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

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 30, 2019

- OR -

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

For the transition period from to

Commission file number 001-31553

CME GROUP INC.

(Exact name of registrant as specified in its charter)

Delaware	**36-4459170**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
20 South Wacker Drive Chicago Illinois	**60606**
(Address of principal executive offices)	**(Zip Code)**

(312) 930-1000

(Registrant's telephone number, including area code)

Not Applicable

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

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

Title of each class	Trading symbol	Name of each exchange on which registered
Class A Common Stock	CME	Nasdaq

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

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

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

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
		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. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The number of shares outstanding of each of the registrant's classes of common stock as of October 16, 2019 was as follows: 358,360,548 shares of Class A common stock, $0.01 par value; 625 shares of Class B-1 common stock, $0.01 par value; 813 shares of Class B-2 common stock, $0.01 par value; 1,287 shares of Class B-3 common stock, $0.01 par value; and 413 shares of Class B-4 common stock, $0.01 par value.

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PART I. FINANCIAL INFORMATION

Certain Terms

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

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

Information about Contract Volume and Average Rate per Contract

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

Trademark Information

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

Forward-Looking Statements

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

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

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

For a detailed discussion of these and other factors that might affect our performance, see Item 1A. of our Annual Report on Form 10-K, filed with the Securities and Exchange Commission on February 28, 2019 and Item 1A. of this Quarterly Report on Form 10-Q.

ITEM 1. FINANCIAL STATEMENTS

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

	September 30, 2019	December 31, 2018
	(unaudited)	
Assets		
Current Assets:		
Cash and cash equivalents	$ 1,210.1	$ 1,374.5
Marketable securities	80.1	72.9
Accounts receivable, net of allowance of $2.9 and $2.7	545.7	553.3
Other current assets (includes $5.1 and $1.5 in restricted cash)	695.1	430.5
Performance bonds and guaranty fund contributions	41,161.3	39,455.5
Total current assets	43,692.3	41,886.7
Property, net of accumulated depreciation and amortization of $837.3 and $761.1	517.3	448.7
Intangible assets—trading products	17,175.3	17,175.3
Intangible assets—other, net	5,161.2	5,500.1
Goodwill	10,774.4	10,805.3
Other assets (includes $0.9 and $1.2 in restricted cash)	2,097.1	1,659.6
Total Assets	$ 79,417.6	$ 77,475.7
Liabilities and Equity		
Current Liabilities:		
Accounts payable	$ 61.5	$ 116.0
Short-term debt	—	574.2
Other current liabilities	691.6	1,126.9
Performance bonds and guaranty fund contributions	41,160.4	39,455.5
Total current liabilities	41,913.5	41,272.6
Long-term debt	3,873.3	3,826.8
Deferred income tax liabilities, net	5,614.4	5,665.9
Other liabilities	1,203.1	745.1
Total Liabilities	52,604.3	51,510.4
Shareholders' Equity:		
Preferred stock, $0.01 par value, 10,000 shares authorized at September 30, 2019 and December 31, 2018; none issued	—	—
Class A common stock, $0.01 par value, 1,000,000 shares authorized at September 30, 2019 and December 31, 2018; 357,447 and 356,824 shares issued and outstanding as of September 30, 2019 and December 31, 2018, respectively	3.7	3.6
Class B common stock, $0.01 par value, 3 shares authorized, issued and outstanding as of September 30, 2019 and December 31, 2018	—	—
Additional paid-in capital	21,107.5	21,054.3
Retained earnings	5,704.2	4,855.3
Accumulated other comprehensive income (loss)	(32.2)	5.3
Total CME Group Shareholders' Equity	26,783.2	25,918.5
Non-controlling interests	30.1	46.8
Total Equity	26,813.3	25,965.3
Total Liabilities and Equity	$ 79,417.6	$ 77,475.7

See accompanying notes to unaudited consolidated financial statements.

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

	Quarter Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Revenues				
Clearing and transaction fees	$ 1,040.7	$ 752.5	$ 3,045.1	$ 2,632.2
Market data and information services	129.8	110.7	388.2	319.4
Other	106.8	41.0	296.3	121.2
Total Revenues	1,277.3	904.2	3,729.6	3,072.8
Expenses				
Compensation and benefits	223.5	144.9	681.1	448.4
Technology	52.7	24.7	148.4	75.4
Professional fees and outside services	43.2	31.3	124.3	105.8
Amortization of purchased intangibles	79.8	23.7	236.6	71.0
Depreciation and amortization	41.4	30.2	120.6	85.8
Licensing and other fee agreements	45.6	33.4	130.9	122.8
Other	105.9	66.1	272.9	205.9
Total Expenses	592.1	354.3	1,714.8	1,115.1
Operating Income	685.2	549.9	2,014.8	1,957.7
Non-Operating Income (Expense)				
Investment income	172.3	161.5	490.3	559.8
Interest and other borrowing costs	(42.8)	(45.0)	(136.0)	(108.2)
Equity in net earnings of unconsolidated subsidiaries	48.0	37.1	132.3	113.6
Other non-operating income (expense)	(139.5)	(141.7)	(435.9)	(415.6)
Total Non-Operating Income (Expense)	38.0	11.9	50.7	149.6
Income before Income Taxes	723.2	561.8	2,065.5	2,107.3
Income tax provision	86.9	150.0	418.7	530.6
Net Income	636.3	411.8	1,646.8	1,576.7
Less: net (income) loss attributable to non-controlling interests	—	—	0.2	—
Net Income Attributable to CME Group	$ 636.3	$ 411.8	$ 1,647.0	$ 1,576.7
Earnings per Common Share Attributable to CME Group:				
Basic	$ 1.78	$ 1.21	$ 4.61	$ 4.64
Diluted	1.78	1.21	4.60	4.62
Weighted Average Number of Common Shares:				
Basic	357,211	339,586	357,054	339,453
Diluted	358,369	341,035	358,201	340,907

See accompanying notes to unaudited consolidated financial statements.

CME GROUP INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(in millions)
(unaudited)

	Quarter Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Net income	$ 636.3	$ 411.8	$ 1,646.8	$ 1,576.7
Other comprehensive income (loss), net of tax:				
Investment securities:				
Net unrealized holding gains (losses) arising during the period	(0.2)	—	1.5	(0.9)
Reclassification of net (gains) losses on sales included in investment income	(0.1)	(0.1)	(0.2)	(0.1)
Income tax benefit (expense)	—	0.1	(0.4)	0.3
Investment securities, net	(0.3)	—	0.9	(0.7)
Defined benefit plans:				
Net change in defined benefit plans arising during the period	—	—	(2.7)	1.7
Amortization of net actuarial (gains) losses included in compensation and benefits expense	1.3	0.7	3.7	2.0
Income tax benefit (expense)	(0.4)	(0.1)	(0.3)	(0.9)
Defined benefit plans, net	0.9	0.6	0.7	2.8
Derivative investments:				
Net unrealized holding gains (losses) arising during the period	0.5	—	0.3	—
Amortization of effective portion of net (gains) losses on cash flow hedges included in interest expense	(0.3)	(0.3)	(0.9)	(0.9)
Income tax benefit (expense)	(0.1)	—	—	0.2
Derivative investments, net	0.1	(0.3)	(0.6)	(0.7)
Foreign currency translation:				
Foreign currency translation adjustments	(35.5)	(0.2)	(38.5)	(0.8)
Income tax benefit (expense)	(3.0)	—	—	—
Foreign currency translation, net	(38.5)	(0.2)	(38.5)	(0.8)
Other comprehensive income (loss), net of tax	(37.8)	0.1	(37.5)	0.6
Comprehensive income	598.5	411.9	1,609.3	1,577.3
Less: comprehensive (income) loss attributable to non-controlling interests	—	—	0.2	—
Comprehensive income attributable to CME Group	$ 598.5	$ 411.9	$ 1,609.5	$ 1,577.3

See accompanying notes to unaudited consolidated financial statements.

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

	Nine Months Ended, September 30, 2019							
	Class A Common Stock (Shares)	Class B Common Stock (Shares)	Common Stock and Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total CME Group Shareholders' Equity	Non-controlling Interest	Total Shareholders' Equity
Balance at December 31, 2018	356,824	3	$ 21,057.9	$ 4,855.3	$ 5.3	$ 25,918.5	$ 46.8	$ 25,965.3
Net income				1,647.0		1,647.0	(0.2)	1,646.8
Other comprehensive income (loss)					(37.5)	(37.5)	—	(37.5)
Dividends on common stock of $2.25 per share				(805.0)		(805.0)		(805.0)
Impact of adoption of standards updates on leasing				6.9		6.9		6.9
Changes in non-controlling interest due to measurement period adjustments						—	(16.5)	(16.5)
Exercise of stock options	195		13.7			13.7		13.7
Vesting of issued restricted Class A common stock	399		(36.8)			(36.8)		(36.8)
Shares issued to Board of Directors	16		3.1			3.1		3.1
Shares issued under Employee Stock Purchase Plan	13		2.5			2.5		2.5
Stock-based compensation			70.8			70.8		70.8
Balance at September 30, 2019	357,447	3	$ 21,111.2	$ 5,704.2	$ (32.2)	$ 26,783.2	$ 30.1	$ 26,813.3

See accompanying notes to unaudited consolidated financial statements.

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

	Quarter Ended, September 30, 2019							
	Class A Common Stock (Shares)	**Class B Common Stock (Shares)**	**Common Stock and Additional Paid-in Capital**	**Retained Earnings**	**Accumulated Other Comprehensive Income (Loss)**	**Total CME Group Shareholders' Equity**	**Non-controlling Interest**	**Total Shareholders' Equity**
Balance at June 30, 2019	357,143	3	$ 21,112.8	$ 5,336.8	$ 5.6	$ 26,455.2	$ 29.7	$ 26,484.9
Net income				636.3		636.3	—	636.3
Other comprehensive income (loss)					(37.8)	(37.8)		(37.8)
Dividends on common stock of $0.75 per share				(268.9)		(268.9)		(268.9)
Changes in non-controlling interest due to measurement period adjustments							0.4	0.4
Exercise of stock options	33		6.7			6.7		6.7
Vesting of issued restricted Class A common stock	271		(22.7)			(22.7)		(22.7)
Stock-based compensation			14.4			14.4		14.4
Balance at September 30, 2019	357,447	3	$ 21,111.2	$ 5,704.2	$ (32.2)	$ 26,783.2	$ 30.1	$ 26,813.3

See accompanying notes to unaudited consolidated financial statements.

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

	Nine Months Ended, September 30, 2018					
	Class A Common Stock (Shares)	**Class B Common Stock (Shares)**	**Common Stock and Additional Paid-in Capital**	**Retained Earnings**	**Accumulated Other Comprehensive Income (Loss)**	**Total Shareholders' Equity**
Balance at December 31, 2017	339,235	3	$ 17,900.3	$ 4,497.2	$ 14.3	$ 22,411.8
Net income				1,576.7		1,576.7
Other comprehensive income (loss)					0.6	0.6
Dividends on common stock of $2.10 per share				(715.0)		(715.0)
Impact of adoption of standards update on tax effects related to accumulated other comprehensive income and revenue recognition				(12.5)	3.8	(8.7)
Exercise of stock options	151		10.1			10.1
Vesting of issued restricted Class A common stock	448		(34.9)			(34.9)
Shares issued to Board of Directors	16		2.8			2.8
Shares issued under Employee Stock Purchase Plan	10		1.8			1.8
Stock-based compensation			50.5			50.5
Balance at September 30, 2018	339,860	3	$ 17,930.6	$ 5,346.4	$ 18.7	$ 23,295.7

	Quarter Ended, September 30, 2018					
	Class A Common Stock (Shares)	**Class B Common Stock (Shares)**	**Common Stock and Additional Paid-in Capital**	**Retained Earnings**	**Accumulated Other Comprehensive Income (Loss)**	**Total Shareholders' Equity**
Balance at June 30, 2018	339,520	3	$ 17,931.7	$ 5,173.3	$ 18.6	$ 23,123.6
Net income				411.8		411.8
Other comprehensive income (loss)					0.1	0.1
Dividends on common stock of $0.70 per share				(238.7)		(238.7)
Exercise of stock options	35		1.9			1.9
Vesting of issued restricted Class A common stock	303		(20.0)			(20.0)
Shares issued to Board of Directors	2		0.4			0.4
Shares issued under Employee Stock Purchase Plan	—		—			—
Stock-based compensation			16.6			16.6
Balance at September 30, 2018	339,860	3	$ 17,930.6	$ 5,346.4	$ 18.7	$ 23,295.7

See accompanying notes to unaudited consolidated financial statements.

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

	Nine Months Ended September 30,	
	2019	2018
Cash Flows from Operating Activities		
Net income	$ 1,646.8	$ 1,576.7
Adjustments to reconcile net income to net cash provided by operating activities:		
Stock-based compensation	70.8	50.5
Amortization of purchased intangibles	236.6	71.0
Depreciation and amortization	120.6	85.8
Net losses on assets held for sale and impaired	61.1	9.5
Unrealized loss on derivative contracts	17.9	51.4
Net realized and unrealized losses (gains) on investments	20.4	(85.9)
Undistributed net earnings of unconsolidated subsidiaries	(41.1)	(5.8)
Deferred income taxes	(23.7)	24.6
Change in:		
Accounts receivable	7.4	(27.9)
Other current assets	(106.5)	35.2
Other assets	(10.5)	7.8
Accounts payable	(54.4)	22.5
Income taxes payable	(94.5)	161.0
Other current liabilities	91.9	(37.8)
Other liabilities	1.0	(10.2)
Other	9.3	2.0
Net Cash Provided by Operating Activities	1,953.1	1,930.4
Cash Flows from Investing Activities		
Proceeds from maturities of available-for-sale marketable securities	13.0	6.6
Purchases of available-for-sale marketable securities	(9.8)	(5.0)
Purchases of property, net	(179.2)	(60.9)
Proceeds from sales of investments	39.3	20.4
Net Cash Used in Investing Activities	(136.7)	(38.9)
Cash Flows from Financing Activities		
Issuance of commercial paper, net of maturities	38.9	—
Proceeds from debt, net of issuance costs	—	1,185.3
Repayment of debt	(569.2)	—
Cash dividends	(1,427.8)	(1,900.1)
Premium payment for derivative contract	—	(30.0)
Settlement of derivative contracts	16.0	—
Employee taxes paid on restricted stock vesting	(36.8)	(34.9)
Other	1.4	11.9
Net Cash Used in Financing Activities	(1,977.5)	(767.8)

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

	Nine Months Ended September 30,	
	2019	**2018**
Net change in cash, cash equivalents and restricted cash	$ (161.1)	$ 1,123.7
Cash, cash equivalents and restricted cash, beginning of period	1,377.2	1,906.0
Cash, Cash Equivalents and Restricted Cash, End of Period	$ 1,216.1	$ 3,029.7
Reconciliation of cash, cash equivalents and restricted cash:		
Cash and cash equivalents	$ 1,210.1	$ 1,406.3
Short-term restricted cash	5.1	1,622.1
Long-term restricted cash	0.9	1.3
Total	$ 1,216.1	$ 3,029.7
Supplemental Disclosure of Cash Flow Information		
Income taxes paid	$ 550.6	$ 410.6
Interest paid	122.4	84.8

See accompanying notes to unaudited consolidated financial statements.

NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS

1. Basis of Presentation

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

Effective November 2, 2018, CME Group completed its acquisition of NEX. NEX offers electronic trade execution platforms for the foreign exchange and fixed income over-the-counter markets as well as other services across the transaction lifecycle, including trade and portfolio management and portfolio compression. The financial statements and accompanying notes presented in this report include the financial results of NEX and its subsidiaries beginning on November 3, 2018.

The accompanying interim consolidated financial statements have been prepared by CME Group without audit. Certain notes and other information normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States have been condensed or omitted. In the opinion of management, the accompanying consolidated financial statements include all normal recurring adjustments considered necessary to present fairly the financial position of the company at September 30, 2019 and December 31, 2018 and the results of operations and cash flows for the periods indicated. Quarterly results are not necessarily indicative of results for any subsequent period.

The accompanying consolidated financial statements should be read in conjunction with the consolidated financial statements and notes thereto in CME Group’s Annual Report on Form 10-K for the year ended December 31, 2018, filed with the Securities and Exchange Commission (SEC) on February 28, 2019.

2. Accounting Policies

Newly Adopted Accounting Policies. In February 2016, the FASB issued a standards update that requires lessees to recognize on the balance sheet the assets and liabilities associated with the rights and obligations created by those leases. The guidance for lessors is largely unchanged from current accounting rules. Under the new guidance, a lessee will be required to recognize assets and liabilities for leases with lease terms of more than 12 months. Consistent with current accounting standards, the recognition, measurement, and presentation of expenses and cash flows arising from a lease by a lessee primarily will depend on its classification as a finance or operating lease. The company implemented this standard on January 1, 2019 using the modified retrospective approach with a cumulative effect of initially applying the guidance recognized on the date of initial adoption. Upon adoption of the new standard on January 1, 2019, the company recognized a lease liability of $568.0 million and right-of-use asset of $448.2 million.

Recently Issued Accounting Pronouncements. In June 2016, the FASB issued guidance that changes how credit losses are measured for most financial assets measured at amortized cost and certain other instruments. The standard requires an entity to estimate its lifetime expected credit loss and record an allowance, that when deducted from the amortized cost basis of the financial asset, presents the net amount expected to be collected on the financial asset. This forward-looking expected loss model generally will result in the earlier recognition of allowances for losses. The standard also amends the impairment model for available for sale debt securities and requires entities to determine whether all or a portion of the unrealized loss on an available for sale debt security is a credit loss. Severity and duration of the unrealized loss are no longer permissible factors in concluding whether a credit loss exists. Entities will recognize improvements to estimated credit losses on available for sale debt securities immediately in earnings rather than as interest income over time. The standard is effective for reporting periods beginning after December 15, 2019. The standard’s provisions must be applied as a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance is effective. Early adoption is permitted for reporting periods beginning in 2019. The company does not believe that the adoption of this guidance in 2020 will have a material impact on the consolidated financial statements.

In August 2018, the FASB issued a standards update that modifies the disclosure requirements for employers that sponsor defined pension or other postretirement plans. The guidance clarifies certain existing disclosures and expands the requirements for others. Disclosures that are not considered cost beneficial are removed by the update. Also, there is a new disclosure requirement to include an explanation of the reasons for significant gains and losses related to changes in the benefit obligation for the period. This guidance is effective for reporting periods beginning in 2021. Early adoption is permitted. The company plans to update the disclosures for these changes upon adoption of the guidance in 2021.

3. Revenue Recognition

The company generates revenue from customers from the following sources:

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

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

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

Other. Other revenues include certain access and communication fees, fees for collateral management, fees for trade order routing through agreements from various strategic relationships, as well as other post-trade services to customers and clearing firms. Access and communication fees are charges to customers that utilize various telecommunications networks and communications services. Fees for these services are generally billed monthly and the associated fee revenue is recognized as billed. Collateral management fees are charged to clearing firms that have collateral on deposit with CME to meet their minimum performance bond and guaranty fund obligations on the exchange. These fees are calculated based on daily collateral balances and are billed monthly. This fee revenue is recognized monthly as billed as the customers receive and consume the benefits of the services. Pricing for strategic relationships may be driven by customer levels and activity. There are fee arrangements which provide for monthly as well as quarterly payments in arrears. Revenue is recognized monthly for strategic relationship arrangements as the customers receive and consume the benefits of the services.

The following table represents a disaggregation of revenue from contracts with customers for the quarters and nine months ended September 30, 2019 and 2018:

	Quarter Ended September 30,		Nine Months Ended September 30,	
(in millions)	**2019**	**2018**	**2019**	**2018**
Interest rates	$ 347.9	$ 242.0	$ 998.1	$ 869.3
Equity indexes	153.9	128.0	447.9	480.4
Foreign exchange	39.2	44.2	119.7	144.4
Agricultural commodities	104.2	106.8	350.7	369.3
Energy	178.7	164.5	523.0	548.0
Metals	74.3	54.1	183.4	174.0
Cash markets business	124.9	—	368.5	—
Interest rate swap	17.6	12.9	53.8	46.8
Total clearing and transaction fees	1,040.7	752.5	3,045.1	2,632.2
Market data and information services	129.8	110.7	388.2	319.4
Other	106.8	41.0	296.3	121.2
Total revenues	$ 1,277.3	$ 904.2	$ 3,729.6	$ 3,072.8
Timing of Revenue Recognition				
Services transferred at a point in time	973.3	741.8	$ 2,854.3	$ 2,590.2
Services transferred over time	301.6	160.3	861.2	475.8
One-time charges and miscellaneous revenues	2.4	2.1	14.1	6.8
Total revenues	$ 1,277.3	$ 904.2	$ 3,729.6	$ 3,072.8

The timing of revenue recognition, billings and cash collections results in billed accounts receivable, and customer advances and deposits (contract liabilities) on the consolidated balance sheets. Certain fees for transactions, annual licenses, and other revenue arrangements are billed upfront before revenue is recognized, which results in the recognition of contract liabilities. These liabilities are recognized on the consolidated balance sheets on a contract-by-contract basis at the end of each reporting period. For annual licenses and upfront fee arrangements, the company generally bills customers upon contract execution. These payments are recognized as revenue over time as the obligations under the contracts are satisfied. Changes in the contract liability balances during the nine months ended September 30, 2019 were not materially impacted by any other factors. The balance of contract liabilities was $50.4 million and $44.4 million as of September 30, 2019 and December 31, 2018, respectively.

4. Performance Bonds and Guaranty Fund Contributions

Performance Bonds and Guaranty Fund Contributions. At September 30, 2019, performance bonds and guaranty fund contribution assets on the consolidated balance sheets include cash as well as U.S. Treasury securities and U.S. government agency securities. U.S. Treasury securities and U.S. government agency securities are purchased by CME, at its discretion, using cash collateral. The benefits, including interest earned, and market risks of ownership accrue to CME. Interest earned is included in investment income on the consolidated statements of income. These debt securities are classified as available-for-sale. At September 30, 2019, the amortized cost and fair value of the U.S. Treasury securities were both $1.4 billion. At September 30, 2019, the amortized cost and fair value of the U.S. government agency securities were both $0.5 billion.

CME has been designated as a systemically important financial market utility by the Financial Stability Oversight Council and is authorized to establish and maintain a cash account at the Federal Reserve Bank of Chicago. At September 30, 2019, CME maintained $26.0 billion within the cash account at the Federal Reserve Bank of Chicago. The cash deposit at the Federal Reserve Bank of Chicago is included within performance bonds and guaranty fund contributions on the consolidated balance sheets.

Clearing House Contract Settlement. The clearing house marks-to-market open positions for all futures and options contracts twice a day (once a day for CME's cleared-only interest rate swap contracts). Based on values derived from the mark-to-market process, the clearing house requires payments from clearing firms whose positions have lost value and makes payments to clearing firms whose positions have gained value. Under the extremely unlikely scenario of simultaneous default by every clearing firm who has open positions with unrealized losses, the maximum exposure related to positions other than cleared-only interest rate swap contracts would be one half day of changes in fair value of all open positions, before considering the clearing house's ability to access defaulting clearing firms' collateral deposits.

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

During the first nine months of 2019, the clearing house transferred an average of approximately $3.5 billion a day through its clearing systems for settlement from clearing firms whose positions had lost value to clearing firms whose positions had gained value. The clearing house reduces its guarantee exposure through initial and maintenance performance bond requirements and mandatory guaranty fund contributions. The company believes that its guarantee liability is immaterial and therefore has not recorded any liability at September 30, 2019.

5. Intangible Assets and Goodwill

Intangible assets consisted of the following at September 30, 2019 and December 31, 2018:

	September 30, 2019			December 31, 2018		
(in millions)	Assigned Value	Accumulated Amortization	Net Book Value	Assigned Value	Accumulated Amortization	Net Book Value
Amortizable Intangible Assets:						
Clearing firm, market data and other customer relationships	$ 5,764.9	$ (1,274.0)	$ 4,490.9	$ 5,862.5	$ (1,065.6)	$ 4,796.9
Technology-related intellectual property	172.4	(41.1)	131.3	179.1	(25.6)	153.5
Other	100.7	(11.7)	89.0	102.8	(3.1)	99.7
Total amortizable intangible assets	$ 6,038.0	$ (1,326.8)	4,711.2	$ 6,144.4	$ (1,094.3)	5,050.1
Indefinite-Lived Intangible Assets:						
Trade names			450.0			450.0
Total intangible assets – other, net			$ 5,161.2			$ 5,500.1
Trading products (1)			$ 17,175.3			$ 17,175.3

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

Total amortization expense for intangible assets was $79.8 million and $23.7 million for the quarters ended September 30, 2019 and 2018, respectively. Total amortization expense for intangible assets was $236.6 million and $71.0 million for the nine months ended September 30, 2019 and 2018, respectively. In the third quarter of 2019, the company recognized an unrealized loss of $28.6 million related to certain intangible assets related to assets held for sale.

As of September 30, 2019, the future estimated amortization expense related to amortizable intangible assets is expected to be as follows:

(in millions)	Amortization Expense
Remainder of 2019	$ 77.5
2020	310.2
2021	310.2
2022	309.8
2023	308.5
2024	301.8
Thereafter	3,093.2

Goodwill activity consisted of the following at September 30, 2019 and December 31, 2018:

(in millions)	Balance at December 31, 2018	Business Combinations	Other Activity (1)	Balance at September 30, 2019
CBOT Holdings	$ 5,066.4	$ —	$ —	$ 5,066.4
NYMEX Holdings	2,462.2	—	—	2,462.2
NEX	3,236.3	—	(30.9)	3,205.4
Other	40.4	—	—	40.4
Total Goodwill	$ 10,805.3	$ —	$ (30.9)	$ 10,774.4

(in millions)	Balance at December 31, 2017	Business Combinations	Other Activity	Balance at December 31, 2018
CBOT Holdings	$ 5,066.4	$ —	$ —	$ 5,066.4
NYMEX Holdings	2,462.2	—	—	2,462.2
NEX	—	3,236.3	—	3,236.3
Other	40.4	—	—	40.4
Total Goodwill	$ 7,569.0	$ 3,236.3	$ —	$ 10,805.3

(1) Other activity includes measurement period adjustments, including adjustments to intangible assets, fixed assets, other assets and accrued liabilities, as well as goodwill associated with assets sold and held for sale. The company expects to finalize its purchase price allocation of net tangible and intangible assets in the fourth quarter of 2019.

6. Debt

In March 2019, the company repaid both the €350.0 million fixed rates notes and the ¥19.1 billion term loan.

Short-term debt outstanding consisted of the following at September 30, 2019 and December 31, 2018 (in U.S. dollar equivalent):

(in millions)	September 30, 2019	December 31, 2018
€350.0 million fixed rate notes due March 2019, stated rate of 3.13%	$ —	$ 400.7
¥19.1 billion term loan due March 2019, stated rate of 0.81%	—	173.5
Total short-term debt	$ —	$ 574.2

Long-term debt consisted of the following at September 30, 2019 and December 31, 2018:

(in millions)	September 30, 2019	December 31, 2018
$750.0 million fixed rate notes due September 2022, stated rate of 3.00% (1)	$ 747.5	$ 746.9
€15.0 million fixed rate notes due May 2023, stated rate of 4.30%	16.0	16.6
$750.0 million fixed rate notes due March 2025, stated rate of 3.00% (2)	746.1	745.6
$500.0 million fixed rate notes due June 2028, stated rate of 3.75%	496.2	495.9
$750.0 million fixed rate notes due September 2043, stated rate of 5.30% (3)	742.7	742.4
$700.0 million fixed rate notes due June 2048, stated rate of 4.15%	689.8	689.5
Commercial paper (4)	435.0	389.9
Total long-term debt	$ 3,873.3	$ 3,826.8

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

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

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

(4) The commercial paper is backed by the five-year multi-currency revolving credit facility.

Commercial paper with an aggregate par value of $7.8 billion and maturities ranging from 1 to 18 days was issued during the first nine months of 2019. The weighted average discount rate of commercial paper outstanding at September 30, 2019 was 2.03%. The weighted average balance of commercial paper outstanding during the first nine months of 2019 was $332.9 million.

Long-term debt maturities, at par value (in U.S. dollar equivalent), were as follows at September 30, 2019:

(in millions)		**Par Value**
2020	$	—
2021		—
2022		1,185.0
2023		16.4
2024		—
Thereafter		2,700.0

Commercial paper is considered to mature in 2022 because it is backed by the five-year multi-currency revolving credit facility, which expires in 2022.

7. Contingencies

Legal and Regulatory Matters. In 2013, the CFTC filed suit against NYMEX and two former employees alleging disclosure of confidential customer information in violation of the Commodity Exchange Act. NYMEX's motion to dismiss was denied in 2014. Based on its investigation to date and advice from legal counsel, the company believes that it has strong factual and legal defenses to the claim.

In 2003, the U.S. Futures Exchange, L.L.C. (Eurex U.S.) and U.S. Exchange Holdings, Inc. filed suit in federal court alleging that CBOT and CME violated the antitrust laws and tortuously interfered with the business relationship and contract between Eurex U.S. and The Clearing Corporation. On October 31, 2018, the Court granted CBOT's and CME's motion for summary judgment and dismissed the case in its entirety. Eurex has appealed this decision.

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

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

No accrual was required for legal and regulatory matters as none were probable and estimable as of September 30, 2019 and December 31, 2018.

Intellectual Property Indemnifications. Certain agreements with customers and other third parties related to accessing CME Group's services may contain indemnifications from intellectual property claims that may be made against them as a result of their use of the applicable services. The potential future claims relating to these indemnifications cannot be estimated and therefore no liability has been recorded.

8. Leases

The company adopted the new leasing standard on January 1, 2019, using the modified retrospective approach. The standard requires lessees to recognize on the balance sheet the assets and liabilities associated with the rights and obligations created by those leases. Upon implementation of the standard, the company utilized the package of practical expedients which did not require reassessment of the following: (a) whether any expired or existing contracts are or contain leases, (b) the lease classification for any expired or existing leases, and (c) any initial direct costs for existing leases. In addition, the company has elected not to separately account for lease and non-lease components, resulting in a greater amount of capitalized lease costs on the balance sheet. Upon adoption of the new standard on January 1, 2019, the company recognized a lease liability of $568.0 million and right-of-use asset of $448.2 million.

The company has operating leases for datacenters, corporate offices, and certain information technology equipment. The operating leases have remaining lease terms of up to 19 years, some of which include options to extend or renew the leases for up to an additional five years, and some of which include options to early terminate the leases in less than 12 months.

Management evaluates the exercisability of these options at least quarterly in order to determine whether the contract term must be reassessed. For a small number of the leases, primarily the international locations, management's approach is to enter into short-term leases for a lease term of 12 months or less in order to provide for greater flexibility in the local environment. For certain office spaces, the company has entered into arrangements to sublease excess space to third parties, while the original lease contract remains in effect with the landlord.

The company also has two finance leases, one of which is related to the sale of our datacenter in March 2016. In connection with the sale, the company leased back a portion of the property. The sale leaseback transaction was recognized under the financing method and not as a sale leaseback arrangement. We have one other finance lease related to networking equipment and connectivity hardware. This lease qualifies for classification as a finance lease due to our exercise of an existing purchase option on this equipment.

The right-of-use lease asset is recorded within other assets, and the present value of the lease liability is recorded within other liabilities (segregated between short term and long term) on the consolidated balance sheets. The discount rate applied to the lease payments represents the company's incremental borrowing rate. The company has elected to utilize the short term lease exception for purposes of adopting this standard, such that the company has not capitalized on the balance sheet a lease asset or lease liability associated with leases with terms of 12 months or less from the commencement date.

The components of lease costs were as follows:

(in millions)	Quarter Ended September 30, 2019	Nine Months Ended September 30, 2019
Operating lease expense:		
Operating lease cost	$ 16.2	$ 53.5
Short-term lease cost	0.7	5.6
Total operating lease expense included in other expense	$ 16.9	$ 59.1
Finance lease expense:		
Interest expense	$ 0.9	$ 2.7
Depreciation expense	2.5	7.1
Total finance lease expense	$ 3.4	$ 9.8
Sublease revenue included in other revenue	$ 2.0	$ 7.3

Supplemental cash flow information related to leases was as follows:

(in millions)	Quarter Ended September 30, 2019	Nine Months Ended September 30, 2019
Cash outflows for operating leases	$ 18.7	$ 50.8
Cash outflows for finance leases	5.1	14.1

Supplemental balance sheet information related to leases was as follows:

Operating leases

(in millions)	September 30, 2019
Operating lease right-of-use assets	$ 420.3
Operating lease liabilities:	
Other current liabilities	$ 40.9
Other liabilities	509.4
Total operating lease liabilities	$ 550.3
Weighted average remaining lease term (in months)	149
Weighted average discount rate	4.0%

Finance leases

(in millions)	September 30, 2019
Finance lease right-of-use assets	$ 100.0
Finance lease liabilities:	
Other current liabilities	$ 8.0
Other liabilities	93.4
Total finance lease liabilities	$ 101.4
Weighted average remaining lease term (in months)	138
Weighted average discount rate	3.5%

Future minimum lease payments were as follows as of September 30, 2019 for operating and finance leases:

(in millions)	Operating Leases
Remainder of 2019	$ 15.9
2020	63.3
2021	59.8
2022	62.8
2023	58.9
2024	53.3
Thereafter	397.0
Total lease payments	711.0
Less: imputed interest	(160.7)
Present value of lease liability	$ 550.3

(in millions)	Finance Leases
Remainder of 2019	$ 4.9
2020	16.9
2021	17.0
2022	17.1
2023	17.2
2024	17.4
Thereafter	111.8
Total lease payments	202.3
Less: imputed interest	(100.9)
Present value of lease liability	$ 101.4

9. Guarantees

Mutual Offset Agreement. CME and Singapore Exchange Limited (SGX) have a mutual offset agreement with a current term through October 2020. This agreement enables market participants to open a futures position on one exchange and liquidate it on the other. The term of the agreement will automatically renew for a one-year period unless either party provides advance notice of their intent to terminate. CME can maintain collateral in the form of cash, U.S. Treasury securities or irrevocable, standby letters of credit. At September 30, 2019, CME was contingently liable to SGX on letters of credit totaling $310.0 million. Regardless of the collateral, CME guarantees all cleared transactions submitted through SGX and would initiate procedures designed to satisfy these financial obligations in the event of a default, such as the use of performance bonds and guaranty fund contributions of the defaulting clearing firm. The company believes that its guarantee liability is immaterial and therefore has not recorded any liability at September 30, 2019.

Family Farmer and Rancher Protection Fund. In 2012, the company established the Family Farmer and Rancher Protection Fund (the Fund). The Fund is designed to provide payments, up to certain maximum levels, to family farmers, ranchers and other agricultural industry participants who use the company's agricultural commodity products and who suffer losses to their segregated account balances due to their CME clearing member becoming insolvent. Under the terms of the Fund, farmers and ranchers are eligible for up to $25,000 per participant. Farming and ranching cooperatives are eligible for up to $100,000 per cooperative. The Fund was established with a maximum of $100.0 million available for distribution to participants. Since its establishment, the Fund has made payments of approximately $2.0 million, which leaves $98.0 million available for future claims. If, at any time, payments due to participants were to exceed the amount remaining in the fund, payments would be pro-rated. Clearing members and customers must register with the company in advance and provide certain documentation in order to substantiate their eligibility. The company believes that its guarantee liability is immaterial and therefore has not recorded any liability at September 30, 2019.

10. Accumulated Other Comprehensive Income (Loss)

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

(in millions)	Investment Securities	Defined Benefit Plans	Derivative Investments	Foreign Currency Translation	Total
Balance at December 31, 2018	$ 0.1	$ (53.8)	$ 69.7	$ (10.7)	$ 5.3
Other comprehensive income (loss) before reclassifications and income tax benefit (expense)	1.5	(2.7)	0.3	(38.5)	(39.4)
Amounts reclassified from accumulated other comprehensive income (loss)	(0.2)	3.7	(0.9)	—	2.6
Income tax benefit (expense)	(0.4)	(0.3)	—	—	(0.7)
Net current period other comprehensive income (loss)	0.9	0.7	(0.6)	(38.5)	(37.5)
Balance at September 30, 2019	$ 1.0	$ (53.1)	$ 69.1	$ (49.2)	$ (32.2)

(in millions)	Investment Securities	Defined Benefit Plans	Derivative Investments	Foreign Currency Translation	Total
Balance at December 31, 2017	$ 0.6	$ (36.1)	$ 58.0	$ (8.2)	$ 14.3
Other comprehensive income (loss) before reclassifications and income tax benefit (expense)	(0.9)	1.7	—	(0.8)	—
Amounts reclassified from accumulated other comprehensive income (loss)	(0.1)	2.0	(0.9)	—	1.0
Income tax benefit (expense)	0.3	(0.9)	0.2	—	(0.4)
Net current period other comprehensive income (loss)	(0.7)	2.8	(0.7)	(0.8)	0.6
Impact of adoption of standards update on tax effects related to accumulated other comprehensive income	0.1	(8.2)	11.9	—	3.8
Balance at September 30, 2018	$ —	$ (41.5)	$ 69.2	$ (9.0)	$ 18.7

11. Fair Value Measurements

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

- Level 1 inputs, which are considered the most reliable evidence of fair value, consist of quoted prices (unadjusted) for identical assets or liabilities in active markets.
- Level 2 inputs consist of observable market data, such as quoted prices for similar assets and liabilities in active markets, or inputs other than quoted prices that are directly observable.

- Level 3 inputs consist of unobservable inputs which are derived and cannot be corroborated by market data or other entity-specific inputs.

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

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

Level 3 assets include fixed assets, assets held for sale and investments that were impaired.

Recurring Fair Value Measurements. Financial assets and liabilities recorded in the consolidated balance sheet as of September 30, 2019 were classified in their entirety based on the lowest level of input that was significant to each asset and liability's fair value measurement. The following table presents financial instruments measured at fair value on a recurring basis:

	September 30, 2019			
(in millions)	**Level 1**	**Level 2**	**Level 3**	**Total**
Assets at Fair Value:				
Marketable securities:				
Corporate debt securities	$ 18.3	$ —	$ —	$ 18.3
Mutual funds	61.4	—	—	61.4
Equity securities	0.1	—	—	0.1
Asset-backed securities	—	0.3	—	0.3
Total Marketable Securities	79.8	0.3	—	80.1
Performance bonds and guaranty fund contributions (1):				
U.S. Treasury securities	1,396.2	—	—	1,396.2
U.S. government agency securities	484.7	—	—	484.7
Total Assets at Fair Value	$ 1,960.7	$ 0.3	$ —	$ 1,961.0
Liabilities at Fair Value:				
Derivative contracts	$ —	$ 1.3	$ —	$ 1.3
Total Liabilities at Fair Value	$ —	$ 1.3	$ —	$ 1.3

(1) Performance bonds and guaranty fund contributions on the consolidated balance sheet at September 30, 2019 include U.S. Treasury securities and U.S. government agency securities purchased with cash collateral.

The following is a reconciliation of the level 3 liability valued at fair value on a recurring basis during the first nine months of 2019. As of September 30, 2019, the remaining contingent consideration liability has expired.

(in millions)	**Contingent Consideration**
Fair value of liability at December 31, 2018	$ 6.7
Unrealized gains (losses) included in operating expense	(0.4)
Goodwill measurement period adjustment	(6.1)
Settlements	(0.2)
Fair Value of Liability at September 30, 2019	$ —

Non-Recurring Fair Value Measurements. During the first nine months of 2019, the company recognized impairment charges of $19.2 million related to some of its investments. The combined fair values of these investments were estimated to be $28.5 million at September 30, 2019. The company also recognized unrealized losses of $61.1 million related to assets held for sale and $18.7 million related to certain fixed assets. The fair value of the fixed assets was estimated to be zero at the impairment date. The fair value of the net assets held for sale were estimated to be $3.6 million and $7.7 million at the respective assessment dates. These assessments were based on quantitative and qualitative indications of impairment. The fair value measurements of the investments, fixed assets and assets held for sale are considered level 3 and non-recurring.

Fair Values of Long-Term Debt Notes. The following presents the estimated fair values of long-term debt notes, which are carried at amortized cost on the consolidated balance sheets. The fair values below that are classified as level 2 under the fair value hierarchy were estimated using quoted market prices in inactive markets. The fair value of the debt facility that was classified as level 3 under the fair value hierarchy was estimated based on assumptions made by management regarding expectations of future settlement of the debt.

At September 30, 2019, the fair values (in U.S. dollar equivalent) were as follows:

(in millions)	Fair Value	Level
$750.0 million fixed rate notes due September 2022	$ 773.9	Level 2
€15.0 million fixed rate notes due May 2023	18.6	Level 2
$750.0 million fixed rate notes due March 2025	783.6	Level 2
$500.0 million fixed rate notes due June 2028	558.9	Level 2
$750.0 million fixed rate notes due September 2043	1,014.9	Level 2
$700.0 million fixed rate notes due June 2048	840.9	Level 2
Commercial paper	435.0	Level 3

12. Earnings Per Share

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

	Quarter Ended September 30,		Nine Months Ended September 30,	
(in thousands)	2019	2018	2019	2018
Restricted stock and performance shares	98	335	473	337
Total	98	335	473	337

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

	Quarter Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Net Income Attributable to CME Group (in millions)	$ 636.3	$ 411.8	$ 1,647.0	$ 1,576.7
Weighted Average Number of Common Shares (in thousands):				
Basic	357,211	339,586	357,054	339,453
Effect of stock options, restricted stock and performance shares	1,158	1,449	1,147	1,454
Diluted	358,369	341,035	358,201	340,907
Earnings per Common Share Attributable to CME Group:				
Basic	$ 1.78	$ 1.21	$ 4.61	$ 4.64
Diluted	1.78	1.21	4.60	4.62

13. Subsequent Events

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

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

The following discussion is provided as a supplement to, and should be read in conjunction with, the accompanying unaudited consolidated financial statements and notes in this Quarterly Report on Form 10-Q and our Annual Report on Form 10-K for the year ended December 31, 2018.

On November 2, 2018, we completed our acquisition of NEX Group plc (NEX). The following Management's Discussion and Analysis of Financial Condition and Results of Operations includes the financial results of NEX beginning on November 3, 2018.

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

RESULTS OF OPERATIONS

Financial Highlights

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

	Quarter Ended September 30,			Nine Months Ended September 30,		
(dollars in millions, except per share data)	2019	2018	Change	2019	2018	Change
Total revenues	$ 1,277.3	$ 904.2	41%	$ 3,729.6	$ 3,072.8	21 %
Total expenses	592.1	354.3	67	1,714.8	1,115.1	54
Operating margin	53.6%	60.8%		54.0%	63.7%	
Non-operating income (expense)	$ 38.0	$ 11.9	n.m.	$ 50.7	$ 149.6	(66)
Effective tax rate	12.0%	26.7%		20.3%	25.2%	
Net income attributable to CME Group	$ 636.3	$ 411.8	55	$ 1,647.0	$ 1,576.7	4
Diluted earnings per common share attributable to CME Group	1.78	1.21	47	4.60	4.62	—
Cash flows from operating activities				1,953.1	1,930.4	1

Revenues

	Quarter Ended September 30,			Nine Months Ended September 30,		
(dollars in millions)	2019	2018	Change	2019	2018	Change
Clearing and transaction fees	$ 1,040.7	$ 752.5	38%	$ 3,045.1	$ 2,632.2	16%
Market data and information services	129.8	110.7	17	388.2	319.4	22
Other	106.8	41.0	161	296.3	121.2	145
Total Revenues	$ 1,277.3	$ 904.2	41	$ 3,729.6	$ 3,072.8	21

Clearing and Transaction Fees

Futures and Options Contracts

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

	Quarter Ended September 30,			Nine Months Ended September 30,		
	2019	2018	Change	2019	2018	Change
Total contract volume (in millions)	1,295.8	981.8	32 %	3,750.2	3,511.2	7 %
Clearing and transaction fees (in millions)	$ 898.2	$ 739.7	21	$ 2,622.8	$ 2,585.3	1
Average rate per contract	$ 0.693	$ 0.753	(8)	$ 0.699	$ 0.736	(5)

We estimate the following net changes in clearing and transaction fees based on changes in total contract volume and changes in average rate per contract for futures and options during the third quarter and first nine months of 2019 when compared with the same periods in 2018.

(in millions)	Quarter Ended	Nine Months Ended
Increases due to change in total contract volume	$ 217.7	$ 167.2
Decreases due to change in average rate per contract	(59.2)	(129.7)
Net increases in clearing and transaction fees	$ 158.5	$ 37.5

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

Contract Volume

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

	Quarter Ended September 30,			Nine Months Ended September 30,		
(amounts in thousands)	2019	2018	Change	2019	2018	Change
Average Daily Volume by Product Line:						
Interest rates	10,868	7,798	39 %	10,931	9,622	14 %
Equity indexes	3,931	2,671	47	3,530	3,275	8
Foreign exchange	851	944	(10)	869	1,026	(15)
Agricultural commodities	1,320	1,349	(2)	1,514	1,559	(3)
Energy	2,456	2,199	12	2,430	2,526	(4)
Metals	821	623	32	674	669	1
Aggregate average daily volume	20,247	15,584	30	19,948	18,677	7
Average Daily Volume by Venue:						
CME Globex	18,282	14,082	30	17,803	16,808	6
Open outcry	1,177	938	26	1,320	1,182	12
Privately negotiated	788	564	40	825	687	20
Aggregate average daily volume	20,247	15,584	30	19,948	18,677	7
Electronic Volume as a Percentage of Total Volume	90%	90%		89%	90%	

Following periods of lower volatility in early 2019, overall market volatility increased throughout the third quarter of 2019, which we believe was largely due to a shift in expectations surrounding the Federal Reserve's interest rate policy. In the third quarter of 2019, the Federal Reserve cut interest rates twice following earlier indication that it intended to continue to slowly increase interest rates throughout 2019. Uncertainty surrounding the United States' foreign trade policy also increased in the third quarter of 2019 following the threat of additional tariffs. We believe these factors contributed to the increases in volumes for the third quarter and first nine months of 2019 when compared with the same periods in 2018.

Interest Rate Products

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

	Quarter Ended September 30,			Nine Months Ended September 30,		
(amounts in thousands)	2019	2018	Change	2019	2018	Change
Eurodollar futures and options:						
Front 8 futures	2,077	1,566	33%	2,193	2,087	5 %
Back 32 futures	687	567	21	719	834	(14)
Options	1,633	1,081	51	1,861	1,425	31
U.S. Treasury futures and options:						
10-Year	2,462	1,974	25	2,368	2,254	5
5-Year	1,420	1,062	34	1,408	1,221	15
2-Year	785	446	76	754	535	41
Treasury bond	524	422	24	473	451	5
Federal Funds futures and options	450	164	174	387	241	61

In the third quarter and the first nine months of 2019 when compared with the same periods in 2018, interest rate contract volumes increased largely due to market volatility resulting from uncertainty surrounding the Federal Reserve's interest rate policy. We believe volatility increased in the middle of 2019 due to a shift in expectations following the Federal Reserve's decision to cut interest rates twice during the third quarter as well as uncertainty surrounding the United State's foreign trade policy and future economic growth.

Equity Index Products

The following table summarizes average daily contract volume for our key equity index products. Volumes below for the third quarter and first nine months of 2019 include Micro E-mini contract volumes for each index beginning on May 6, 2019.

	Quarter Ended September 30,			Nine Months Ended September 30,		
(amounts in thousands)	2019	2018	Change	2019	2018	Change
E-mini S&P 500 futures and options	2,617	1,861	41%	2,384	2,323	3%
E-mini NASDAQ 100 futures and options	722	396	82	602	435	38
E-mini Russell 2000 futures and options	198	128	54	170	138	23

In the third quarter and the first nine months of 2019, equity index contract volume increased when compared with the same periods in 2018 due to the launch of Micro E-mini equity index contracts in the second quarter of 2019 and higher levels of volatility, as measured by the CBOE Volatility Index and CBOE Nasdaq-100 Volatility Index. Volatility levels were higher in mid-2019 due to uncertainty surrounding the United States' foreign trade and other economic policies. Average daily contract volume in the third quarter of 2019 included approximately 569,000 in Micro-E-mini equity index contracts, which have a notional size of one-tenth of the traditional E-mini contracts.

Foreign Exchange Products

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

	Quarter Ended September 30,			Nine Months Ended September 30,		
(amounts in thousands)	2019	2018	Change	2019	2018	Change
Euro	237	296	(20)%	238	321	(26)%
Japanese yen	143	137	5	141	158	(11)
British pound	125	137	(9)	126	143	(12)
Australian dollar	96	114	(16)	106	120	(12)

In the third quarter and first nine months of 2019, overall foreign exchange contract volumes decreased when compared with the same periods in 2018, which we believe resulted from an overall decrease in volatility following periods of higher volatility in early 2018. We believe foreign exchange volatility decreased in 2019 following indication by the Federal Reserve and other central banks to limit the number of interest rate changes throughout 2019. We also believe that the lack of resolution of the trade agreement between the United States and China and the delay in the United Kingdom European Union membership referendum contributed to lower volumes.

Agricultural Commodity Products

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

	Quarter Ended September 30,			Nine Months Ended September 30,		
(amounts in thousands)	2019	2018	Change	2019	2018	Change
Corn	490	434	13 %	583	516	13 %
Soybean	216	239	(9)	255	318	(20)
Wheat	189	249	(24)	227	269	(16)

Overall commodity contract volumes decreased slightly in the third quarter and the first nine months of 2019 when compared with the same periods in 2018. We believe the declines in soybean contract volumes were due to lower U.S. exports of soybeans to China due to uncertainty surrounding trade policies between the countries. The decreases in wheat contract volumes were due to lower volatility levels resulting from a surplus of global supplies in major growing regions around the world. Corn contract volumes increased due to significant uncertainty surrounding crop yields for the 2019 growing season due to higher than normal precipitation levels.

Energy Products

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

	Quarter Ended September 30,			Nine Months Ended September 30,		
(amounts in thousands)	2019	2018	Change	2019	2018	Change
WTI crude oil	1,398	1,195	17 %	1,405	1,443	(3)%
Natural gas	560	517	8	500	554	(10)
Refined products	360	381	(6)	382	403	(5)

Overall energy contract volume increased in the third quarter of 2019 when compared with the same period in 2018 largely due to an increase in crude oil volume. We believe the increase in crude oil contract volume in the third quarter of 2019 was due to geopolitical uncertainty in the middle east.

We believe overall energy contract volume decreased in the first nine months of 2019 due to lower price volatility within the energy markets in early 2019 due to greater price stability within the crude oil markets. In addition, expanded production of natural gas resulted in a reduction of price volatility in early 2019, which we believe contributed to a decrease in natural gas volume.

Metal Products

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

	Quarter Ended September 30,			Nine Months Ended September 30,		
(amounts in thousands)	2019	2018	Change	2019	2018	Change
Gold	559	358	56 %	432	392	10 %
Silver	137	97	41	109	107	2
Copper	93	138	(33)	102	140	(28)

Overall metal contract volumes increased in the third quarter and first nine months of 2019 when compared with the same periods in 2018 due to investors using gold and other precious metals as safe-haven alternative investments to other volatile markets, particularly in the third quarter of 2019.

Average Rate per Contract

The average rate per contract decreased in the third quarter and first nine months of 2019 when compared with the same periods in 2018. The decreases were largely due to shifts in product mix. In the third quarter of 2019, interest rate and equity index contract volumes increased by 6 percentage points as a percentage of total volume, while all other products collectively decreased by 6 percentage points. In the first nine months, interest rate and equity index contract volumes increased by 3 percentage points as a percentage of total volume, while all other products collectively decreased by 3 percentage points. In general, interest rate and equity index products have a lower rate per contract compared with the remaining contracts. The decreases in average rate per contract were also due to increases in member trading volume as a percentage of total volume.

Cash Markets Business

Total clearing and transaction fees revenues in the third quarter and first nine months of 2019 include $124.9 million and $368.5 million of transaction fees attributable to the cash markets business acquired from NEX. This revenue includes BrokerTec U.S.'s fixed income volume and EBS's foreign exchange volume.

(amounts in millions)	Quarter Ended September 30, 2019	Nine Months Ended September 30, 2019
BrokerTec U.S.'s fixed income transaction fees	$ 51.1	$ 147.2
EBS's foreign exchange transaction fees	49.6	148.4

The related average daily notional value for the third quarter and first nine months of 2019 were as follows:

(amounts in billions)	Quarter Ended September 30, 2019	Nine Months Ended September 30, 2019
U.S. Treasury	$ 178.5	$ 174.7
European Repo (in euros)	271.9	275.1
Spot FX	78.5	79.3

Concentration of Revenue

We bill a substantial portion of our clearing and transaction fees directly to our clearing firms. The majority of clearing and transaction fees received from clearing firms represent charges for trades executed and cleared on behalf of their customers. No individual firm represented at least 10% of our clearing and transaction fees in the first nine months of 2019. Should a clearing firm withdraw, we believe that the customer portion of the firm’s trading activity would likely transfer to another clearing firm of the exchange. Therefore, we do not believe we are exposed to significant risk from the ongoing loss of revenue received from or through a particular clearing firm.

Other Sources of Revenue

The increases in market data and information services revenues in the third quarter and first nine months of 2019 when compared with the same periods in 2018 were largely attributable to the additional market data revenue generated by market data subscribers and distributors associated with the legacy NEX businesses subsequent to the acquisition in November 2018. In addition, fees for legacy CME basic real-time market data services increased to $105 per month from $85 per month for each device beginning in the second quarter of 2018, which also contributed to the increase in revenue in the first nine months of 2019 when compared with the same period in 2018. The increases were partially offset by a reduction in revenues due to modest declines in screen counts due to cost-cutting initiatives at member firms.

The two largest resellers of our market data represented approximately 42% of our market data and information services revenue in the first nine months of 2019. Despite this concentration, we consider exposure to significant risk of revenue loss to be minimal. In the event that one of these vendors no longer subscribes to our market data, we believe the majority of that vendor’s customers would likely subscribe to our market data through another reseller. Additionally, several of our largest institutional customers that utilize services from our two largest resellers report usage and remit payment of their fees directly to us.

In the third quarter and first nine months of 2019 when compared with the same periods in 2018, the increases in other revenues were largely due to the additional other revenues contributed by the NEX acquisition. Other revenues from NEX primarily include optimization services, such as portfolio management, analytics, and trade and regulatory reporting as well as connectivity charges.

Expenses

(dollars in millions)	Quarter Ended September 30, 2019	Quarter Ended September 30, 2018	Change	Nine Months Ended September 30, 2019	Nine Months Ended September 30, 2018	Change
Compensation and benefits	$ 223.5	$ 144.9	54%	$ 681.1	$ 448.4	52%
Technology	52.7	24.7	114	148.4	75.4	97
Professional fees and outside services	43.2	31.3	38	124.3	105.8	17
Amortization of purchased intangibles	79.8	23.7	n.m.	236.6	71.0	n.m.
Depreciation and amortization	41.4	30.2	37	120.6	85.8	41
Licensing and other fee agreements	45.6	33.4	36	130.9	122.8	7
Other	105.9	66.1	60	272.9	205.9	33
Total Expenses	$ 592.1	$ 354.3	67	$ 1,714.8	$ 1,115.1	54

n.m. not meaningful

Operating expenses increased by $237.8 million and $599.7 million in the third quarter and first nine months of 2019 when compared with the same periods in 2018. The following table shows the estimated impacts of key factors resulting in the change in operating expenses:

(dollars in millions)	Quarter Ended September 30, 2019 Amount of Change	Quarter Ended September 30, 2019 Change as a Percentage of Total Expenses	Nine Months Ended September 30, 2019 Amount of Change	Nine Months Ended September 30, 2019 Change as a Percentage of Total Expenses
Salaries, benefits and employer taxes	$ 64.4	18 %	$ 191.1	17 %
Amortization of purchased intangibles	56.1	16	165.7	15
Technology	28.0	8	73.0	7
Net losses on fixed assets and assets held for sale	35.8	10	67.9	6
Bonus expense	26.6	8	56.1	5
Occupancy and building operations	11.3	3	42.9	4
Professional fees and outside services	11.9	3	18.5	2
Foreign currency exchange rate fluctuation	(16.3)	(5)	(62.8)	(6)
Other expenses, net	20.0	6	47.3	4
Total increase	$ 237.8	67 %	$ 599.7	54 %

Increases in operating expenses in the third quarter and first nine months of 2019 when compared with the same periods in 2018 were largely attributable to our acquisition of NEX in the fourth quarter of 2018 as follows:

- Compensation and benefits expense increased as a result of headcount added from the NEX acquisition in the fourth quarter of 2018.
- Amortization of purchased intangibles related to the NEX acquisition account for the additional expense.
- Technology expense, specifically hardware and software maintenance expense, was higher largely due to the addition of our NEX operations.
- In the third quarter and first nine months of 2019, we recognized higher impairment losses on certain fixed assets and net losses on assets held for sale compared to the same periods in 2018.
- Bonus expense increased compared with the same periods in 2018 largely due to the headcount added as part of the NEX acquisition.
- Occupancy and building operations expense increased due to the inclusion of leases for our NEX operations.
- Professional fees and outside service expenses increased compared with the same periods in 2018, largely due to the addition of our NEX operations.

Decreases in operating expenses in the third quarter and first nine months of 2019 when compared with the same periods in 2018 were attributable to the impacts of foreign currency exchange rate fluctuations as follows:

- In the third quarter of 2018, we recognized a net loss of $15.6 million primarily due to the decline in the British pound versus U.S. dollar exchange rate on $1.6 billion of restricted cash held for the acquisition of NEX, which was denominated in British pounds, compared with a net gain of $0.7 million in the third quarter of 2019. In the first nine months of 2018, we recognized a net loss of $64.5 million, compared to a net loss of $1.7 million in the first nine months of 2019. Gains and losses from exchange rate fluctuations result when subsidiaries with a U.S. dollar functional currency hold cash as well as certain other monetary assets and liabilities denominated in foreign currencies.

Non-Operating Income (Expense)

	Quarter Ended September 30,			Nine Months Ended September 30,		
(dollars in millions)	2019	2018	Change	2019	2018	Change
Investment income	$ 172.3	$ 161.5	7 %	$ 490.3	$ 559.8	(12)%
Interest and other borrowing costs	(42.8)	(45.0)	(5)	(136.0)	(108.2)	26
Equity in net earnings (losses) of unconsolidated subsidiaries	48.0	37.1	30	132.3	113.6	16
Other non-operating income (expense)	(139.5)	(141.7)	(2)	(435.9)	(415.6)	5
Total Non-Operating	$ 38.0	$ 11.9	n.m.	$ 50.7	$ 149.6	(66)

n.m. not meaningful

Investment income. Investment income increased in the third quarter of 2019 when compared with the same period in 2018, largely due to the increase in earnings from cash performance bond and guaranty fund contributions that are reinvested, which resulted primarily from higher rates of interest earned in the cash account at the Federal Reserve Bank of Chicago, as well as an increase in net realized and unrealized gains on investments.

In the first nine months of 2019, investment income decreased when compared with the same period in 2018 largely due to net realized and unrealized losses on privately-held equity investments in the first nine months of 2019 compared with the same period 2018. This was partially offset by an increase in earnings from cash performance bond and guaranty fund contributions that are reinvested.

Interest and other borrowing costs. Interest and other borrowing costs were higher in the first nine months of 2019 when compared with the same period in 2018 due to the issuance of $500.0 million of 3.75% fixed rate notes due June 2028 and $700.0 million of 4.15% fixed rate notes due June 2048 towards the end of the second quarter of 2018. Interest and other borrowing costs were also higher due to the assumption of the outstanding NEX debt, as well as the issuance of commercial paper, both of which occurred during the fourth quarter of 2018.

Equity in net earnings (losses) of unconsolidated subsidiaries. Higher income generated from our S&P/Dow Jones Indices LLC business venture contributed to increases in equity in net earnings (losses) of unconsolidated subsidiaries in the third quarter and first nine months of 2019 when compared with the same periods in 2018.

Other income (expense). Other expenses were relatively flat in the third quarter of 2019 and increased in the first nine months of 2019 when compared with the same periods in 2018. We recognized higher expenses in the third quarter and first nine months of 2019 when compared with the same periods in 2018 related to the distribution of interest earned on performance bond collateral reinvestments to the clearing firms, as higher rates of interest were earned after the first half of 2018. This increase in expense was offset by decreases in losses related to derivative contracts in 2019.

Income Tax Provision

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

	2019	2018
Quarter ended September 30	12.0%	26.7%
Nine months ended September 30	20.3%	25.2%

The overall decreases in the effective tax rates in the third quarter and first nine months of 2019 are primarily due to the benefits recognized for the Foreign Derived Intangible Income Deduction (FDII Deduction) from serving foreign customers. Proposed FDII Deduction regulations were released in 2019 and as a result, we have revised our income tax calculations to reflect the proposed guidance. The benefit recognized in the third quarter of 2019 includes estimates for the deduction for 2018, as well as through the third quarter of 2019.

Liquidity and Capital Resources

Sources and Uses of Cash. Net cash provided by operating activities remained relatively flat in the first nine months of 2019 when compared with the same period in 2018. Net cash used in investing activities increased in the first nine months of 2019 when compared with the same period of 2018 due to an increase in purchases of fixed assets. Cash used in financing activities was higher in the first nine months of 2019 when compared with the same period in 2018 due to a net reduction in outstanding debt in the first nine months of 2019 compared with issuance of debt in the first nine months of 2018. The increase in cash used in financing activities was partially offset by a decrease in cash dividends.

Debt Instruments. The following table summarizes our debt outstanding at September 30, 2019:

(in millions)		Par Value
Fixed rate notes due September 2022, stated rate of 3.00% (1)	$	750.0
Fixed rate notes due May 2023, stated rate of 4.30%	€	15.0
Fixed rate notes due March 2025, stated rate of 3.00% (2)	$	750.0
Fixed rate notes due June 2028, stated rate of 3.75%	$	500.0
Fixed rate notes due September 2043, stated rate of 5.30% (3)	$	750.0
Fixed rate notes due June 2048, stated rate of 4.15%	$	700.0
Commercial Paper	$	435.0

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

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

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

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

We maintain a 364-day multi-currency revolving secured credit facility with a consortium of domestic and international banks to be used in certain situations by the clearing house. The facility provides for borrowings of up to $7.0 billion. We may use the proceeds to provide temporary liquidity in the unlikely event of a clearing firm default, in the event of a liquidity constraint or default by a depositary (custodian for our collateral), or in the event of a temporary disruption with the domestic payments system that would delay payment of settlement variation between us and our clearing firms. Clearing firm guaranty fund contributions received in the form of cash or U.S. Treasury securities as well as the performance bond assets deposited by defaulting clearing members can be used to collateralize the facility. At September 30, 2019, guaranty funds available to collateralize the facility totaled $8.0 billion. We have the option to request an increase in the line from $7.0 billion to $10.0 billion. Our 364-day facility contains a requirement that CME remain in compliance with a consolidated tangible net worth test, defined as CME consolidated shareholder's equity less intangible assets (as defined in the agreement), of not less than $800.0 million. We currently do not have any borrowings outstanding under this facility. On May 1, 2019, we amended and extended the agreement, which will expire on April 29, 2020.

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

At September 30, 2019, we have excess borrowing capacity for general corporate purposes of approximately $1.9 billion under our multi-currency revolving senior credit facility.

At September 30, 2019, we were in compliance with the various financial covenant requirements of all our debt facilities.

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

To satisfy our performance bond obligation with Singapore Exchange Limited, we may pledge CME-owned U.S. Treasury securities in lieu of, or in combination with, irrevocable standby letters of credit. At September 30, 2019, the letters of credit totaled $310.0 million.

The following table summarizes our credit ratings at September 30, 2019:

Rating Agency	Short-Term Debt Rating	Long-Term Debt Rating	Outlook
Standard & Poor’s	A1+	AA-	Stable
Moody’s Investors Service	P1	Aa3	Stable

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

Liquidity and Cash Management. Cash and cash equivalents totaled $1.2 billion and $1.4 billion at September 30, 2019 and December 31, 2018, respectively. The balance retained in cash and cash equivalents is a function of anticipated or possible short-term cash needs, prevailing interest rates, our investment policy and alternative investment choices. A majority of our cash and cash equivalents balance is invested in money market mutual funds that invest only in U.S. Treasury securities, U.S. government agency securities and U.S. Treasury security reverse repurchase agreements. Our exposure to credit and liquidity risk is minimal given the nature of the investments. Cash that is not available for general corporate purposes because of regulatory requirements or other restrictions is classified as restricted cash and is included in other current assets or other assets in the consolidated balance sheets.

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

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

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

Recent Accounting Pronouncements

Refer to Note 2. Accounting Policies in our notes to the consolidated financial statements for information on newly issued and recently adopted accounting pronouncements that are applicable to us.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are subject to various market risks, including those caused by changes in interest rates, credit, foreign currency exchange rates and equity prices. There have not been material changes in our exposure to market risk since December 31, 2018. Refer to Item 7A. of CME Group’s Annual Report on Form 10-K for the year ended December 31, 2018 for additional information.

ITEM 4. CONTROLS AND PROCEDURES

(a) Disclosure Controls and Procedures. Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act)) as of the end of the period covered by this report. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that, as of the end of such period, our disclosure controls and procedures are effective.

(b) Changes in Internal Control Over Financial Reporting. As required by Rule 13a-15(d) under the Exchange Act, the company’s management, including the company’s Chief Executive Officer and Chief Financial Officer, have evaluated the company’s internal control over financial reporting (as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) to determine whether any changes occurred during the quarter covered by this quarterly report that have materially affected, or are reasonably likely to materially affect, the company’s internal control over financial reporting. During the fourth quarter of 2018, we acquired NEX and are in the process of integrating the acquired business into our overall internal control over financial reporting process. As permitted under applicable regulations, we have excluded NEX from the assessment of internal control over financial reporting as of September 30, 2019. There were no other changes in the company’s internal control over financial reporting which occurred during the fiscal quarter ended September 30, 2019, that have materially affected, or are reasonably likely to materially affect, the company’s internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

See “Legal and Regulatory Matters” in Note 7. Contingencies to the Consolidated Financial Statements for updates to CME Group’s existing legal proceedings disclosure which is incorporated herein by reference. Note 7. Contingencies includes updates to the legal proceedings disclosed in the company’s Annual Report on Form 10-K, filed with the SEC on February 28, 2019.

ITEM 1A. RISK FACTORS

There have been no material updates to the Risk Factors disclosure included in the company’s Annual Report on Form 10-K, filed with the SEC on February 28, 2019. In addition to the other information contained in this Quarterly Report on Form 10-Q, you should carefully consider the factors discussed in our Annual Report on Form 10-K, which are the risks that we believe are material at this time. These risks could materially and adversely affect our business, financial condition and results of operations. These risks and uncertainties are not the only ones facing us. Additional risks and uncertainties not presently known to us or that we currently believe to be immaterial may also adversely affect our business in the future.

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

Issuer Purchases of Equity Securities

Period	(a) Total Number of Class A Shares Purchased (1)	(b) Average Price Paid Per Share	(c) Total Number of Class A Shares Purchased as Part of Publicly Announced Plans or Programs	(d) Maximum Number (or Approximate Value) that May Yet Be Purchased Under the Plans or Programs (in millions)
July 1 to July 31	187	$ 200.86	—	$ —
August 1 to August 31	10	215.69	—	—
September 1 to September 30	112,458	205.81	—	—
Total	112,655	$ 205.80	—	

(1) Shares purchased consist of an aggregate of 112,655 shares of Class A common stock surrendered in the third quarter of 2019 to satisfy employees' tax obligations upon the vesting of restricted stock.

ITEM 6. EXHIBITS

31.1	Section 302 Certification—Terrence A. Duffy
31.2	Section 302 Certification—John W. Pietrowicz
32.1	Section 906 Certification
101	The following materials from CME Group Inc.'s Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, formatted in Inline XBRL (Extensible Business Reporting Language): (i) the Consolidated Balance Sheets, (ii) the Consolidated Statements of Income, (iii) the Consolidated Statements of Comprehensive Income, (iv) the Consolidated Statements of Equity, (v) Consolidated Statements of Cash Flows and (vi) Notes to Unaudited Consolidated Financial Statements, tagged as blocks of text.
104	The cover page from CME Group Inc.'s Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, formatted in Inline XBRL.

SIGNATURES

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

CME Group Inc.
(Registrant)

Dated: November 6, 2019	By:	/s/ John W. Pietrowicz
		Chief Financial Officer & Senior Managing Director Finance

Exhibit 31.1

CERTIFICATION

I, Terrence A. Duffy, certify that:

1. I have reviewed this report on Form 10-Q of CME Group Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent function):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: November 6, 2019

/s/ Terrence A. Duffy

Name: Terrence A. Duffy

Title: Chief Executive Officer

Exhibit 31.2

CERTIFICATION

I, John W. Pietrowicz, certify that:

1. I have reviewed this report on Form 10-Q of CME Group Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of registrant’s board of directors (or persons performing the equivalent function):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Dated: November 6, 2019	/s/ John W. Pietrowicz
	Name: John W. Pietrowicz
	Title: Chief Financial Officer

Exhibit 32.1

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

In connection with the Quarterly Report on Form 10-Q of CME Group Inc. (the "Company") for the quarter ended September 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Terrence A. Duffy, as Chief Executive Officer of the Company, and John W. Pietrowicz, as Chief Financial Officer of the Company, each hereby certifies, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to the best of his knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Terrence A. Duffy

Name: Terrence A. Duffy
Title: Chief Executive Officer

Dated: November 6, 2019

/s/ John W. Pietrowicz

Name: John W. Pietrowicz
Title: Chief Financial Officer

Dated: November 6, 2019

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

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