPORATION (“DTC”), TO ISSUER OR ITS AGENT FOR REGISTRATION OF TRANSFER, EXCHANGE, OR PAYMENT, AND ANY CERTIFICATE ISSUED IS REGISTERED IN THE NAME OF CEDE & CO. OR IN SUCH OTHER NAME AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF DTC (AND ANY PAYMENT IS MADE TO CEDE & CO. OR TO SUCH OTHER ENTITY AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF DTC), ANY TRANSFER, PLEDGE, OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL INASMUCH AS THE REGISTERED OWNER HEREOF, CEDE & CO., HAS AN INTEREST HEREIN.]

[Insert any legend required by the Internal Revenue Code and the regulations thereunder.]

CME Group Inc.

3.750% Notes due 2028

No.

\$

[CUSIP No. 12572QAJ4]  
[ISIN No. US 12572QAJ40]

CME Group Inc., a Delaware corporation (herein called the “**Company**,” which term includes any successor Person under the Indenture hereinafter referred to), for value received, hereby promises to pay to \_\_\_\_\_, or registered assigns, the principal sum of \_\_\_\_\_ Dollars on June 15, 2028, and to pay interest thereon from June 21, 2018 or from the most recent Interest Payment Date to which interest has been paid or duly provided for, semi-annually in arrears on June 15 and December 15 in each year, commencing December 15, 2018, at the rate of 3.750% per annum, until the principal hereof is paid or made available for payment, *provided* that any principal and premium, and any such installment of interest, which is overdue shall bear interest at the rate of 3.750% per annum (to the extent that the payment of such interest shall be legally enforceable), from the dates such amounts are due until they are paid or made available for payment, and such interest shall be payable on demand. The interest so payable, and punctually paid or duly provided for, on any Interest Payment Date will, as provided in such Indenture, be paid to the Person in whose name this Security is registered at the close of business on the Regular Record Date for such interest, which shall be June 1 or December 1 (whether or not a Business Day), as the case may be, next preceding such Interest Payment Date. Any such interest not so punctually paid or duly provided for will forthwith cease to be payable to the Holder on such Regular Record Date and may either be paid to the Person in whose name this Security is registered at the close of business on a Special Record Date for the payment of such Defaulted Interest to be fixed by the Trustee, notice whereof shall be given to Holders of Securities of this series not less than 10 days prior to such Special Record Date, or be paid at any time in any other lawful manner not inconsistent with the requirements of any securities exchange on which the Securities of this series may be listed, and upon such notice as may be required by such exchange, all as more fully provided in said Indenture.



Payment of the principal of (and premium, if any) and any such interest on this Security will be made at the office or agency of the Company maintained for that purpose in New York, New York, in such coin or currency of the United States of America as at the time of payment is legal tender for payment of public and private debts; *provided, however*, that at the option of the Company payment of interest may be made by check mailed to the address of the Person entitled thereto as such address shall appear in the Security Register; and *provided, further*, that if this Security is a Global Security, payment may be made pursuant to the Applicable Procedures of the Depositary as permitted in the Indenture.

If any Interest Payment Date, Repurchase Date, Stated Maturity or Maturity is not a Business Day, then payment of principal, premium, if any, or interest, as applicable, shall be made on the next succeeding Business Day with the same force and effect as if made on such Interest Payment Date, Repurchase Date, Stated Maturity or Maturity. No interest shall accrue on the amount so payable for the period from the relevant Interest Payment Date, Repurchase Date, Stated Maturity or Maturity to the date on which the payment is made.

Reference is hereby made to the further provisions of this Security set forth on the reverse hereof, which further provisions shall for all purposes have the same effect as if set forth at this place.

Unless the certificate of authentication hereof has been executed by the Trustee referred to on the reverse hereof by manual signature, this Security shall not be entitled to any benefit under the Indenture or be valid or obligatory for any purpose.

IN WITNESS WHEREOF, the Company has caused this instrument to be duly executed.

CME GROUP INC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

Attest:

\_\_\_\_\_  
Name:  
Title:

*Global Note Signature Page*

TRUSTEE'S CERTIFICATE OF AUTHENTICATION

This is one of the Securities of the series designated therein referred to in the within-mentioned Indenture.

Dated:

U.S. BANK NATIONAL ASSOCIATION,  
*As Trustee*

By \_\_\_\_\_  
*Authorized Signatory*

*Global Note Signature Page*

[FORM OF REVERSE OF SECURITY]

This Security is one of a duly authorized issue of securities of the Company (herein called the “**Securities**”), issued and to be issued in one or more series under a Senior Debt Indenture, dated as of August 12, 2008 (the “**Base Indenture**”), as supplemented by Eighth Supplemental Indenture, dated as of June 21, 2018 (the “**Supplemental Indenture**” and, together with the Base Indenture, the “**Indenture**”), between the Company and U.S. Bank National Association, as Trustee (herein called the “**Trustee**,” which term includes any successor trustee under the Indenture), and reference is hereby made to the Indenture for a statement of the respective rights, limitations of rights, duties and immunities thereunder of the Company, the Trustee and the Holders of the Securities and of the terms upon which the Securities are, and are to be, authenticated and delivered. This Security is one of the series designated on the face hereof initially limited in aggregate principal amount to \$500,000,000, *provided* that the Company may, without the consent of any Holder, at any time and from time to time increase the initial principal amount.

The Securities of this series are subject to redemption as provided in Sections 4.1 and 4.2 of the Supplemental Indenture and Article XI of the Base Indenture.

This Security will not be subject to any sinking fund.

The Indenture contains provisions for defeasance at any time of the entire indebtedness of this Security or certain restrictive covenants and Events of Default with respect to this Security, in each case upon compliance with certain conditions set forth in the Indenture.

If an Event of Default with respect to Securities of this series shall occur and be continuing, the principal of, and premium, if any, plus accrued and unpaid interest on the Securities of this series may be declared due and payable in the manner and with the effect provided in the Indenture.

The Indenture permits, with certain exceptions as therein provided, the amendment thereof and the modification of the rights and obligations of the Company and the rights of the Holders of the Securities of each series to be affected under the Indenture at any time by the Company and the Trustee with the consent of the Holders of a majority in principal amount of the Securities at the time Outstanding of each series to be affected. The Indenture also contains provisions permitting the Holders of not less than a majority in principal amount of the Securities of each series at the time Outstanding, on behalf of the Holders of all Securities of such series, to waive compliance by the Company with certain provisions of the Indenture and certain past defaults under the Indenture and their consequences. Any such consent or waiver by the Holder of this Security shall be conclusive and binding upon such Holder and upon all future Holders of this Security and of any Security issued upon the registration of transfer hereof or in exchange herefor or in lieu hereof, whether or not notation of such consent or waiver is made upon this Security.

As provided in and subject to the provisions of the Indenture, the Holder of this Security shall not have the right to institute any proceeding with respect to the Indenture or for the appointment of a receiver or trustee or for any other remedy thereunder, unless such Holder shall have previously given the Trustee written notice of a continuing Event of Default with respect to the Securities of this series, the Holders of not less than 25% in principal amount of the Securities of this series at the time Outstanding shall have made written request to the Trustee to institute proceedings in respect of such Event of Default as Trustee and offered the Trustee reasonable indemnity, and the Trustee shall not have received from the Holders of a majority in principal amount of Securities of this series at the time Outstanding a direction inconsistent with such request, and shall have failed to institute any such proceeding, for 60 days after receipt of such notice, request and offer of indemnity. The foregoing shall not apply to any suit instituted by the Holder of this Security for the enforcement of any payment of principal hereof or any premium or interest hereon on or after the respective due dates expressed herein.

No reference herein to the Indenture and no provision of this Security or of the Indenture shall alter or impair the obligation of the Company, which is absolute and unconditional, to pay the principal of and any premium and interest on this Security at the times, place and rate, and in the coin or currency, herein prescribed.

As provided in the Indenture and subject to certain limitations therein set forth, the transfer of this Security is registrable in the Security Register, upon surrender of this Security for registration of transfer at the office or agency of the Company in any place where the principal of and any premium and interest on this Security are payable, duly endorsed by, or accompanied by a written instrument of transfer in form satisfactory to the Company and the Security Registrar duly executed by, the Holder hereof or his attorney duly authorized in writing, and thereupon one or more new Securities of this series and of like tenor, of authorized denominations and for the same aggregate principal amount, will be issued to the designated transferee or transferees.

The Securities of this series are issuable only in registered form without coupons in minimum denominations of \$2,000 and integral multiples of \$1,000 in excess thereof. As provided in the Indenture and subject to certain limitations therein set forth, Securities of this series are exchangeable for a like aggregate principal amount of Securities of this series and of like tenor of a different authorized denomination, as requested by the Holder surrendering the same.

No service charge shall be made for any such registration of transfer or exchange, but the Company may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection therewith.

Prior to due presentment of this Security for registration of transfer, the Company, the Trustee and any agent of the Company or the Trustee may treat the Person in whose name this Security is registered as the owner hereof for all purposes, whether or not this Security be overdue, and neither the Company, the Trustee nor any such agent shall be affected by notice to the contrary.

This Security and all the obligations of the Company hereunder are direct, senior unsecured and unsubordinated obligations of the Company and rank *pari passu* with all other senior unsecured and unsubordinated indebtedness of the Company from time to time outstanding.

**THE SECURITIES OF THIS SERIES SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK.**

All terms used in this Security which are defined in the Indenture shall have the meanings assigned to them in the Indenture.

**CME GROUP INC.**

and

**U.S. BANK NATIONAL ASSOCIATION,**  
as Trustee

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**Ninth Supplemental Indenture**

Dated as of June 21, 2018

to Senior Debt Indenture  
Dated as of August 12, 2008

Establishing a series of Securities designated  
4.150% Notes due 2048

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NINTH SUPPLEMENTAL INDENTURE, dated as of June 21, 2018 (herein called the “**Ninth Supplemental Indenture**”), between CME Group Inc., a corporation duly organized and existing under the laws of the State of Delaware (herein called the “**Company**”), and U.S. Bank National Association, a nationally chartered banking association, as Trustee under the Base Indenture referred to below (herein called the “**Trustee**”).

WITNESSETH:

WHEREAS, the Company has heretofore executed and delivered to the Trustee an indenture dated as of August 12, 2008 (herein called the “**Base Indenture**” and, together with this Ninth Supplemental Indenture, the “**Indenture**”), to provide for the issuance from time to time of its unsecured debentures, notes or other evidences of indebtedness (herein called the “**Securities**”), the form and terms of which are to be established as set forth in Sections 201 and 301 of the Base Indenture;

WHEREAS, Section 901 of the Base Indenture provides, among other things, that the Company and the Trustee may enter into indentures supplemental to the Base Indenture to, among other things, establish the form and terms of the Securities of any series as permitted in Sections 201 and 301 of the Base Indenture;

WHEREAS, the Company desires to create a series of the Securities in an aggregate principal amount of \$700,000,000 to be designated the “4.150% Notes due 2048” (herein called the “**Notes**”) and all action on the part of the Company necessary to authorize the issuance of the Notes under the Base Indenture and this Ninth Supplemental Indenture has been duly taken;

WHEREAS, the Company desires to issue the Notes in accordance with Section 2.3 of this Ninth Supplemental Indenture and treat the Notes as a single series of Securities for all purposes, as amended or supplemented from time to time in accordance with the terms of this Ninth Supplemental Indenture and the Base Indenture; and

WHEREAS, all acts and things necessary to make the Notes, when executed by the Company and completed, authenticated and delivered by the Trustee as provided in the Base Indenture and this Ninth Supplemental Indenture, the valid and binding obligations of the Company and to constitute a valid and binding supplemental indenture and agreement according to its terms, have been done and performed.

NOW, THEREFORE, THIS NINTH SUPPLEMENTAL INDENTURE WITNESSETH:

That in consideration of the premises and of the acceptance and purchase of the Notes by the Holders thereof and of the acceptance of this trust by the Trustee, the Company covenants and agrees with the Trustee, for the equal benefit of Holders of the Notes, as follows:

## ARTICLE 1.

### DEFINITIONS

Except to the extent such terms are otherwise defined in this Ninth Supplemental Indenture or the context clearly requires otherwise, all terms used in this Ninth Supplemental Indenture which are defined in the Base Indenture or the form of Note attached hereto as Exhibit A have the meanings assigned to them therein. With respect to the Notes, the term “**Managing Director**” shall mean, when used in the Indenture with respect to the Company, any managing director, whether or not designated by a number or a word or words added before or after the title “managing director.” For purposes of any requirement under the Base Indenture or this Ninth Supplemental Indenture for the Trustee to have its Corporate Trust Office in New York, New York, “**Corporate Trust Office**” means, and for purposes of the Place of Payment in respect of the Notes, the office or agency of the Trustee when acting as the Paying Agent shall be, the office or agency of the Trustee in The City of New York, State of New York, which as of the date hereof is located at U.S. Bank Global Corporate Trust Services, New York, 100 Wall St., 16th floor, New York, NY 10005.

In addition, as used in this Ninth Supplemental Indenture, the following terms have the following meanings:

“**Applicable Procedures**” has the meaning specified in Section 2.6 hereof.

“**Attributable Debt**” with regard to a Sale and Lease-Back Transaction with respect to any Principal Property means, at the time of determination, the present value of the total net amount of rent required to be paid under such lease during the remaining term thereof (including any period for which such lease has been extended), discounted at the rate of interest set forth or implicit in the terms of such lease (or, if not practicable to determine such rate, the weighted average interest rate per annum borne by the Securities of all series then Outstanding under the Indenture) compounded semi-annually. In the case of any lease which is terminable by the lessee upon the payment of a penalty, such net amount shall be the lesser of (x) the net amount determined assuming termination upon the first date such lease may be terminated (in which case the net amount shall also include the amount of the penalty, but shall not include any rent that would be required to be paid under such lease subsequent to the first date upon which it may be so terminated) or (y) the net amount determined assuming no such termination.

“**Bankruptcy Law**” means Title 11, U.S. Code or any similar federal or state law for the relief of debtors.

“**Base Indenture**” has the meaning provided in the recitals hereof.

“**Below Investment Grade Rating Event**” means the Notes are rated below an Investment Grade Rating by each of the Rating Agencies on any date during the period commencing upon the first public notice of the occurrence of a Change of Control or the Company’s intention to effect a Change of Control and ending 60 days following public notice of the occurrence of the related Change of Control (which 60-day period shall be extended so long as the rating of the Notes is under publicly announced consideration for possible downgrade by any of the Rating Agencies, *provided* that no such extension shall occur if on such 60th day the Notes have an Investment Grade Rating from at least one Rating Agency and are not subject to review for possible downgrade by such Rating Agency); *provided further*, that a Below Investment Grade Rating Event otherwise arising by virtue of a particular reduction in rating shall not be deemed to have occurred in respect of a particular Change of Control (and thus shall not be deemed a Below Investment Grade Rating Event for purposes of the definition of Change of Control Triggering Event hereunder) if the Rating Agencies making the reduction in rating to which this definition would otherwise apply do not announce or publicly confirm or inform the Holders of the Notes in writing at their request that the reduction was the result, in whole or in part, of any event or circumstance comprising or arising as a result of, or in respect of, the applicable Change of Control (whether or not the applicable Change of Control shall have occurred at the time of the Below Investment Grade Rating Event).

“**Business Day**” means any calendar day that is not a Saturday, Sunday or a day on which banking institutions in New York City are authorized or obligated by law or regulation to close.

“**Capital Stock**” means (i) in the case of a corporation or a company, corporate stock or shares; (ii) in the case of an association or business entity, any and all shares, interests, participations, rights or other equivalents (however designated) of corporate stock; (iii) in the case of a partnership or limited liability company, partnership or membership interests (whether general or limited); and (iv) any other interest or participation that confers on a person the right to receive a share of the profits and losses of, or distributions of assets of, the issuing person.

“**Change of Control**” means the occurrence of any of the following: (1) the direct or indirect sale, transfer, conveyance or other disposition (other than by way of merger or consolidation), in one or a series of related transactions, of all or substantially all of the assets of the Company and its Subsidiaries taken as a whole to any Person or group of related Persons for purposes of Section 13(d) of the Exchange Act (a “**Group**”) other than the Company or one of its Subsidiaries; (2) the approval by the holders of the Company’s common stock of any plan or proposal for the liquidation or dissolution of the Company; or (3) the consummation of any transaction (including, without limitation, any merger or consolidation) the result of which is that any Person or Group becomes the beneficial owner, directly or indirectly, of more than 50% of the Company’s Voting Stock (measured by voting power rather than the number of shares); *provided, however*, that a transaction will not be deemed to involve a Change of Control if (1) the Company becomes a direct or indirect wholly owned Subsidiary of a holding company



and (2)(A) the direct or indirect holders of the Voting Stock of such holding company immediately following that transaction are substantially the same as the holders of the Company's Voting Stock immediately prior to that transaction, or (B) immediately following that transaction, no Person or Group (other than a holding company satisfying the requirements of this proviso) is the beneficial owner, directly or indirectly of more than 50% of the Voting Stock (measured by voting power rather than the number of shares) of such holding company.

**"Change of Control Offer"** has the meaning specified in Section 2.8 hereof.

**"Change of Control Payment"** has the meaning specified in Section 2.8 hereof.

**"Change of Control Payment Date"** has the meaning specified in Section 2.8 hereof.

**"Change of Control Triggering Event"** means the occurrence of both a Change of Control and a Below Investment Grade Rating Event occurring in respect of that Change of Control.

**"Clearing House Facility"** means the Credit Agreement, dated as of November 2, 2017, among Chicago Mercantile Exchange Inc., the Banks (as defined therein), Bank of America, N.A., as administrative agent and Citibank, N.A., as collateral agent, as amended, restated, supplemented, increased, extended, renewed, replaced, refinanced (with the same or other lenders) or otherwise modified from time to time.

**"Company"** means the person named as such in the preamble hereof and, subject to the provisions of Article VIII of the Base Indenture as amended by this Ninth Supplemental Indenture, any successor to that person.

**"Comparable Treasury Issue"** means the United States Treasury security selected by a Reference Treasury Dealer as having an actual or interpolated maturity comparable to the remaining term of the Notes (assuming for this purpose that the Notes mature on the Par Call Date) called for redemption, that would be utilized, at the time of selection and in accordance with customary financial practice, in pricing new issues of corporate debt securities of comparable maturity to the remaining term of the Notes called for redemption.

**"Comparable Treasury Price"** means, with respect to any Redemption Date, the average, as determined by the Company, of the Reference Treasury Dealer Quotations for that Redemption Date after excluding the highest and lowest Reference Treasury Dealer Quotation.

**"Consolidated Net Tangible Assets"** means, at any date, the aggregate amount of assets (less applicable reserves) of the Company and its Significant Subsidiaries after deducting therefrom (a) all goodwill, trade names, trademarks, patents, unamortized debt discount and expense and other like intangibles and (b) all current liabilities (excluding any current liabilities for money borrowed having a maturity of less than 12 months but by its terms being renewable or extendible beyond 12 months from such date at the option of the borrower), all as reflected in the Company's most recent consolidated balance sheet as of the end of the Company's fiscal quarter ending not more than 135 days prior to such date, prepared in accordance with United States generally accepted accounting principles, *provided*, that Consolidated Net Tangible Assets will be calculated after giving pro forma effect to any investments, acquisitions or dispositions occurring outside the ordinary course of business and subsequent to the date of such balance sheet, as well as any transaction giving rise to the need to calculate Consolidated Net Tangible Assets (including the application of the proceeds therefrom, as applicable).

**"Definitive Securities"** means certificated Securities registered in the name of the Holder thereof and issued in accordance with Section 2.2(b) hereof, substantially in the form of Exhibit A hereto, except that such Security shall not bear the Global Security Legend.

**"Depository"** means DTC, together with any Person succeeding thereto by merger, consolidation or acquisition of all or substantially all of its assets, including substantially all of its securities payment and transfer operations.

**"DTC"** means The Depository Trust Company, a New York corporation, having a principal office at 55 Water Street, New York, New York 10041-0099.

“**Ninth Supplemental Indenture**” has the meaning provided in the preamble hereof.

“**Global Security Legend**” means the legend set forth in Section 202 of the Base Indenture.

“**Group**” has the meaning given to such term in the definition of “Change of Control” herein.

“**Indebtedness**” means any indebtedness (whether being principal, premium, interest or other amounts) for or in respect of any notes, bonds, debentures or other instruments for money borrowed or any borrowed money or any liability under or in respect of any banker’s acceptance (other than a daylight overdraft).

“**Indenture**” has the meaning provided in the recitals hereof.

“**Indirect Participant**” means a Person who holds a beneficial interest in a Global Security through a Participant.

“**Investment Grade Rating**” means a rating equal to or higher than Baa3 (or the equivalent) by Moody’s and BBB- (or the equivalent) by S&P or the equivalent investment grade credit rating from any additional Rating Agency or Rating Agencies selected by the Company.

“**Issue Date**” means June 21, 2018, the date on which the Notes are originally issued under this Ninth Supplemental Indenture.

“**Lien**” means any lien, mortgage, deed of trust, hypothecation, pledge, security interest, charge or encumbrance of any kind.

“**Moody’s**” means Moody’s Investors Service, Inc. and its successors.

“**NEX Acquisition**” means the cash and share acquisition of NEX Group plc by the Company and CME London Limited, a wholly-owned subsidiary of the Company.

“**Notes**” has the meaning given to such term in the recitals hereof.

“**Optional Redemption Price**” has the meaning specified in Section 4.1 hereof.

“**Par Call Date**” has the meaning specified in Section 4.1 hereof.

“**Participant**” means, with respect to the Depository, a Person who has an account with the Depository.

“**Permitted Liens**” means (a) Liens imposed by law or any governmental authority for taxes, assessments, levies or charges that are not yet overdue by more than 60 days or are being contested in good faith (and, if necessary, by appropriate proceedings) or for commitments that have not been violated; (b) carriers’, warehousemen’s, mechanics’, materialmen’s, repairmen’s, landlords’ and similar Liens imposed by law or which arise by operation of law and which are incurred in the ordinary course of business or where the validity or amount thereof is being contested in good faith (and, if necessary, by appropriate proceedings); (c) Liens incurred or pledges or deposits made in compliance with workers’ compensation, unemployment insurance and other social security laws or regulations; (d) Liens incurred or pledges or deposits made to secure the performance of bids, trade contracts, tenders, leases, statutory obligations, surety, customs and appeal bonds, performance bonds, customer deposits and other obligations of a similar nature, in each case in the ordinary course of business; (e) judgment Liens in respect of judgments that do not constitute an Event of Default under the Indenture; (f) Liens securing Indebtedness incurred under the Clearing House Facility from time to time; (g) Liens securing Indebtedness incurred in connection with the obligations of the Company or any Subsidiary relating to clearing, settlement or regulated exchange activities; (h) Liens on (1) any property or asset prior to the acquisition thereof, *provided* that such Lien may only extend to such property or asset, or (2) property of a Significant Subsidiary where (A) such Significant Subsidiary becomes a Subsidiary after June 14, 2018, (B) the Lien exists at the time such Significant Subsidiary becomes a Subsidiary, (C) the Lien was not created in contemplation of such Significant Subsidiary becoming a

Subsidiary, and (D) the Lien in effect at the time such Significant Subsidiary becomes a Subsidiary is not subsequently extended to any Principal Property acquired by such Significant Subsidiary after the time such Significant Subsidiary becomes a Subsidiary; (i) any Lien existing on June 21, 2018; (j) Liens upon fixed, capital, real and/or tangible personal property acquired after June 21, 2018 (by purchase, construction, development, improvement, capital lease, Synthetic Lease or otherwise) by the Company or any Significant Subsidiary, each of which Liens was created for the purpose of securing Indebtedness representing, or incurred to finance, refinance or refund, the cost (including the cost of construction, development or improvement) of such property; *provided* that no such Lien shall extend to or cover any property other than the property so acquired and improvements thereon; (k) Liens in favor of the Company or any Subsidiary; (l) Liens arising from the sale of accounts receivable for which fair equivalent value is received; (m) any extension, renewal or replacement (or successive extensions, renewals or replacements) in whole or in part, of any Liens referred to in the foregoing clauses (f), (g), (h), (i), (j), (k) and (l); *provided* that the principal amount of Indebtedness secured thereby and not otherwise authorized as a Permitted Lien shall not exceed the principal amount of Indebtedness, plus any costs, expenses, premiums, fees, prepayment penalties or similar charges payable in connection with any such extension, renewal or replacement, so secured at the time of such extension, renewal or replacement; (n) Liens securing obligations of the Company or any Subsidiary in respect of any swap agreements entered into (1) in the ordinary course of business and for non-speculative purposes or (2) solely in order to serve as a clearinghouse in respect thereof; (o) easements, zoning restrictions, minor title defects, irregularities or imperfections, restrictions on use, rights of way, leases, subleases and similar charges and other similar encumbrances on real property imposed by law or arising in the ordinary course of business that do not secure any monetary obligations (other than customary maintenance requirements) and which could not reasonably be expected to have a material adverse effect on the business or financial condition of the Company and its Subsidiaries taken as a whole; (p) Liens created in connection with any share repurchase program in favor of any broker, dealer, custodian, trustee and/or agent administering or effecting transactions pursuant to a share repurchase program; (q) Liens on (1) the land, improvements, fixtures and buildings located at 141 West Jackson Boulevard and 333 S. LaSalle St. (formerly part of 141 West Jackson Boulevard) in Chicago, (2) the land, improvements, fixtures and buildings located at One North End Ave., New York, New York 10282 and (3) the land, improvements, fixtures and buildings comprising the data center located in Aurora, Illinois and any additional data center facility that the Company or any Significant Subsidiary acquires or leases after the Issue Date (excluding any data center facility (other than the data center located in Aurora, Illinois) that the Company or any Significant Subsidiary owns or leases as of the Issue Date); and (r) Liens consisting of an agreement to sell, transfer or dispose of any asset or property (to the extent such sale, transfer or disposition is not prohibited by Article VIII of the Base Indenture as amended by this Ninth Supplemental Indenture).

**“Person”** means any “person” as that term is used in Section 13(d)(3) of the Exchange Act.

**“Principal Property”** means the land, improvements, buildings and fixtures (including any leasehold interest therein) constituting a corporate office, facility or other capital asset within the United States (including its territories and possessions) which is owned by the Company or any of its Significant Subsidiaries unless the Company’s Board of Directors has determined in good faith that such office or facility is not of material importance to the total business conducted by the Company and its Significant Subsidiaries taken as a whole; *provided* that, with respect to any Sale and Lease-Back Transaction or series of related Sale and Lease-Back Transactions, the determination of whether any property is a Principal Property shall be determined by reference to all properties affected by such transaction or series of transactions.

**“Rating Agencies”** means (1) each of Moody’s and S&P; and (2) if any of Moody’s or S&P ceases to rate the Notes or fails to make a rating of the Notes publicly available for reasons outside of the Company’s control, a “nationally recognized statistical rating organization” within the meaning of Section 3(a)(62) under the Exchange Act, selected by the Company (as certified by an executive officer of the Company) as a replacement agency for Moody’s or S&P, or both of them, as the case may be.

**“Reference Treasury Dealer”** means (i) each of J.P. Morgan Securities LLC, Barclays Capital Inc. and Merrill Lynch, Pierce, Fenner & Smith Incorporated, and each of their respective successors and (ii) two Primary Treasury Dealers (as defined below) selected by the Company. If any one shall cease to be a primary U.S. Government securities dealer (a **“Primary Treasury Dealer”**), the Company will substitute another nationally recognized investment banking firm that is a primary U.S. Government securities dealer.

**“Reference Treasury Dealer Quotation”** means, with respect to each Reference Treasury Dealer and any Redemption Date, the average, as determined by the Company, of the bid and asked prices for the Comparable Treasury Issue (expressed in each case as a percentage of its principal amount) quoted in writing to the Company by such Reference Treasury Dealer at 3:30 p.m., New York City time, on the third Business Day preceding that Redemption Date.

**“Regular Record Date”** for the interest payable on any Interest Payment Date means the fifteenth day, whether or not a Business Day, immediately preceding the applicable Interest Payment Date.

**“Remaining Scheduled Payments”** means the remaining scheduled payments of principal of and interest on the Notes called for redemption that would be due after the related Redemption Date but for that redemption (assuming the Notes called for redemption matured on the Par Call Date); *provided* that if that Redemption Date is not an Interest Payment Date with respect to the Notes called for redemption, the amount of the next succeeding scheduled interest payment on such Notes will be reduced by the amount of interest accrued to such Redemption Date.

**“S&P”** means S&P Global Ratings Inc. and its successors.

**“Sale and Lease-Back Transaction”** means any arrangement with any Person providing for the leasing by the Company or any of its Significant Subsidiaries of any Principal Property, whether now owned or hereafter acquired, which Principal Property has been or is to be sold or transferred by the Company or such Significant Subsidiary to such Person.

**“Securities”** has the meaning given to such term in the recitals hereof.

**“Senior Credit Facility”** means the Credit Agreement, dated as of November 21, 2017, among the Company, Bank of America, N.A., as administrative agent, and the several banks, financial institutions and other entities from time to time parties thereto as lenders, as amended, restated, supplemented, increased, extended, renewed, replaced, refinanced (with the same or other lenders) or otherwise modified from time to time.

**“Significant Subsidiary,”** with respect to any Person, means any Subsidiary of such person that satisfies the criteria for a “significant subsidiary” set forth in Rule 1-02(w)(1) or (2) of Regulation S-X under the Exchange Act.

**“Special Acquisition Redemption”** has the meaning specified in Section 4.2 hereof.

**“Special Acquisition Redemption Date”** has the meaning specified in Section 4.2 hereof.

**“Special Acquisition Redemption Price”** has the meaning specified in Section 4.2 hereof.

**“Subsidiary”** means any corporation, limited liability company or other similar type of business entity in which the Company and/or one or more of its Subsidiaries together own more than 50% of the total voting power of shares of Capital Stock entitled (without regard to the occurrence of any contingency) to vote in the election of the board of directors or similar governing body of such corporation, limited liability company or other similar type of business entity, directly or indirectly. Unless the context otherwise requires, as used herein, “Subsidiary” shall mean a Subsidiary of the Company.

**“Synthetic Lease”** means any tax retention or other synthetic lease which is treated as an operating lease under United States generally accepted accounting principles, but the liabilities under which are or would be characterized as indebtedness for tax purposes.

**“Treasury Rate”** means, with respect to any Redemption Date, the rate per annum equal to the semiannual equivalent yield to maturity (computed as of the third Business Day immediately preceding that Redemption Date) of the Comparable Treasury Issue, assuming a price for the Comparable Treasury Issue (expressed as a percentage of its principal amount) equal to the Comparable Treasury Price for that Redemption Date.

“**Trustee**” means the person named as such in the preamble hereof and, subject to the provisions of Article VI of the Base Indenture, any successor to that person.

“**Voting Stock**” of any specified Person as of any date means the Capital Stock of such Person that is at the time entitled to vote generally in the election of the Board of Directors of such Person. Notwithstanding the foregoing clauses or any provision of Rule 13(d)(3) or 13(d)(5) of the Exchange Act, a Person or Group shall not be deemed to beneficially own Voting Stock subject to a stock or asset purchase agreement, merger agreement, option agreement, warrant agreement or similar agreement (or voting, support, option or similar agreement related thereto) until the consummation of the acquisition of the Voting Stock in connection with the transactions contemplated by such agreement.

## ARTICLE 2.

### THE NOTES

Section 2.1 *Issue of Notes.* A series of Securities which shall be designated the “4.150% Notes due 2048” shall be executed, authenticated and delivered in accordance with the provisions of, and shall in all respects be subject to, the terms, conditions and covenants of, the Base Indenture and this Ninth Supplemental Indenture (including the form of Notes set forth hereto as Exhibit A). The aggregate principal amount of Notes which may be authenticated and delivered under this Ninth Supplemental Indenture shall not, except as permitted by the provisions of the Base Indenture, initially exceed \$700,000,000; *provided* that the Company may from time to time or at any time, without the consent of the Holders of the Notes, issue additional Notes, which additional Notes shall increase the aggregate principal amount of, and shall be consolidated and form a single series with, the Notes; *provided further that* if the additional Notes are not fungible with the Notes for United States federal income tax purposes, the additional Notes will have a separate CUSIP number.

Section 2.2 *Form of Notes; Incorporation of Terms.* (a) The Notes shall be issued initially in the form of one or more Global Securities and, together with the Trustee’s certificate of authentication thereon, shall be in substantially the form set forth in Exhibit A attached hereto. The Notes may have such notations, legends or endorsements approved as to form by the Company and required, as applicable, by law, stock exchange or depository rules and agreements to which the Company is subject and/or usage. The terms of the Notes set forth in Exhibit A are herein incorporated by reference and are part of the terms of this Ninth Supplemental Indenture. The Notes shall be issuable in definitive, fully registered form without coupons only in minimum denominations of \$2,000 and any integral multiples of \$1,000 in excess thereof.

(b) Notes issued in global form shall be substantially in the form of Exhibit A attached hereto (including the Global Security Legend thereon). Notes issued in definitive certificated form in accordance with the terms of the Base Indenture and this Ninth Supplemental Indenture, if any, shall be substantially in the form of Exhibit A attached hereto (but without the Global Security Legend thereon). Each Global Security shall represent such of the Outstanding Notes as shall be specified therein and each shall provide that it shall represent the aggregate principal amount of Outstanding Notes from time to time endorsed thereon and that the aggregate principal amount of Outstanding Notes represented thereby may from time to time be reduced or increased, as appropriate, to reflect exchanges and redemptions. Any endorsement of a Global Security to reflect the amount of any increase or decrease in the aggregate principal amount of Outstanding Notes represented thereby shall be made by the Trustee in accordance with instructions given by the Holder thereof as required by Section 2.6 hereof.

Section 2.3 *Execution and Authentication.* The Trustee, upon a Company Order and pursuant to the terms of the Base Indenture and this Ninth Supplemental Indenture, shall authenticate and deliver the Notes for original issue in an initial aggregate principal amount of \$700,000,000. Such Company Order shall specify the amount of the Notes to be authenticated and the date on which the original issue of Notes is to be authenticated. All of the Notes issued under this Ninth Supplemental Indenture shall be treated as a single series for all purposes under the Base Indenture and this Ninth Supplemental Indenture, including, without limitation, waivers, amendments and offers to purchase.

Section 2.4 *Global Securities*. The Depository for the Global Securities issued under this Ninth Supplemental Indenture shall be DTC in the City of New York. The provisions of clauses (1), (2), (3) and (4) below shall apply only to Global Securities:

(1) Each Global Security authenticated under this Ninth Supplemental Indenture shall be registered in the name of the Depository designated for such Global Security or a nominee thereof and delivered to such Depository or a nominee thereof or custodian therefor, and each such Global Security shall constitute a single Security for all purposes of the Indenture.

(2) Notwithstanding any other provision in the Indenture, no Global Security may be exchanged in whole or in part for Securities registered, and no transfer of a Global Security in whole or in part may be registered, in the name of any Person other than the Depository for such Global Security or a nominee thereof unless (A) such Depository has notified the Company that it is unwilling or unable or no longer permitted under applicable law to continue as Depository for such Global Security and the Company has not appointed a successor Depository within 90 days of receipt of such notice, (B) there shall have occurred and be continuing an Event of Default with respect to such Global Security or (C) the Company so directs the Trustee by Company Order.

(3) Subject to clause (2) above, any exchange of a Global Security for other Securities may be made in whole or in part, and all Securities issued in exchange for a Global Security or any portion thereof shall be registered in such names as the Depository for such Global Security shall direct.

(4) Every Security authenticated and delivered upon registration of transfer of, or in exchange for or in lieu of, a Global Security or any portion thereof, shall be authenticated and delivered in the form of, and shall be, a Global Security, unless such Security is registered in the name of a Person other than the Depository for such Global Security or a nominee thereof.

Section 2.5 *Place of Payment*. The Place of Payment in respect of the Notes will be at the office or agency of the Company in The City of New York, State of New York or at the office or agency of the Paying Agent in The City of New York, State of New York.

Section 2.6 *Transfer and Exchange*.

(a) The transfer and exchange of beneficial interests in the Global Securities shall be effected through the Depository, in accordance with the provisions of the Base Indenture, this Ninth Supplemental Indenture and the then applicable procedures of the Depository (the “**Applicable Procedures**”). In connection with all transfers and exchanges of beneficial interests, the transferor of such beneficial interest must deliver to the Trustee either (A)(1) a written order from a Participant or an Indirect Participant given to the Depository in accordance with the Applicable Procedures directing the Depository to credit or cause to be credited a beneficial interest in another Global Security in an amount equal to the beneficial interest to be transferred or exchanged and (2) instructions given in accordance with the Applicable Procedures containing information regarding the Participant account to be credited with such increase or, if Definitive Securities are at such time permitted to be issued pursuant to this Ninth Supplemental Indenture and the Base Indenture, (B)(1) a written order from a Participant or an Indirect Participant given to the Depository in accordance with the Applicable Procedures directing the Depository to cause to be issued a Definitive Security in an amount equal to the beneficial interest to be transferred or exchanged and (2) instructions given by the Depository to the Security Registrar containing information regarding the Person in whose name such Definitive Security shall be registered to effect the transfer or exchange referred to in (1) above. Upon satisfaction of all of the requirements for transfer or exchange of beneficial interests in Global Securities contained in the Base Indenture, this Ninth Supplemental Indenture and the Notes or otherwise applicable under the Securities Act, the Security Registrar shall adjust the principal amount of the relevant Global Securities pursuant to Section 2.7 hereof.

(b) Upon request by a Holder of Definitive Securities and such Holder’s compliance with the provisions of this Section 2.6(b), the Security Registrar shall register the transfer or exchange of Definitive Securities. Prior to such registration of transfer or exchange, the requesting Holder shall present or surrender to the Trustee the Definitive Securities duly endorsed or accompanied by a written instruction of transfer in form satisfactory to the Security Registrar duly executed by such Holder or by its attorney, duly authorized in writing. The Trustee shall cancel any such Definitive Securities so surrendered, and the Company shall execute and, upon

receipt of a Company Order pursuant to Section 303 of the Base Indenture, the Trustee shall authenticate and deliver to the Person designated in the instructions a new Definitive Security in the appropriate principal amount. Any Definitive Security issued pursuant to this Section 2.6(b) shall be registered in such name or names and in such authorized denomination or denominations as the Holder of such beneficial interest shall instruct the Security Registrar through instructions from the Depository and the Participant or Indirect Participant. The Trustee shall deliver such Definitive Securities to the Persons in whose names such Definitive Securities are so registered. In addition, the requesting Holder shall provide any additional certifications, documents and information, as applicable, required pursuant to Section 305 of the Base Indenture.

*Section 2.7 Cancellation and/or Adjustment of Global Securities.* At such time as all beneficial interests in a particular Global Security have been exchanged for Definitive Securities or a particular Global Security has been redeemed, repurchased or cancelled in whole and not in part, each such Global Security shall be returned to or retained and cancelled by the Trustee in accordance with Section 309 of the Base Indenture. At any time prior to such cancellation, if any beneficial interest in a Global Security is exchanged for or transferred to a Person who will take delivery thereof in the form of a beneficial interest in another Global Security or for Definitive Securities, the principal amount of Securities represented by such Global Security shall be reduced accordingly and an endorsement shall be made on such Global Security by the Trustee or by the Depository at the direction of the Trustee to reflect such reduction; and if the beneficial interest is being exchanged for or transferred to a Person who will take delivery thereof in the form of a beneficial interest in another Global Security, such other Global Security shall be increased accordingly and an endorsement shall be made on such Global Security by the Security Registrar or by the Depository at the direction of the Security Registrar to reflect such increase.

*Section 2.8 Repurchase upon Change of Control Triggering Event.*

(a) If a Change of Control Triggering Event occurs with respect to the Notes, unless the Company shall have exercised its right pursuant to Section 4.1 hereof to redeem the Notes, the Company shall make an offer to each Holder of the Notes to repurchase all or, at such Holder's option, any part (equal to \$2,000 or any integral multiple of \$1,000 in excess thereof) of such Holder's Notes (the "**Change of Control Offer**") for payment in cash equal to 101% of the aggregate principal amount of the Notes repurchased plus accrued and unpaid interest, if any, on the Notes repurchased to, but excluding, the date of purchase (the "**Change of Control Payment**").

(b) Within 30 days following any Change of Control Triggering Event with respect to the Notes or, at the Company's option, prior to any Change of Control but after the public announcement of the transaction or transactions that constitutes or may constitute a Change of Control, the Company shall cause a notice to be mailed to Holders of the Notes, with a copy to the Trustee for the Notes, describing the transaction or transactions that constitute or may constitute the Change of Control Triggering Event and offering to repurchase the Notes on the date specified in the notice, which date shall be no earlier than 30 days and no later than 60 days from the date such notice is mailed (the "**Change of Control Payment Date**"), pursuant to the procedures required by the Notes and described in such notice. The notice shall, if mailed prior to the date of consummation of the Change of Control, state that the offer to purchase is conditioned on the Change of Control Triggering Event occurring on or prior to the Change of Control Payment Date. Upon 10 Business Days' advance notice to the Trustee, the Company may request the Trustee to mail the notice to Holders described in this Section 2.8(b) in the name of and at the expense of the Company.

(c) The Company shall comply with the requirements of Rule 14e-1 under the Exchange Act and any other securities laws and regulations thereunder to the extent such laws and regulations are applicable in connection with the repurchase of Notes as a result of a Change of Control Triggering Event. To the extent that the provisions of any such securities laws or regulations conflict with this Section 2.8, the Company shall comply with those securities laws and regulations and shall not be deemed to have breached its obligations under this Section 2.8 by virtue of such conflict.

(d) On the Change of Control Payment Date, the Company shall, to the extent lawful:

- (i) accept for payment all Notes or portions of Notes properly tendered pursuant to the Change of Control Offer;

(ii) deposit with the Paying Agent an amount equal to the Change of Control Payment in respect of all Notes or portions of Notes properly tendered; and

(iii) deliver or cause to be delivered to the Trustee the Notes properly accepted together with an Officer's Certificate stating the aggregate principal amount of Notes or portions of Notes being purchased by the Company.

(e) The Paying Agent shall promptly deliver, to each Holder who properly tendered Notes, the purchase price for such Notes, and the Trustee shall promptly authenticate and mail (or cause to be transferred by book entry) to each such Holder a new Note equal in principal amount to any unpurchased portion of the Notes surrendered, if any; *provided* that each new Note will be in a principal amount of \$2,000 or an integral multiple of \$1,000 in excess thereof.

(f) The Company shall not be required to make a Change of Control Offer upon a Change of Control Triggering Event if a third party makes a Change of Control Offer in the manner, at the times and otherwise in compliance with the requirements set forth in this Ninth Supplemental Indenture applicable to a Change of Control Offer made by the Company and purchases all Notes properly tendered and not withdrawn under such Change of Control Offer. In the event that such third party terminates or defaults on its Change of Control Offer, the Company shall be required to make a Change of Control Offer treating the date of such termination or default as though it were the date of the Change of Control Triggering Event.

(g) If Holders of not less than 90% in aggregate principal amount of the outstanding Notes validly tender and do not withdraw such Notes in a Change of Control Offer and the Company, or any third party making such an offer in lieu of the Company, purchases all of such Notes properly tendered and not withdrawn by such Holders, the Company or such third party will have the right, upon not less than 10 days' nor more than 60 days' prior notice, *provided* that such notice is given not more than 30 days following such repurchase pursuant to the Change of Control Offer, to redeem all Notes that remain outstanding following such purchase on a date specified in such notice (the "**Second Change of Control Payment Date**") and at a price in cash equal to 101% of the aggregate principal amount of the Notes repurchased plus accrued and unpaid interest, if any, on the Notes repurchased to, but excluding, the Second Change of Control Payment Date.

### ARTICLE 3.

#### COVENANTS

Section 3.1 *Limitations on Liens*. The Company shall not (nor shall it permit any of its Significant Subsidiaries to) create any Lien on any Principal Property of the Company or any of its Significant Subsidiaries (or on any Capital Stock of a Significant Subsidiary), whether such Principal Property or Capital Stock is now existing or owned or hereafter acquired, to secure any Indebtedness, unless the Company shall contemporaneously secure the Notes (together with, if the Company so determines, any other Indebtedness of or guaranty by the Company or such Significant Subsidiary then existing or thereafter created which is not subordinated to the Notes) equally and ratably with (or, at the Company's option, prior to) such secured Indebtedness. Any Lien that is granted to secure the Notes under this Section 3.1 shall be automatically released and discharged at the same time as the release of the Lien that gave rise to the obligation to secure the Notes under this Section 3.1.

The foregoing restriction, however, shall not require the Company to secure the Notes if the Lien consists of either of the following:

(a) Permitted Liens; or

(b) Liens securing Indebtedness if at the time of determination, after giving pro forma effect to the incurrence, creation, assumption or guaranty of such Indebtedness or the securing of outstanding Indebtedness and to the retirement of Indebtedness which is concurrently being retired, the sum of (without duplication) (i) the aggregate principal amount of all Indebtedness of the Company and its Subsidiaries secured by Liens (other than Permitted Liens) and (ii) all Attributable Debt in respect of Sale and Lease-Back Transactions not otherwise permitted under the first sentence of Section 3.2 hereof, does not exceed fifteen percent of Consolidated Net Tangible Assets.



**Section 3.2 Limitations on Sale and Lease-Back Transactions.** The Company shall not, and shall not permit any of its Significant Subsidiaries to, enter into any Sale and Lease-Back Transaction with respect to any Principal Property, other than (x) any such Sale and Lease-Back Transaction with respect to (i) the land, improvements, fixtures and buildings located at 141 West Jackson Boulevard and 333 S. LaSalle St. (formerly part of 141 West Jackson Boulevard) in Chicago, (ii) the land, improvements, fixtures and buildings located at One North End Ave., New York, New York 10282 or (iii) the land, improvements, fixtures and buildings comprising the data center located in Aurora, Illinois and any additional data center facility that the Company or any Significant Subsidiary acquires or leases after the Issue Date (excluding any data center facility (other than the data center located in Aurora, Illinois) that the Company or any Significant Subsidiary owns or leases as of the Issue Date), (y) any such Sale and Lease-Back Transaction involving a lease for a term of not more than three years or (z) any such Sale and Lease-Back Transaction between the Company and one of its Subsidiaries or between its Subsidiaries, unless:

(a) the Company or such Significant Subsidiary, as applicable, could have incurred Indebtedness secured by a Lien on the Principal Property involved in such Sale and Lease-Back Transaction in an amount at least equal to the Attributable Debt with respect to such Sale and Lease-Back Transaction, without equally and ratably securing the Notes, pursuant to Section 3.1 hereof; or

(b) the proceeds of such Sale and Lease-Back Transaction are at least equal to the fair market value of the affected Principal Property (as determined in good faith by the Company's Board of Directors) and the Company applies an amount equal to the net proceeds of such Sale and Lease-Back Transaction within 365 days of such Sale and Lease-Back Transaction to any (or a combination) of:

(i) the prepayment or retirement of the Notes,

(ii) the prepayment or retirement (other than any mandatory retirement, mandatory prepayment or sinking fund payment or by payment at maturity) of other Indebtedness of the Company or of one of its Subsidiaries (other than Indebtedness that is subordinated to the Notes or Indebtedness owed to the Company or one of its Subsidiaries) that matures more than 12 months after its creation; or

(iii) the purchase, construction, development, expansion or improvement of other comparable property.

Notwithstanding the foregoing, the Company and its Significant Subsidiaries shall be allowed to enter into any Sale and Lease-Back Transaction if, after giving pro forma effect to such Sale and Lease-Back Transaction, the sum of (without duplication) (i) the aggregate principal amount of all Indebtedness of the Company and its Subsidiaries secured by Liens (other than Permitted Liens) and (ii) all Attributable Debt in respect of Sale and Lease-Back Transactions not otherwise permitted under the first sentence of this Section 3.2, does not exceed fifteen percent of Consolidated Net Tangible Assets.

**Section 3.3 Limitations on Mergers and Other Transactions.** With respect to the Notes only, the provisions of Section 801 of Article VIII of the Base Indenture are amended and restated in their entirety as follows:

*“SECTION 801. Company May Merge, Etc., Only on Certain Terms.*

The Company shall not merge with or into or consolidate with any other Person or sell, assign, transfer, lease or convey all or substantially all of its properties and assets to any Person (other than a direct or indirect wholly-owned subsidiary of the Company), unless:

(1) the Company is the surviving corporation or, in case the Company shall merge into or consolidate with another Person or sell, assign, transfer, lease or convey all or substantially all of its properties and assets to any Person, the Person into which the Company is merged or formed by such consolidation or the Person which acquires by sale, assignment, transfer or conveyance, or which leases, all or substantially all of its properties and assets of the Company shall be a corporation, partnership or trust, organized and validly

existing under the laws of the United States of America, any State thereof or the District of Columbia and shall expressly assume, by an indenture supplemental hereto, executed and delivered to the Trustee, in form satisfactory to the Trustee, the due and punctual payment of the principal of and any premium and interest on all the Notes and the performance or observance of every covenant of the Base Indenture and the Ninth Supplemental Indenture on the part of the Company to be performed or observed;

(2) immediately after giving effect to such transaction and treating any Indebtedness which becomes an obligation of the Company or any Subsidiary as a result of such transaction as having been incurred by the Company or such Subsidiary at the time of such transaction, no Event of Default, and no event which, after notice or lapse of time or both, would become an Event of Default, shall have happened and be continuing;

(3) the Company has delivered to the Trustee an Officers' Certificate and an Opinion of Counsel, each stating that such consolidation, merger, conveyance, transfer or lease and, if a supplemental indenture is required in connection with such transaction, such supplemental indenture comply with this Article and that all conditions precedent herein provided for relating to such transaction have been complied with."

#### ARTICLE 4.

#### REDEMPTION

##### Section 4.1 *Optional Redemption by Company.*

(a) Subject to Article XI of the Base Indenture, the Company shall have the right to redeem the Notes, at any time in whole or from time to time in part, prior to December 15, 2047 at a redemption price equal to the greater of:

(i) 100% of the principal amount of the Notes to be redeemed and

(ii) the sum of the present values of the Remaining Scheduled Payments of principal and interest in respect of the Notes to be redeemed discounted to the Redemption Date (excluding interest accrued to the Redemption Date) on a semiannual basis (assuming a 360-day year consisting of twelve 30-day months) at a rate equal to the Treasury Rate plus 20 basis points,

plus, in each case, accrued and unpaid interest on the Notes to be redeemed to, but excluding, the Redemption Date.

Subject to Article XI of the Base Indenture, commencing on December 15, 2047 (the "**Par Call Date**"), the Company shall have the right to redeem the Notes, at any time in whole or from time to time in part, at a redemption price equal to 100% of the principal amount of the Notes to be redeemed, plus accrued and unpaid interest thereon to, but excluding, the Redemption Date.

The applicable redemption price in connection with a redemption of Notes under either of the first two paragraphs of this Section 4.1(a) is referred to herein as the "**Optional Redemption Price**" with respect to such redemption.

On and after a Redemption Date, interest will cease to accrue on the Notes called for redemption (unless the Company defaults in the payment of the Optional Redemption Price and accrued interest). On or before a Redemption Date, the Company will deposit with a Paying Agent (or the Trustee) money sufficient to pay the Optional Redemption Price of and accrued interest on the Notes to be redeemed on that date. If less than all of the Notes are to be redeemed, the Notes to be redeemed shall be selected by the Trustee pro rata or by lot or by a method the Trustee deems to be fair and appropriate; *provided* that if at the time of redemption the Notes to be redeemed are registered as one or more Global Securities, the Depository shall determine, in accordance with its procedures, the principal amount of the Notes to be redeemed held by each Holder of such Notes.

(b) Notice of any redemption pursuant to this Section 4.1 shall be given as provided in Section 1104 of the Base Indenture, except that (i) any notice of such redemption shall not specify the related Optional Redemption Price but only the manner of calculation thereof and (ii) notice shall be given not less than 10 days prior to the Redemption Date. The Trustee shall not be responsible for the calculation of such Optional Redemption Price. The Company shall calculate such Optional Redemption Price and promptly notify the Trustee thereof.

Section 4.2 *Special Acquisition Redemption*. If (i) the NEX Acquisition is not consummated on or before 11:59 p.m. (New York City time) on June 30, 2019 or (ii) the NEX Acquisition is withdrawn, terminated or lapses in accordance with its terms, the Company will redeem (the “**Special Acquisition Redemption**”) all outstanding Notes at a redemption price equal to 101% of the aggregate principal amount of the Notes being redeemed (the “**Special Acquisition Redemption Price**”), plus accrued and unpaid interest to, but excluding, the Special Acquisition Redemption Date. The “**Special Acquisition Redemption Date**” means the earlier to occur of (1) July 31, 2019 or (2) the 30th day (or if such day is not a Business Day, the first Business Day thereafter) following the date that the NEX Acquisition is withdrawn, terminated or lapses in accordance with its terms.

If the Company is required to redeem the Notes pursuant to the Special Acquisition Redemption, it will cause the notice of Special Acquisition Redemption to be delivered to each registered Holder of such Notes, with a copy to the Trustee, within five Business Days after the occurrence of the event that requires the Company to redeem. If funds sufficient to pay the Special Acquisition Redemption Price of all Notes to be redeemed on the Special Acquisition Redemption Date are deposited with the Trustee on or before such Special Acquisition Redemption Date, plus accrued and unpaid interest, if any, to, but excluding, the Special Acquisition Redemption Date, such Notes will cease to bear interest and all rights under such Notes shall terminate (other than in respect of the right to receive the Special Acquisition Redemption Price, plus accrued and unpaid interest to, but excluding, the Special Acquisition Redemption Date).

## ARTICLE 5.

### REMEDIES

Section 5.1 *Events of Default*. The provisions of Section 501 of the Base Indenture shall be applicable to the Notes; *provided, however*, that clauses (1), (2), (3), (4), (5) and (6) of Section 501 of the Base Indenture shall, with respect to the Notes only, read as follows:

“(1) default in the payment of any interest on any Note when it becomes due and payable, and continuance of such default for a period of 30 days;

(2) default in the payment of the principal of or premium, if any, on any Note when it becomes due and payable, at its Maturity, upon acceleration, upon redemption or otherwise (including the failure to make a payment to purchase the Notes tendered pursuant to a Change of Control Offer);

(3) default in the performance, or breach, of any covenant or warranty contained in the Indenture (other than a covenant or warranty a default in the performance or the breach of which is specifically dealt with elsewhere in the Indenture or which is expressly included in the Indenture solely for the benefit of a particular series of debt instruments other than the Notes), and continuance of such default or breach for a period of 90 days after there has been given to the Company by the Trustee or to the Company and the Trustee by the Holders of at least 25% in principal amount of the Outstanding Notes a written notice specifying such default or breach (and demanding that such default be remedied) and stating that such notice is a “Notice of Default” under the Indenture;

(4) default on any Indebtedness of the Company or any of its Significant Subsidiaries having an aggregate amount of at least \$500,000,000, constituting a default either (a) of payment of principal when due and payable at the final stated maturity of such Indebtedness (or on or before the expiration of any grace period provided in such Indebtedness on the date of such default) or (b) which results in acceleration of the Indebtedness prior to its final stated maturity, and continuance of such default for a period of 30 days after there has been given to the Company by the Trustee or to the Company and the Trustee by the Holders of at least 25% in principal amount of the Outstanding Notes a written notice specifying such default and stating that such notice is a “Notice of Default” under the Indenture;

(5) the entry by a court having jurisdiction in the premises of (A) a decree or order for relief in respect of the Company or any of its Significant Subsidiaries in an involuntary case or proceeding under any

applicable Bankruptcy Law, insolvency, reorganization or other similar law or (B) a decree or order adjudging the Company or any of its Significant Subsidiaries as bankrupt or insolvent, or approving as properly filed a petition seeking reorganization, arrangement, adjustment or composition of or in respect of the Company or any of its Significant Subsidiaries under any applicable Bankruptcy Law, or appointing a custodian, receiver, liquidator, assignee, trustee, sequestrator or other similar official of the Company or any of its Significant Subsidiaries or of any substantial part of its or their property, or ordering the winding up or liquidation of its or their affairs, and the continuance of any such decree or order for relief or any such other decree or order unstayed and in effect for a period of 60 consecutive days; or

(6) the commencement by the Company or any of its Significant Subsidiaries of a voluntary case or proceeding under any applicable Bankruptcy Law or of any other case or proceeding to be adjudicated a bankrupt or insolvent, or the consent by it or any of them to the entry of a decree or order for relief in respect of the Company or any of its Significant Subsidiaries in an involuntary case or proceeding under any applicable Bankruptcy Law, insolvency, reorganization or other similar law or to the commencement of any bankruptcy or insolvency case or proceeding against it or any of them, or the filing by it or any of them of a petition or answer or consent seeking reorganization or relief under any applicable Federal or State law, or the consent by it or any of them to the filing of such petition or to the appointment of or taking possession by a custodian, receiver, liquidator, assignee, trustee, sequestrator or other similar official of the Company or any of its Significant Subsidiaries or of any substantial part of its property, or the making by it or any of them of an assignment for the benefit of creditors, or the admission by it or any of them in writing of its inability to pay its debts generally as they become due, or the taking of corporate action by the Company or any of its Significant Subsidiaries in furtherance of any such action.”

Section 5.2 *Acceleration of Maturity; Rescission and Annulment.* The provisions of Section 502 of the Base Indenture shall be applicable to the Notes; *provided, however,* that with respect to the Notes only, the amount that shall become due and payable pursuant to any acceleration under Section 502 of the Base Indenture shall include the principal amount of and premium, if any, on the Notes plus accrued and unpaid interest through the date of such acceleration.

## **ARTICLE 6.**

### **RANKING**

Section 6.1 *Senior in Right of Payment.* The Notes shall be direct senior obligations of the Company and shall rank (a) senior in right of payment to all existing and future indebtedness that is, by its terms, expressly subordinated in right of payment to the Notes and (b) *pari passu* in right of payment with all other unsecured senior indebtedness of the Company. The Notes are not guaranteed.

## **ARTICLE 7.**

### **REPORTS**

Section 7.1 *Reports by Company.* The Base Indenture is hereby amended, with respect to the Notes only, by replacing the text of Section 704 thereof with the following text:

“The Company shall file with the Trustee and the Commission, and transmit to Holders, such information, documents and other reports, and such summaries thereof, as may be required pursuant to the Trust Indenture Act at the times and in the manner provided pursuant to the Trust Indenture Act; *provided* that any such information, documents or reports required to be filed with the Commission pursuant to Section 13 or 15(d) of the Exchange Act shall be filed with the Trustee within 15 days after the same is filed with the Commission. For purposes of this provision, any such information, document or report that the Company has filed with the Commission and that is publicly accessible on the Commission’s EDGAR system (or any successor thereto) shall be deemed to be filed with the Trustee.”

## ARTICLE 8.

### AMENDMENTS

Section 8.1 *Amendments.* Supplemental indentures modifying the Indenture and the terms of the Notes may be entered into as set forth in Article IX of the Base Indenture, *provided* that the Base Indenture is hereby amended, with respect to the Notes only, by replacing the text of Section 902(1)-(4) thereof with the following text:

“(1) Reduce the percentage in principal amount of affected Notes the consent of whose Holders is required for an amendment of the Indenture or for waiver of compliance with some provisions of the Indenture or for waiver of some defaults under the Indenture;

(2) Reduce the rate of interest on any Note or change the time for payment of interest;

(3) Reduce the principal amount of, or premium, if any, due on the Notes or change the Stated Maturity thereof;

(4) Change the Place of Payment where, or the coin or currency in which, any Note or any premium or interest thereon is payable;

(5) Change the provisions relating to waiver of defaults under the Indenture;

(6) Modify the provisions of the Indenture relating to the ranking of the Notes in a manner materially adverse to Holders;

(7) Modify the redemption provisions of the Indenture and the Notes in a manner adverse to Holders;

(8) Impair the right of Holders to institute suit for the enforcement of any payment on or after the Stated Maturity thereof (or, in the case of redemption, on or after the Redemption Date); or

(9) Modify any of the provisions of this Section, Section 513 or Section 1008, except to increase any such percentage or to provide that certain other provisions of the Indenture cannot be modified or waived without the consent of the Holder of each Outstanding Security affected thereby; *provided, however*, that this Clause shall not be deemed to require the consent of any Holder with respect to changes in the references to “the Trustee” and concomitant changes in this Section and Section 1008, or the deletion of this proviso, in accordance with the requirements of Sections 611 and 901(7).”

## ARTICLE 9.

### MISCELLANEOUS

Section 9.1 *Execution as Supplemental Indenture.* This Ninth Supplemental Indenture is executed and shall be construed as an indenture supplemental to the Base Indenture and, as provided in the Base Indenture, this Ninth Supplemental Indenture forms a part thereof.

Section 9.2 *Conflict with Trust Indenture Act.* If any provision hereof limits, qualifies or conflicts with another provision hereof, or with a provision of the Base Indenture, which is required to be included in this Ninth Supplemental Indenture, or in the Base Indenture, respectively, by any of the provisions of the Trust Indenture Act, such required provision shall control to the extent it is applicable.

Section 9.3 *Certificates, Opinions, Etc.* In any case where, pursuant to the Base Indenture with respect to the Notes and/or this Ninth Supplemental Indenture or pursuant to the Indenture, several matters are required to be certified by, or covered by an opinion of, any specified Person, it is not necessary that all such matters be certified by, or covered by the opinion of, only one such Person, or that they be so certified or covered by only one document, but one such Person may certify or give an opinion with respect to some matters and one or more other such Persons as to other matters, and any such Person may certify or give an opinion as to such matters in one or several documents. Where any Person is required to make, give or execute two or more applications, requests, consents, certificates, statements, opinions or other instruments under the Base Indenture with respect to the Notes and/or this Ninth Supplemental Indenture or under the Indenture, they may, but need not, be consolidated and form one instrument.

Section 9.4 *Effect of Headings*. The Article and Section headings herein are for convenience only and shall not affect the construction hereof.

Section 9.5 *Successors and Assigns*. All covenants and agreements by the Company and the Trustee in this Ninth Supplemental Indenture shall bind its successors and assigns, whether so expressed or not.

Section 9.6 *Separability Clause*. In case any provision in this Ninth Supplemental Indenture or in the Notes shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

Section 9.7 *Benefits of Ninth Supplemental Indenture*. Nothing in this Ninth Supplemental Indenture or in the Notes, express or implied, shall give to any Person, other than the parties hereto and their successors hereunder and the Holders, any benefit or any legal or equitable right, remedy or claim under this Ninth Supplemental Indenture.

Section 9.8 *Execution and Counterparts*. This Ninth Supplemental Indenture may be executed in any number of counterparts, each of which shall be deemed to be an original, but all such counterparts shall together constitute but one and the same instrument.

Section 9.9 *Governing Law*. This Ninth Supplemental Indenture and the Notes shall be governed by and construed in accordance with the laws of the State of New York.

IN WITNESS WHEREOF, the parties hereto have caused this Ninth Supplemental Indenture to be duly executed as of the day and year first above written.

CME GROUP INC.

By: /s/ John W. Pietrowicz  
Name: John W. Pietrowicz  
Title: Senior Managing Director and Chief Financial Officer

By: /s/ Lynne Fitzpatrick  
Name: Lynne Fitzpatrick  
Title: Managing Director, Corporate Development & Treasurer

*Ninth Supplemental Indenture Signature Page*

U.S. BANK NATIONAL ASSOCIATION,  
as Trustee

By: /s/ Linda E. Garcia

Name: Linda E. Garcia

Title: Vice President

*Ninth Supplemental Indenture Signature Page*



## [FORM OF FACE OF SECURITY]

[THIS SECURITY IS A GLOBAL SECURITY WITHIN THE MEANING OF THE INDENTURE HEREINAFTER REFERRED TO AND IS REGISTERED IN THE NAME OF A DEPOSITARY OR A NOMINEE THEREOF. THIS SECURITY MAY NOT BE EXCHANGED IN WHOLE OR IN PART FOR A SECURITY REGISTERED, AND NO TRANSFER OF THIS SECURITY IN WHOLE OR IN PART MAY BE REGISTERED, IN THE NAME OF ANY PERSON OTHER THAN SUCH DEPOSITARY OR A NOMINEE THEREOF, EXCEPT IN THE LIMITED CIRCUMSTANCES DESCRIBED IN THE INDENTURE.]

[UNLESS THIS CERTIFICATE IS PRESENTED BY AN AUTHORIZED REPRESENTATIVE OF THE DEPOSITARY TRUST COMPANY, A NEW YORK CORPORATION (“DTC”), TO ISSUER OR ITS AGENT FOR REGISTRATION OF TRANSFER, EXCHANGE, OR PAYMENT, AND ANY CERTIFICATE ISSUED IS REGISTERED IN THE NAME OF CEDE & CO. OR IN SUCH OTHER NAME AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF DTC (AND ANY PAYMENT IS MADE TO CEDE & CO. OR TO SUCH OTHER ENTITY AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF DTC), ANY TRANSFER, PLEDGE, OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL INASMUCH AS THE REGISTERED OWNER HEREOF, CEDE & CO., HAS AN INTEREST HEREIN.]

[Insert any legend required by the Internal Revenue Code and the regulations thereunder.]

CME Group Inc.

4.150% Notes due 2048

No.

\$

[CUSIP No. 12572QAH8]  
[ISIN No. US 12572QAH83]

CME Group Inc., a Delaware corporation (herein called the “**Company**,” which term includes any successor Person under the Indenture hereinafter referred to), for value received, hereby promises to pay to \_\_\_\_\_, or registered assigns, the principal sum of \_\_\_\_\_ Dollars on June 15, 2048, and to pay interest thereon from June 21, 2018 or from the most recent Interest Payment Date to which interest has been paid or duly provided for, semi-annually in arrears on June 15 and December 15 in each year, commencing December 15, 2018, at the rate of 4.150% per annum, until the principal hereof is paid or made available for payment, *provided* that any principal and premium, and any such installment of interest, which is overdue shall bear interest at the rate of 4.150% per annum (to the extent that the payment of such interest shall be legally enforceable), from the dates such amounts are due until they are paid or made available for payment, and such interest shall be payable on demand. The interest so payable, and punctually paid or duly provided for, on any Interest Payment Date will, as provided in such Indenture, be paid to the Person in whose name this Security is registered at the close of business on the Regular Record Date for such interest, which shall be June 1 or December 1 (whether or not a Business Day), as the case may be, next preceding such Interest Payment Date. Any such interest not so punctually paid or duly provided for will forthwith cease to be payable to the Holder on such Regular Record Date and may either be paid to the Person in whose name this Security is registered at the close of business on a Special Record Date for the payment of such Defaulted Interest to be fixed by the Trustee, notice whereof shall be given to Holders of Securities of this series not less than 10 days prior to such Special Record Date, or be paid at any time in any other lawful manner not inconsistent with the requirements of any securities exchange on which the Securities of this series may be listed, and upon such notice as may be required by such exchange, all as more fully provided in said Indenture.

Payment of the principal of (and premium, if any) and any such interest on this Security will be made at the office or agency of the Company maintained for that purpose in New York, New York, in such coin or currency of the United States of America as at the time of payment is legal tender for payment of public and private debts; *provided, however*, that at the option of the Company payment of interest may be made by check mailed to the address of the Person entitled thereto as such address shall appear in the Security Register; and *provided, further*, that if this Security is a Global Security, payment may be made pursuant to the Applicable Procedures of the Depositary as permitted in the Indenture.

If any Interest Payment Date, Repurchase Date, Stated Maturity or Maturity is not a Business Day, then payment of principal, premium, if any, or interest, as applicable, shall be made on the next succeeding Business Day with the same force and effect as if made on such Interest Payment Date, Repurchase Date, Stated Maturity or Maturity. No interest shall accrue on the amount so payable for the period from the relevant Interest Payment Date, Repurchase Date, Stated Maturity or Maturity to the date on which the payment is made.

Reference is hereby made to the further provisions of this Security set forth on the reverse hereof, which further provisions shall for all purposes have the same effect as if set forth at this place.

Unless the certificate of authentication hereof has been executed by the Trustee referred to on the reverse hereof by manual signature, this Security shall not be entitled to any benefit under the Indenture or be valid or obligatory for any purpose.

IN WITNESS WHEREOF, the Company has caused this instrument to be duly executed.

CME GROUP INC.

By: \_\_\_\_\_

Name:

Title:

By: \_\_\_\_\_

Name:

Title:

Attest:

\_\_\_\_\_  
Name:

Title:

*Global Note Signature Page*

TRUSTEE'S CERTIFICATE OF AUTHENTICATION

This is one of the Securities of the series designated therein referred to in the within-mentioned Indenture.

Dated:

U.S. BANK NATIONAL ASSOCIATION,  
*As Trustee*

By \_\_\_\_\_  
*Authorized Signatory*

*Global Note Signature Page*

[FORM OF REVERSE OF SECURITY]

This Security is one of a duly authorized issue of securities of the Company (herein called the “**Securities**”), issued and to be issued in one or more series under a Senior Debt Indenture, dated as of August 12, 2008 (the “**Base Indenture**”), as supplemented by Ninth Supplemental Indenture, dated as of June 21, 2018 (the “**Supplemental Indenture**” and, together with the Base Indenture, the “**Indenture**”), between the Company and U.S. Bank National Association, as Trustee (herein called the “**Trustee**,” which term includes any successor trustee under the Indenture), and reference is hereby made to the Indenture for a statement of the respective rights, limitations of rights, duties and immunities thereunder of the Company, the Trustee and the Holders of the Securities and of the terms upon which the Securities are, and are to be, authenticated and delivered. This Security is one of the series designated on the face hereof initially limited in aggregate principal amount to \$700,000,000, *provided* that the Company may, without the consent of any Holder, at any time and from time to time increase the initial principal amount.

The Securities of this series are subject to redemption as provided in Sections 4.1 and 4.2 of the Supplemental Indenture and Article XI of the Base Indenture.

This Security will not be subject to any sinking fund.

The Indenture contains provisions for defeasance at any time of the entire indebtedness of this Security or certain restrictive covenants and Events of Default with respect to this Security, in each case upon compliance with certain conditions set forth in the Indenture.

If an Event of Default with respect to Securities of this series shall occur and be continuing, the principal of, and premium, if any, plus accrued and unpaid interest on the Securities of this series may be declared due and payable in the manner and with the effect provided in the Indenture.

The Indenture permits, with certain exceptions as therein provided, the amendment thereof and the modification of the rights and obligations of the Company and the rights of the Holders of the Securities of each series to be affected under the Indenture at any time by the Company and the Trustee with the consent of the Holders of a majority in principal amount of the Securities at the time Outstanding of each series to be affected. The Indenture also contains provisions permitting the Holders of not less than a majority in principal amount of the Securities of each series at the time Outstanding, on behalf of the Holders of all Securities of such series, to waive compliance by the Company with certain provisions of the Indenture and certain past defaults under the Indenture and their consequences. Any such consent or waiver by the Holder of this Security shall be conclusive and binding upon such Holder and upon all future Holders of this Security and of any Security issued upon the registration of transfer hereof or in exchange herefor or in lieu hereof, whether or not notation of such consent or waiver is made upon this Security.

As provided in and subject to the provisions of the Indenture, the Holder of this Security shall not have the right to institute any proceeding with respect to the Indenture or for the appointment of a receiver or trustee or for any other remedy thereunder, unless such Holder shall have previously given the Trustee written notice of a continuing Event of Default with respect to the Securities of this series, the Holders of not less than 25% in principal amount of the Securities of this series at the time Outstanding shall have made written request to the Trustee to institute proceedings in respect of such Event of Default as Trustee and offered the Trustee reasonable indemnity, and the Trustee shall not have received from the Holders of a majority in principal amount of Securities of this series at the time Outstanding a direction inconsistent with such request, and shall have failed to institute any such proceeding, for 60 days after receipt of such notice, request and offer of indemnity. The foregoing shall not apply to any suit instituted by the Holder of this Security for the enforcement of any payment of principal hereof or any premium or interest hereon on or after the respective due dates expressed herein.

No reference herein to the Indenture and no provision of this Security or of the Indenture shall alter or impair the obligation of the Company, which is absolute and unconditional, to pay the principal of and any premium and interest on this Security at the times, place and rate, and in the coin or currency, herein prescribed.

As provided in the Indenture and subject to certain limitations therein set forth, the transfer of this Security is registrable in the Security Register, upon surrender of this Security for registration of transfer at the office or agency of the Company in any place where the principal of and any premium and interest on this Security are payable, duly endorsed by, or accompanied by a written instrument of transfer in form satisfactory to the Company and the Security Registrar duly executed by, the Holder hereof or his attorney duly authorized in writing, and thereupon one or more new Securities of this series and of like tenor, of authorized denominations and for the same aggregate principal amount, will be issued to the designated transferee or transferees.

The Securities of this series are issuable only in registered form without coupons in minimum denominations of \$2,000 and integral multiples of \$1,000 in excess thereof. As provided in the Indenture and subject to certain limitations therein set forth, Securities of this series are exchangeable for a like aggregate principal amount of Securities of this series and of like tenor of a different authorized denomination, as requested by the Holder surrendering the same.

No service charge shall be made for any such registration of transfer or exchange, but the Company may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection therewith.

Prior to due presentment of this Security for registration of transfer, the Company, the Trustee and any agent of the Company or the Trustee may treat the Person in whose name this Security is registered as the owner hereof for all purposes, whether or not this Security be overdue, and neither the Company, the Trustee nor any such agent shall be affected by notice to the contrary.

This Security and all the obligations of the Company hereunder are direct, senior unsecured and unsubordinated obligations of the Company and rank *pari passu* with all other senior unsecured and unsubordinated indebtedness of the Company from time to time outstanding.

**THE SECURITIES OF THIS SERIES SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK.**

All terms used in this Security which are defined in the Indenture shall have the meanings assigned to them in the Indenture.

## [Letterhead of Skadden, Arps, Slate, Meagher &amp; Flom LLP]

June 21, 2018

CME Group Inc.  
20 South Wacker Drive  
Chicago, Illinois 60606

RE: CME Group Inc.  
Registration Statement on Form S-3 (File No. 333-208334)

Ladies and Gentlemen:

We have acted as special counsel to CME Group Inc., a Delaware corporation (the "Company"), in connection with the public offering of \$500,000,000 aggregate principal amount of the Company's 3.750% Notes due 2028 (the "2028 Notes") and \$700,000,000 aggregate principal amount of the Company's 4.150% Notes due 2048 (the "2048 Notes" and, together with the 2028 Notes, the "Securities") to be issued under the Indenture, dated as of August 12, 2008 (the "Base Indenture"), between the Company and U.S. Bank National Association, as Trustee (the "Trustee"), as supplemented by, with respect to the 2028 Notes, the Eighth Supplemental Indenture, dated as of June 21, 2018 (the "Eighth Supplemental Indenture"), between the Company and the Trustee and, with respect to the 2048 Notes, the Ninth Supplemental Indenture, dated as of June 21, 2018, between the Company and the Trustee (together with the Eighth Supplemental Indenture, the "Supplemental Indentures" and, together with the Base Indenture, the "Indenture").

This opinion is being furnished in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act of 1933, as amended (the "Securities Act").

In rendering the opinions stated herein, we have examined and relied upon the following:

(a) the registration statement on Form S-3 (File No. 333-208334) of the Company relating to debt securities and other securities of the Company filed on December 4, 2015 with the Securities and Exchange Commission (the

“Commission”) under the Securities Act allowing for delayed offerings pursuant to Rule 415 of the General Rules and Regulations under the Securities Act (the “Rules and Regulations”), including the information deemed to be a part of the registration statement pursuant to Rule 430B of the Rules and Regulations (such registration statement being hereinafter referred to as the “Registration Statement”);

(b) the prospectus, dated December 4, 2015 (the “Base Prospectus”), which forms a part of and is included in the Registration Statement;

(c) the preliminary prospectus supplement, dated June 14, 2018 (together with the Base Prospectus, the “Preliminary Prospectus”), relating to the offering of the Securities, in the form filed with the Commission pursuant to Rule 424(b) of the Rules and Regulations;

(d) the prospectus supplement, dated June 14, 2018 (together with the Base Prospectus, the “Prospectus”), relating to the offering of the Securities, in the form filed with the Commission pursuant to Rule 424(b) of the Rules and Regulations;

(e) an executed copy of the Underwriting Agreement, dated June 14, 2018 (the “Underwriting Agreement”), among the Company and J.P. Morgan Securities LLC, Barclays Capital Inc. and Merrill Lynch, Pierce Fenner & Smith Incorporated, as representatives of the several Underwriters named therein (the “Underwriters”), relating to the sale by the Company to the Underwriters of the Securities;

(f) an executed copy of the Base Indenture;

(g) executed copies of the Supplemental Indentures;

(h) the global certificates evidencing the Securities registered in the name of Cede & Co. (the “Note Certificates”) in the form delivered by the Company to the Trustee for authentication and delivery;

(i) an executed copy of a certificate of Kathleen M. Cronin, Senior Managing Director, General Counsel & Corporate Secretary of the Company, dated the date hereof (the “Secretary’s Certificate”);

(j) a copy of the Company’s Second Amended and Restated Certificate of Incorporation, in effect as of July 12, 2008 and August 12, 2008, and a copy of the Company’s Fourth Amended and Restated Certificate of Incorporation, in effect as of the date hereof, certified by the Secretary of State of the State of Delaware as of June 21, 2018 and certified pursuant to the Secretary’s Certificate;



(k) a copy of the Company's Fourth Amended and Restated Bylaws, as amended and in effect as of August 12, 2008, and a copy of the Company's Fourteenth Amended and Restated Bylaws, as amended and in effect as of the date hereof and certified pursuant to the Secretary's Certificate; and

(l) copies of certain resolutions of the Board of Directors of the Company, adopted on July 12, 2008 and June 12, 2018, certified pursuant to the Secretary's Certificate.

We have also examined originals or copies, certified or otherwise identified to our satisfaction, of such records of the Company and such agreements, certificates and receipts of public officials, certificates of officers or other representatives of the Company and others, and such other documents as we have deemed necessary or appropriate as a basis for the opinions stated below.

In our examination, we have assumed the genuineness of all signatures, the legal capacity and competency of all natural persons, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as facsimile, electronic, certified or photostatic copies, and the authenticity of the originals of such copies. As to any facts relevant to the opinions stated herein that we did not independently establish or verify, we have relied upon statements and representations of officers and other representatives of the Company and others and of public officials, including those in the Secretary's Certificate and the factual representations and warranties contained in the Underwriting Agreement.

We do not express any opinion with respect to the laws of any jurisdiction other than (i) the laws of the State of New York and (ii) the General Corporation Law of the State of Delaware (the "DGCL") (all of the foregoing being referred to as "Opined on Law").

As used herein, "Transaction Agreements" means the Underwriting Agreement, the Indenture and the Note Certificates.

Based upon the foregoing and subject to the qualifications and assumptions stated herein, we are of the opinion that the Note Certificates have been duly authorized by all requisite corporate action on the part of the Company and duly executed by the Company under the DGCL, and when duly authenticated by the Trustee and issued and delivered by the Company against payment therefor in accordance with the terms of the Underwriting Agreement and the Indenture, the Note Certificates will constitute valid and binding obligations of the Company, enforceable against the Company in accordance with their terms under the laws of the State of New York.

The opinions stated herein are subject to the following qualifications:

(a) the opinions stated herein are limited by applicable bankruptcy, insolvency, reorganization, moratorium, fraudulent transfer, preference and other similar laws affecting creditors' rights generally, and by general principles of equity (regardless of whether enforcement is sought in equity or at law);

(b) we do not express any opinion with respect to any law, rule or regulation that is applicable to any party to any of the Transaction Agreements or the transactions contemplated thereby solely because such law, rule or regulation is part of a regulatory regime applicable to any such party or any of its affiliates as a result of the specific assets or business operations of such party or such affiliates;

(c) except to the extent expressly stated in the opinions contained herein, we have assumed that each of the Transaction Agreements constitutes the valid and binding obligation of each party to such Transaction Agreement, enforceable against such party in accordance with its terms;

(d) we do not express any opinion with respect to the enforceability of any provision contained in any Transaction Agreement relating to any indemnification, contribution, non-reliance, exculpation, release, limitation or exclusion of remedies, waiver or other provisions having similar effect that may be contrary to public policy or violative of federal or state securities laws, rules or regulations;

(e) we call to your attention that irrespective of the agreement of the parties to any Transaction Agreement, a court may decline to hear a case on grounds of forum non conveniens or other doctrine limiting the availability of such court as a forum for resolution of disputes; in addition, we call to your attention that we do not express any opinion with respect to the subject matter jurisdiction of the federal courts of the United States of America in any action arising out of or relating to any Transaction Agreement; and

(f) to the extent that any opinion relates to the enforceability of the choice of New York law and choice of New York forum provisions contained in any Transaction Agreement, the opinions stated herein are subject to the qualification that such enforceability may be subject to, in each case, (i) the exceptions and limitations in New York General Obligations Law sections 5-1401 and 5-1402 and (ii) principles of comity and constitutionality.

In addition, in rendering the foregoing opinions, we have assumed that, at all applicable times:

(a) neither the execution and delivery by the Company of the Transaction Agreements nor the performance by the Company of its obligations thereunder, including the issuance and sale of the Securities: (i) constituted or will constitute a violation of, or a default under, any lease, indenture, instrument or other agreement to which the Company or its property is subject (except that we do not make the assumption set forth in this clause (ii) with respect to those agreements or instruments expressed to be governed by the laws of the State of New York which are listed in Part II of the Registration Statement or the Company's Annual Report on Form 10-K), (iii) contravened or will contravene any order or decree of any governmental authority to which the Company or its property is subject, or (iv) violated or will violate any law, rule or regulation to which the Company or its property is subject (except that we do not make the assumption set forth in this clause (iv) with respect to the Opined-on Law); and

(b) neither the execution and delivery by the Company of the Transaction Agreements nor the performance by the Company of its obligations thereunder, including the issuance and sale of the Securities, required or will require the consent, approval, licensing or authorization of, or any filing, recording or registration with, any governmental authority under any law, rule or regulation of any jurisdiction.

We hereby consent to the reference to our firm under the heading "Legal Matters" in the Preliminary Prospectus and the Prospectus. In giving this consent, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the Rules and Regulations. We also hereby consent to the filing of this opinion with the Commission as an exhibit to the Company's Current Report on Form 8-K being filed on the date hereof and incorporated by reference into the Registration Statement. This opinion is expressed as of the date hereof unless otherwise expressly stated, and we disclaim any undertaking to advise you of any subsequent changes in the facts stated or assumed herein or of any subsequent changes in applicable laws.

Very truly yours,

/s/ Skadden, Arps, Slate, Meagher & Flom LLP

**Ratio of Earnings to Fixed Charges (1)**

The following table sets forth our ratio of earnings to fixed charges (1) for the periods indicated. All amounts are in millions, except for the ratio of earnings to fixed charges.

	Three Months Ended March 31,	Year Ended December 31,				
	2018	2017	2016	2015	2014	2013
Income before income taxes	\$ 788.7	\$2,526.3	\$2,287.6	\$1,956.8	\$1,771.4	\$1,601.0
Add back:						
Share of losses on equity investees (2)	—	—	1.0	2.6	6.5	6.4
Amortization of capitalized interest	—	—	—	0.2	0.3	0.2
Distributed income from equity investees	51.0	103.2	107.9	94.9	76.2	68.5
Subtract:						
Share of earnings of equity investees (2)	(40.1)	(129.2)	(111.2)	(102.6)	(91.3)	(76.9)
Pre-tax adjusted earnings	799.6	2,500.3	2,285.3	1,951.9	1,763.1	1,599.2
Plus:						
Interest expense	30.1	117.1	123.5	117.4	119.4	151.4
Interest expense within rent	3.6	13.0	16.1	16.0	15.5	13.9
Pre-tax adjusted earnings before fixed charges	\$ 833.3	\$2,630.4	\$2,424.9	\$2,085.3	\$1,898.0	\$1,764.5
Fixed charges	\$ 33.7	\$ 130.1	\$ 139.6	\$ 133.4	\$ 134.9	\$ 165.3
Ratio of earnings to fixed charges	24.74	20.22	17.37	15.64	14.07	10.67

(1) The ratio of earnings to fixed charges is calculated by dividing pre-tax adjusted earnings before fixed charges by fixed charges. "Fixed charges" consist of interest incurred and an estimate of interest within rental expense.

(2) Represents CME Group's interest in various entities, which is recognized using the equity method of accounting.