



Cboe Global Markets

ANNUAL REPORT 2022

To our Cboe community,

On April 26, 1973, Cboe's opening bell rang for the first time, ushering in a new era in the financial industry. Just 911 options on 16 stocks traded that first day—all from a floor no larger than a standard break room. Despite its humble beginnings, the exchange was a financial innovation like no other.

Fifty years later, the Cboe of today has expanded well beyond our origins as the first U.S. options exchange. But our success did not happen overnight. It all began with an idea that evolved over time into the 26 global markets we operate today. Our trading network now spans equities, options, futures, foreign exchange (FX) and digital assets across North America, Europe and Asia Pacific. How did we get here? By taking the long view.

Throughout our 50-year history, we've taken carefully calculated risks when we've seen opportunity. Risks that ultimately led to decades of stability, and a long list of impressive wins and industry firsts—from creating listed options and making volatility tradable, to developing the technological infrastructure necessary to build trusted markets. But we didn't stop there. Our series of strategic acquisitions in recent years have greatly expanded the breadth and depth of the Cboe network.

Today, we believe the future holds even greater promise, so we're marking this 50th anniversary by sharing our exciting vision with the world. As we embark on the next chapter of the ongoing Cboe story, I'm excited for us to be bolder, prouder and more energetic—while fully embracing the relatable, trusted legacy that makes Cboe the world's go-to exchange. We're building on five decades of trusted expertise as we plan for the next 50 years with the same passion and entrepreneurial spirit we had in 1973. This is our moment to share who we are with new audiences, and remind those familiar with us, that we have a lot more to say.

Of course, many know Cboe as the largest options exchange operator in the U.S. and home to S&P 500 Index (SPX) and Cboe Volatility Index (VIX) derivatives trading, two of our most actively traded proprietary products. Coincidentally, 2023 is also an anniversary year for these products. The VIX Index, the world's leading barometer of expected equity market volatility, turns 30 this year. And the 40th anniversary of SPX options marks decades of innovation that have helped drive long-term growth, as illustrated by the record 567 million contracts traded last year across our SPX options suite.

In 2022 alone, we made SPX options more accessible through expanded trading hours, new expirations and different contract sizes, enabling us to better meet customer demand at every turn, especially as participation in same-day options trading grows to new heights.

The success of our SPX options suite is the result of 40 years of hard work, innovation and perseverance, driven by our unwavering belief in its potential from the beginning. We apply the same philosophy to our overall business strategy. Although we have a long-term view of our business, we are committed to investing in the near term to lay a solid foundation for future, sustainable growth. With this perspective, we are confident we can build on our success and continue to deliver value to our customers and shareholders for the next 50 years.

While we are fully focused on the future, it is certainly worth acknowledging our record results in 2022, which saw us grow net revenue 18 percent to a record \$1.7 billion and adjusted diluted earnings per share 15 percent to a record \$6.93¹. Our outstanding results were driven by strong volumes across our global network, led by our derivatives complex and continued growth in our data and access solutions business. We also continued to integrate our teams and technologies and connect with one another to solve problems and bring ideas to life.

This was the first full year since the start of the pandemic where we could gather in person more easily and more often, and what a difference it made. 2022 brought the return of interoffice travel, face-to-face

¹ On a GAAP basis, diluted earnings per share was \$2.19 in 2022. A reconciliation of adjusted diluted earnings per share to a GAAP measure is provided on page 70 of the Cboe Global Markets, Inc. Annual Report on Form 10-K for the year ended December 31, 2022.

client meetings and industry conferences across the globe. These connections are essential to maintaining the trust investors place in our exchanges and services every day.

In 2022, connection also remained a key part of our business strategy, perhaps most tangibly, through the opening of our new state-of-the-art trading floor in Chicago, home to a diverse mix of trading firms from around the world. From day-to-day operations to hosting celebrations and events, the trading floor serves multiple purposes for our community, each of them worthwhile.

Throughout the year, we prioritized integrating acquired companies and rebranding many of those businesses to unify our global team. As I've shared before, our decision to acquire businesses is rooted in part by our confidence in the people who run and support them. Each team that has joined the Cboe community is full of smart, passionate colleagues committed to delivering solutions and bringing new ideas to the table.

Last May, we officially completed the acquisition of ErisX, then rebranded the business to Cboe Digital in October to signal to the industry the growth and strength of our network. The digital asset market has changed dramatically since that time, but our approach has not. We still believe that investors can safely trade digital assets by embracing what has worked for traditional financial exchanges for decades—operating in a transparent, regulatory-first approach that puts investor needs above all else. Our Cboe Digital syndication partners share this vision and commitment, and we look forward to working together to help shape the future of the digital asset space.

In Canada, we completed the acquisition of NEO, growing our global equities and listings businesses. We also completed the migration of MATCHNow to Cboe technology and launched Cboe BIDS Canada, an excellent example of our long-term vision for integrating our acquired businesses to deliver new solutions to new markets.

Additionally, we rebranded Chi-X Asia Pacific to Cboe Australia and Cboe Japan and have been working to complete the migrations of these platforms to Cboe technology and extend the BIDS network to the Asia Pacific region. We are putting in the work to make these markets better for the long term and have already seen gains in market share. More recently, we rebranded EuroCCP to Cboe Clear Europe, once again further unifying our businesses and laying the foundation for continued growth and expansion of our clearing services. Owning Cboe Clear enabled us to launch our Cboe Europe Derivatives Exchange (CEDX), which we believe we can build into a modern, vibrant, pan-European trading offering.

Cboe Europe Equities became the largest pan-European stock exchange by market share in 2022 and continued to maintain its leadership position. This achievement was driven in part by the expansion of our data and analytics services to help clients improve the quality of their executions and enhance their overall trading experience across our lit and dark order books, periodic auctions and Cboe BIDS Europe.

Data is critical to the operation of our markets, development of trading strategies and to education. In 2022, Cboe became Morningstar's preferred index distributor and became the first major global exchange operator to join the Pyth network to bring market data to blockchain. Additionally, our new data cloud platform is enabling our teams to handle increasing amounts of data with greater speed and efficiency, improving our capabilities for managing, mining and analyzing that data across our global business and sharing those insights with our customers.

Finally, through our FX markets, investors could manage currency risk and opportunity as nations around the world responded to geopolitical tensions, supply chain issues, inflation and potential recessions. Investors turning to one of our asset classes to hedge new uncertainty encapsulates why we do what we do at Cboe. For decades, our exchanges and platforms across 26 markets have reliably provided a forum for investors to express their views and manage their risk.

Operating exchanges across global asset classes invites a diverse mix of investors to learn about and participate in our markets. Amid the largest wealth transfer in modern history, younger generations are eager to learn more and be the catalyst for their own wealth creation. As an established market operator, we've proven our ability to withstand extreme turbulence and uncertainty time and time again. We're planning far into the future, combining 50 years of wisdom and knowledge with our commitment to engaging with the next generation.

Our mission is to build a trusted, inclusive global marketplace that enables people to pursue a sustainable financial future. By investing in our people, our communities and our infrastructure, we are building a future for the next generation. We strive to be transparent, honest and consistent in everything we do, so that our clients and investors can rely on us to be a steady presence in an ever-changing world.

This work is only possible through the commitment of our Board of Directors and global associate base — who are all inspired and driven each day by our purpose of building trusted markets. As we celebrate our 50th year in business, I want to take a moment to thank each and every one of you for your continued support and investment in Cboe. As well as all of those who have been a part of Cboe along the way. We would not have reached this milestone without your belief in our long-term vision.

With your support, we have created an exchange like no other—the exchange for the world stage.

A handwritten signature in black ink, reading "Edward T. Tilly". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Edward T. Tilly
Chairman and Chief Executive Officer

Cautionary Statements Regarding Forward-Looking Information

Certain information contained in this letter may constitute forward-looking statements. We caution readers not to place undue reliance on any forward-looking statements, which speak only as of the date made and are subject to a number of risks and uncertainties. More detailed information about risks and uncertainties may be found on page 34 of the Cboe Global Markets, Inc. Annual Report on Form 10-K for the year ended December 31, 2022.

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

Form 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2022

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: 001-34774

Cboe Global Markets, Inc.

(Exact Name of Registrant as Specified in Its Charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

20-5446972
(I.R.S. Employer
Identification Number)

433 West Van Buren Street
Chicago, Illinois
(Address of principal executive offices)

60607
(Zip Code)

Registrant's telephone number, including area code
(312) 786-5600

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

<u>Title of Each Class</u>	<u>Trading Symbol (s)</u>	<u>Name of Exchange on Which Registered</u>
Common Stock, par value \$0.01 per share	CBOE	CboeBZX

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

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

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 and (2) has been subject to such filing requirements for the past 90 days. Yes No

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

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

Large accelerated filer 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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b).

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

As of June 30, 2022, the aggregate market value of the Registrant's outstanding voting common equity held by non-affiliates was approximately \$11.7 billion based on the closing price of \$113.19 per share of common stock.

The number of outstanding shares of the registrant's common stock as of February 10, 2023 was 105,742,628 shares of common stock.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of Cboe Global Market's Definitive Proxy Statement for the 2023 Annual Meeting of Stockholders, which will be filed no later than 120 days after December 31, 2022, are incorporated by reference in Part III.

TABLE OF CONTENTS
CBOE GLOBAL MARKETS, INC.
2022 FORM 10-K

PART I

Item 1.	Business	8
Item 1A.	Risk Factors	34
Item 1B.	Unresolved Staff Comments	59
Item 2.	Properties	59
Item 3.	Legal Proceedings	60
Item 4.	Mine Safety Disclosures	60

PART II

Item 5.	Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	61
Item 6.	Selected Financial Data	N/A
Item 7.	Management's Discussion and Analysis of Financial Condition and Results of Operations	64
Item 7A.	Quantitative and Qualitative Disclosures about Market Risk	95
Item 8.	Financial Statements and Supplementary Data	99
Item 9.	Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	154
Item 9A.	Controls and Procedures	154
Item 9B.	Other Information	154
Item 9C.	Disclosure Regarding Foreign Jurisdictions that Prevent Inspections	154

PART III

Item 10.	Directors, Executive Officers and Corporate Governance	155
Item 11.	Executive Compensation	155
Item 12.	Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters ..	155
Item 13.	Certain Relationships and Related Transactions, and Director Independence	155
Item 14.	Principal Accountant Fees and Services	155

PART IV

Item 15.	Exhibits, Financial Statement Schedules	156
Item 16.	Form 10-K Summary	162

CERTAIN DEFINED TERMS

Throughout this document, unless otherwise specified or the context so requires:

- “Cboe,” “we,” “us,” “our” or “the Company” refers to Cboe Global Markets, Inc. and its subsidiaries.
- “ADV” means average daily volume.
- “ADNV” means average daily notional value.
- “AFM” refers to the Netherlands Authority for the Financial Markets.
- “ATS” refers to an alternative trading system.
- “Bats Global Markets” and “Bats” refer to our wholly-owned subsidiary Bats Global Markets, Inc., now known as Cboe Bats, LLC, and its subsidiaries.
- “BIDS Trading” refers to BIDS Trading, L.P., a wholly-owned subsidiary of Cboe Global Markets, Inc. The ATS operated by BIDS Trading is not a registered national securities exchange or a facility thereof.
- “BYX” refers to Cboe BYX Exchange, Inc., a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “BZX” refers to Cboe BZX Exchange, Inc., a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “C2” refers to Cboe C2 Exchange, Inc. a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “Cboe Asia Pacific” refers to Cboe Asia Pacific Holdings Limited (formerly known as Chi-X Asia Pacific Holdings Limited), a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “Cboe Australia” refers to Cboe Australia Pty Ltd. (formerly known as Chi-X Australia Pty. Ltd.), a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “Cboe Chi-X Europe” refers to Cboe Chi-X Europe Limited, a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “Cboe Clear Digital” refers to Cboe Clear Digital (formerly known as Eris Clearing), a regulated clearinghouse and component of Digital segment.
- “Cboe Clear Europe” refers to Cboe Clear Europe (formerly known as European Central Counterparty N.V, formerly defined as “EuroCCP”), a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “Cboe Digital” refers to Cboe Digital Intermediate Holdings, LLC (formerly known as Eris Digital Holdings, LLC) and its subsidiaries. Prior to rebranding under the Cboe Digital name, Eris Digital Holdings, LLC and its subsidiaries operated under the “ErisX” name.
- “Cboe Europe Equities and Derivatives” refers to the combined businesses of Cboe Europe and Cboe NL.
- “Cboe Europe” refers to Cboe Europe Limited, a wholly-owned subsidiary of Cboe Global Markets, Inc., the UK operator of our Multilateral Trading Facility (“MTF”), our Regulated Market (“RM”), and our Approved Publication Arrangement (“APA”) under its Recognized Investment Exchange (“RIE”) status.
- “Cboe FX” refers to Cboe FX Markets, LLC, a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “Cboe Japan” refers to Cboe Japan Ltd. (formerly known as Chi-X Japan Ltd.), a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “Cboe NL” refers to Cboe Europe BV, a wholly-owned subsidiary of Cboe Global Markets, Inc., the Netherlands operator of our MTF, RM, and APA.
- “Cboe Options” refers to Cboe Exchange, Inc., a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “Cboe SEF” refers to Cboe SEF, LLC, a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “Cboe Swiss” refers to Cboe Switzerland GmbH, a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “Cboe Trading” refers to Cboe Trading, Inc., a wholly-owned subsidiary of Cboe Global Markets, Inc., operated in the United States.
- “CFE” refers to Cboe Futures Exchange, LLC, a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “CFTC” refers to the U.S. Commodity Futures Trading Commission.
- “CSD Br” refers to CSD Central de Serviços de Registro e Depósito aos Mercados Financeiro e de Capitais S.A., a Brazilian trade repository.
- “Chi-X” refers to Chi-X Holdings Limited, a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “EDGA” refers to Cboe EDGA Exchange, Inc., a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “EDGX” refers to Cboe EDGX Exchange, Inc., a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “ESMA” refers to the European Securities and Markets Authority.
- “Exchanges” refers to Cboe Options, C2, BZX, BYX, EDGX, and EDGA.
- “FASB” refers to the Financial Accounting Standards Board.
- “FCA” refers to the UK Financial Conduct Authority.
- “FINRA” refers to the Financial Industry Regulatory Authority.
- “GAAP” refers to Generally Accepted Accounting Principles in the United States.

- “IIROC” refers to the Investment Industry Regulatory Organization of Canada.
- “MATCHNow” refers to TriAct Canada Marketplace LP, a wholly-owned subsidiary of Cboe Global Markets, Inc., the operator of our Canadian ATS called MATCHNow.
- “Merger” refers to our acquisition of Bats Global Markets, completed on February 28, 2017.
- “NEO” refers to Aequitas Innovations, Inc, a wholly-owned subsidiary of Cboe Global Markets, Inc.
- “OCC” refers to The Options Clearing Corporation.
- “OPRA” refers to Options Price Reporting Authority, LLC.
- “SEC” refers to the U.S. Securities and Exchange Commission.
- “SPX” refers to our S&P 500 Index exchange-traded options products.
- “TPH” refers to either a Trading Permit Holder or a Trading Privilege Holder.
- “VIX” refers to our Cboe Volatility Index exchange traded options and futures products.

TRADEMARK AND OTHER INFORMATION

Cboe[®], Cboe Global Markets[®], Cboe LIS[®], Bats[®], BIDS Trading[®], BYX[®], BZX[®], Cboe Volatility Index[®], CFE[®], EDGA[®], EDGX[®], ErisX[®], EuroCCP[®], Hybrid[®], LiveVol[®], MATCHNow[®], NANO[®], Options Institute[®], Silexx[®], VIX[®], and XSP[®] are registered trademarks, and Cboe Futures ExchangeSM, Cboe BIDS EuropeSM, Cboe ClearSM, Cboe DigitalSM, C2SM, f(t)optionsSM, HanweckSM, NANOsSM, Nanos by CboeSM and Trade AlertSM are service marks of Cboe Global Markets, Inc. and its subsidiaries. Standard & Poor's[®], S&P[®], S&P 100[®], S&P 500[®] and SPX[®] are registered trademarks of Standard & Poor's Financial Services LLC and have been licensed for use by Cboe Exchange, Inc. Dow Jones[®], Dow Jones Industrial Average[®], DJIA[®] and Dow Jones Indices are registered trademarks or service marks of Dow Jones Trademark Holdings, LLC, used under license. Russell[®] and the Russell index names are registered trademarks of Frank Russell Company, used under license. FTSE[®] and the FTSE indices are trademarks and service marks of FTSE International Limited, used under license. All other trademarks and service marks are the property of their respective owners.

MSCI and the MSCI index names are service marks of MSCI Inc. ("MSCI") or its affiliates and have been licensed for use by us. Any derivative indices and any financial products based on the derivative indices ("MSCI-Based Products") are not sponsored, guaranteed or endorsed by MSCI, its affiliates or any other party involved in, or related to, making or compiling such MSCI index. Neither MSCI, its affiliates nor any other party involved in, or related to, making or compiling any MSCI index makes any representations regarding the advisability of investing in such MSCI-Based Products; makes any warranty, express or implied; or bears any liability as to the results to be obtained by any person or any entity from the use of any such MSCI index or any data included therein. No purchaser, seller or holder of any MSCI-Based Product, or any other person or entity, should use or refer to any MSCI trade name, trademark or service mark to sponsor, endorse, market or promote any security without first contacting MSCI to determine whether MSCI's permission is required.

This Annual Report on Form 10-K includes market share and industry data that we obtained from industry publications and surveys, reports of governmental agencies and internal company surveys. Industry publications and surveys generally state that the information they contain has been obtained from sources believed to be reliable, but we cannot assure you that this information is accurate or complete. We have not independently verified any of the data from third-party sources nor have we ascertained the underlying economic assumptions relied upon therein. Statements as to our market position are based on the most currently available market data. While we are not aware of any misstatements regarding industry data presented herein, our estimates involve risks and uncertainties and are subject to change based on various factors. Please refer to the "Risk Factors" in Part I, Item 1A of this Annual Report on Form 10-K and our other filings with the SEC.

FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 that involve a number of risks and uncertainties. You can identify these statements by forward-looking words such as "may," "might," "should," "expect," "plan," "anticipate," "believe," "estimate," "predict," "potential" or "continue," and the negative of these terms and other comparable terminology. All statements that reflect our expectations, assumptions or projections about the future other than statements of historical fact are forward-looking statements, including statements in "Business" and "Management's Discussion and Analysis of Financial Condition and Results of Operations." These forward-looking statements, which are subject to known and unknown risks, uncertainties and assumptions about us, may include projections of our future financial performance based on our growth strategies and anticipated trends in our business. These statements are only predictions based on our current expectations and projections about future events. There are important factors that could cause our actual results, level of activity, performance or achievements to differ materially from those expressed or implied by the forward-looking statements. In particular, you should consider the risks and uncertainties described under "Risk Factors" in this Annual Report and other filings with the SEC.

While we believe we have identified material risks, these risks and uncertainties are not exhaustive. Moreover, we operate in a very competitive and rapidly changing environment. New risks and uncertainties emerge from time to time, and it is not possible to predict all risks and uncertainties, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements.

Some factors that could cause actual results to differ include:

- the loss of our right to exclusively list and trade certain index options and futures products;
- economic, political and market conditions;
- compliance with legal and regulatory obligations;
- price competition and consolidation in our industry;
- decreases in trading or clearing volumes, market data fees or a shift in the mix of products traded on our exchanges;
- legislative or regulatory changes or changes in tax regimes;
- our ability to protect our systems and communication networks from security vulnerabilities and breaches;
- our ability to attract and retain skilled management and other personnel, including compensation inflation;
- increasing competition by foreign and domestic entities;
- our dependence on and exposure to risk from third parties;
- global expansion of operations;
- factors that impact the quality and integrity of our indices;
- our ability to manage our growth and strategic acquisitions or alliances effectively;
- our ability to operate our business without violating the intellectual property rights of others and the costs associated with protecting our intellectual property rights;
- our ability to minimize the risks, including our credit and default risks, associated with operating a European clearinghouse;
- our ability to accommodate trading and clearing volume and transaction traffic, including significant increases, without failure or degradation of performance of our systems;
- misconduct by those who use our markets or our products or for whom we clear transactions;
- challenges to our use of open source software code;
- our ability to meet our compliance obligations, including managing potential conflicts between our regulatory responsibilities and our for-profit status;
- our ability to maintain BIDS Trading as an independently managed and operated trading venue, separate from and not integrated with our registered national securities exchanges;
- damage to our reputation;
- the ability of our compliance and risk management methods to effectively monitor and manage our risks;
- restrictions imposed by our debt obligations and our ability to make payments on or refinance our debt obligations;
- our ability to maintain an investment grade credit rating;
- impairment of our goodwill, long-lived assets, investments or intangible assets;
- the impacts of pandemics;
- the accuracy of our estimates and expectations;

- litigation risks and other liabilities; and
- operating a digital asset business, and clearinghouse, including the expected benefits of our Cboe Digital acquisition, cybercrime, changes in digital asset regulation, losses due to digital asset custody, and fluctuations in digital asset prices.

For a detailed discussion of these and other factors that might affect our performance, see Part I, Item 1A of this Report. We do not undertake, and expressly disclaim, any duty to update any forward-looking statement whether as a result of new information, future events or otherwise, except as required by law. We caution you not to place undue reliance on the forward-looking statements, which speak only as of the date of this filing.

PART I

Item 1. Business

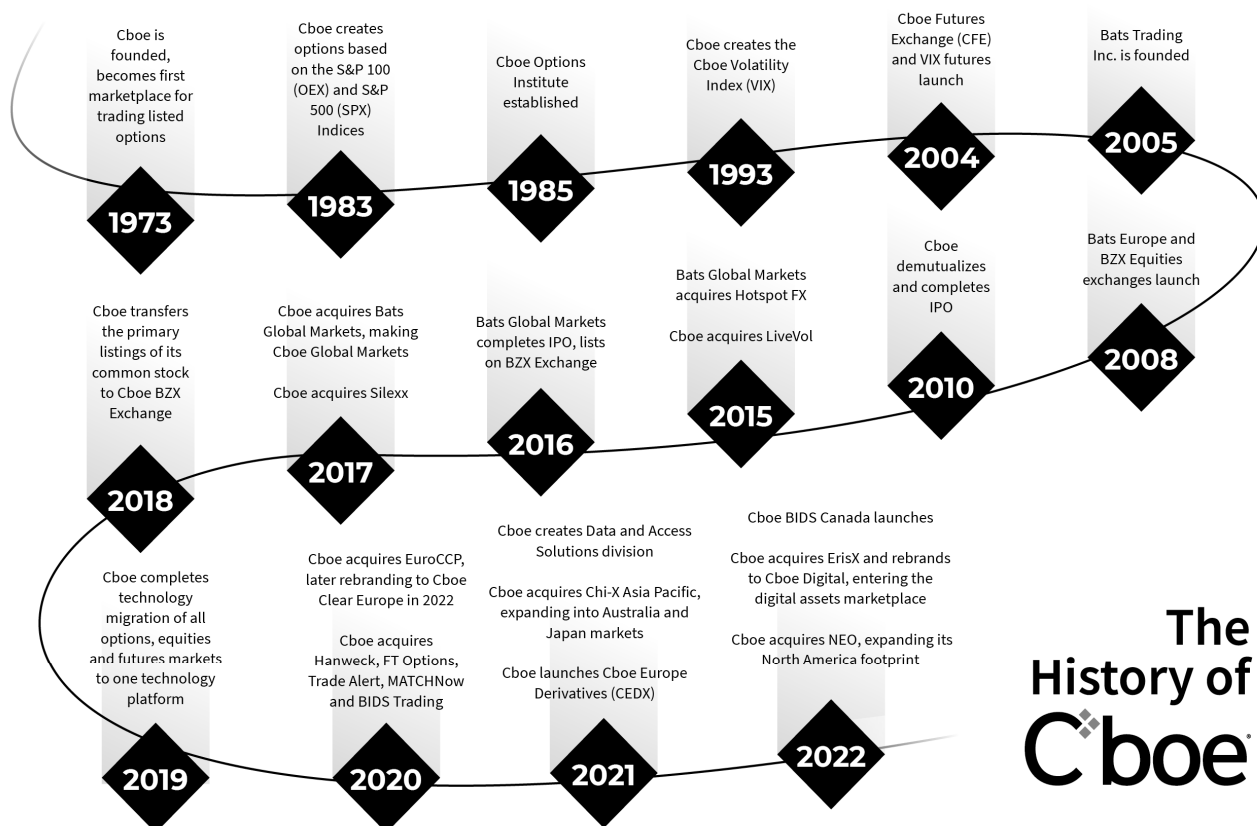
The following description of the business should be read in conjunction with the information included elsewhere in this Annual Report on Form 10-K for the year ended December 31, 2022. This description contains forward-looking statements that involve risks and uncertainties. Actual results could differ significantly from the results discussed in the forward-looking statements due to the factors set forth in “Risk Factors” and elsewhere in this Annual Report on Form 10-K.

Overview

Cboe Global Markets, Inc., a leading provider of market infrastructure and tradable products, delivers cutting-edge trading, clearing and investment solutions to market participants around the world. The Company is committed to operating a trusted, inclusive global marketplace, and to providing leading products, technology and data solutions that enable participants to define a sustainable financial future. Cboe provides trading solutions and products in multiple asset classes, including equities, derivatives, FX, and digital assets, across North America, Europe, and Asia Pacific.

Cboe’s subsidiaries include the largest options exchange and the third largest stock exchange operator in the U.S. In addition, the Company operates one of the largest stock exchanges by value traded in Europe, and owns Cboe Clear Europe (rebranded from EuroCCP in November of 2022), a leading pan-European equities and derivatives clearinghouse, BIDS Trading, a leading block-trading ATS by volume in the U.S., MATCHNow (operating as TriAct Canada Marketplace LP), a leading equities ATS in Canada, Cboe Australia, an operator of trading venues in Australia, and Cboe Japan, an operator of trading venues in Japan. Cboe also is a leading market globally for exchange-traded products (“ETPs”) listings and trading. On May 2, 2022, Cboe completed its acquisition of ErisX, subsequently rebranded to Cboe Digital, an operator of a U.S. based digital asset spot market, a regulated futures exchange, and a regulated clearinghouse. On June 1, 2022, Cboe completed its acquisition of NEO Exchange Inc. (“NEO”), which is a recognized Canadian securities exchange.

The graphic below provides a brief overview of Cboe’s history:



The
History of
Cboe

Our Business

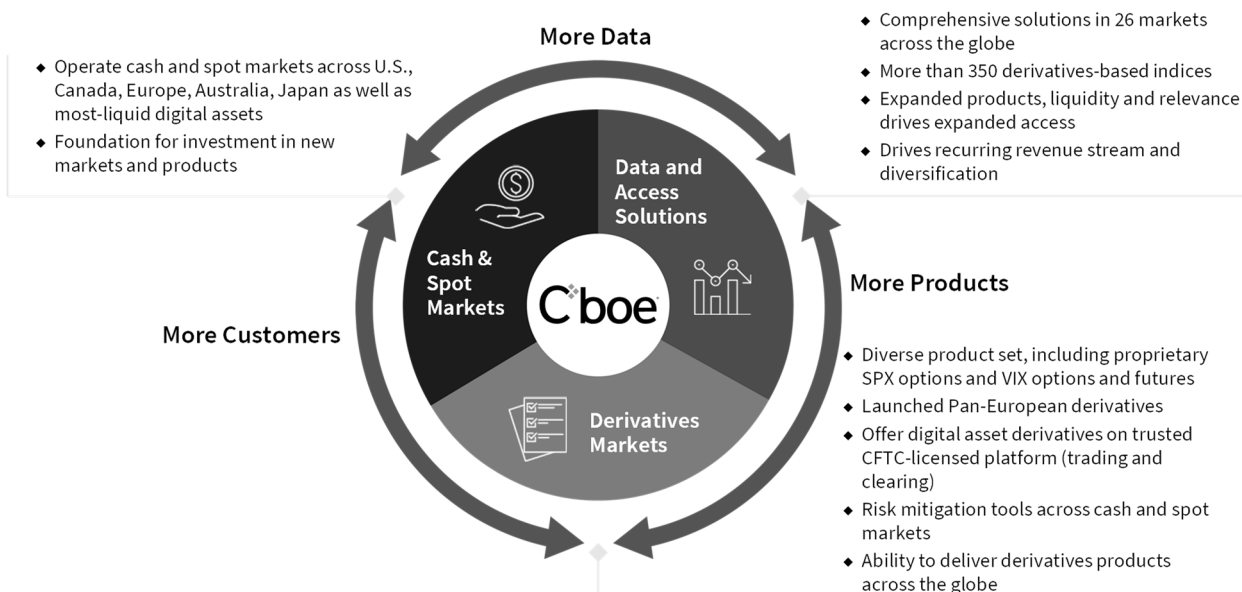
Cboe reports on the following six business segments:

- **Options.** The Options segment includes options on market indices (“index options”), as well as on the stocks of individual corporations (“equity options”), and options on ETPs, such as exchange-traded funds (“ETFs”) and exchange-traded notes (“ETNs”), which are “multi-listed” options and listed on a non-exclusive basis. These options are eligible to trade, as applicable, on Cboe Options, C2, BZX, EDGX, and/or other U.S. national security exchanges. Cboe Options is the Company’s primary options market and offers trading in listed options through a single system that integrates electronic trading and traditional open outcry trading on the Cboe Options trading floor in Chicago. C2 Options, BZX Options, and EDGX Options are all-electronic options exchanges, and typically operate with different market models and fee structures than Cboe Options. The Options segment also includes applicable market data revenue generated from the consolidated tape plans, the licensing of proprietary options market data, index licensing, and access and capacity services.
- **North American Equities.** The North American Equities segment includes U.S. equities transaction services that occur on fully electronic exchanges owned and operated by BZX, BYX, EDGX, and EDGA, equities transactions that occur on the BIDS Trading platform, and Canadian equities and other transaction services that occur on or through the MATCHNow ATS and, as of the June 1, 2022, NEO. The North American Equities segment also includes ETP and corporate listings on NEO, ETP listings on BZX, the Cboe Global Markets, Inc. common stock listing, and applicable market data and related revenue generated from the consolidated tape plans, the licensing of proprietary equities market data, routing services, and access and capacity services.
- **Europe and Asia Pacific.** The Europe and Asia Pacific segment includes the pan-European listed equities and derivatives transaction services, ETPs, exchange-traded commodities, and international depository receipts that are hosted on MTFs operated by Cboe Europe Equities (Cboe Europe and Cboe NL equities exchanges) and Cboe Europe Derivatives (“CEDX”). It also includes the ETP listings business on RMs and clearing activities of Cboe Clear Europe, as well as the equities transaction services of Cboe Australia and Cboe Japan, operators of trading venues in Australia and Japan, respectively. This segment was previously referred to as the European Equities segment but was updated to the Europe segment in the first quarter of 2021 as a result of the launch of Cboe Europe Derivatives, a pan-European derivatives platform in September 2021. The segment was subsequently updated to Europe and Asia Pacific to reflect the acquisition of Cboe Asia Pacific in July 2021. Cboe Europe operates lit and dark books, a periodic auctions book, and Cboe BIDS Europe, a Large-in-Scale (“LIS”) trading negotiation facility for UK symbols. Cboe NL, launched in October 2019 and based in Amsterdam, operates similar business functionality to that offered by Cboe Europe, and provides for trading only in European Economic Area (“EEA”) symbols. The new Cboe Europe Derivatives venue offers futures and options based on Cboe Europe equity indices. This segment also includes Cboe Europe, Cboe NL, CEDX, Cboe Australia and Cboe Japan revenue generated from the licensing of proprietary market data and from access and capacity services.
- **Futures.** The Futures segment includes transaction services provided by CFE, a fully electronic futures exchange, which includes offerings for trading of VIX futures and other futures products, the licensing of proprietary market data, as well as access and capacity services.
- **Global FX.** The Global FX segment includes institutional FX trading services that occur on the Cboe FX fully electronic trading platform, non-deliverable forward FX transactions (“NDFs”) offered for execution on Cboe SEF and Cboe Swiss, as well as revenue generated from the licensing of proprietary market data and from access and capacity services.
- **Digital.** The Digital segment includes Cboe Digital, an operator of a U.S. based digital asset spot market and a regulated futures exchange, and Cboe Clear Digital, a regulated clearinghouse, as well as revenue generated from the licensing of proprietary market data and from access and capacity services.

See “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and Note 16 (“Segment Reporting”) in the notes to our consolidated financial statements for discussion of revenues and certain operational and financial metrics, and operating income (or loss) by business segment. Certain activities within our segments operate globally. For information regarding risks related to our international operations see “Risk Factors.”

Competitive Strengths

Cboe is a leading provider of market infrastructure and tradable products across cash and spot markets, derivatives markets, and data and access solutions. Cboe delivers cutting-edge trading, clearing and investment solutions across the globe through a comprehensive ecosystem that helps drive innovation and growth.



Key Growth Strategy Initiatives

Our strategy is to build one of the world's largest global derivatives and securities networks to create value and drive growth by:

- **Innovating to capture growing demand for trading products and data services, globally.** We plan to increase access to data products and trading solutions, provide unrivaled transaction capabilities, have a global presence in the highest value markets, and develop indices and products to meet growing environmental, social, and governance (“ESG”) needs. In 2022, we delivered on this initiative by launching Nanos by Cboe, which are smaller and simpler options designed for retail traders, adding Tuesday and Thursday expirations for SPX Weeklys Options, launching FLEX Micro Options, launching Mini S&P 500 Index (XSP) Options during global trading hours, adding Pan-European market data to Cboe Global Cloud, launching a new, real-time Canadian equities market data offering, and adding volatility-related indices to Cboe’s implied correlation index suite.
- **Integrating across ecosystems to increase efficiency and better serve customers.** We aim to seamlessly integrate across ecosystems to increase efficiency and better serve our customers. We leverage industry-leading technology, apply a non-siloed integration approach to expand ecosystems and fuel our flywheel and generate strong free cash flow as we improve operating efficiency. In 2022, we delivered on this initiative by completing the migration of MATCHNow to the Cboe technology platform and launching a new Canadian offering for buy-side direct electronic access trading, beginning the operational integrations of NEO and Cboe Digital into the Cboe corporate organization, and initiating the migrations of Cboe Australia and Cboe Japan to the Cboe technology platform.
- **Growing by accessing untapped addressable markets.** We are expanding and diversifying our revenue opportunity set through both organic investment and merger and acquisition activity. In 2022, we delivered on this initiative by completing our acquisition of NEO, thereby further expanding into Canada, as well as completing our acquisition of Cboe Digital and entering the digital asset space. We have further developed the Cboe Digital platform by syndicating minority equity interests with a group of thirteen firms reflecting a broad array of market participants to help support the growth of the platform. We also accessed untapped addressable markets by launching new equity index products on CEDX and joined the Pyth network to bring equities market data to the blockchain.

Proprietary Products

In addition to operating cash and spot markets and derivative markets, and providing data and access solutions, we are a leader in the volatility space with the proprietary products we offer for trading. These proprietary products are built through Cboe Labs, a dedicated team centered on the creation, development, and implementation of new ideas and our strategic relationships and license agreements with index providers, which are both described below in further detail. Our most frequently traded proprietary products include SPX options and VIX options and futures.

SPX Options

The S&P 500 Index is an index comprised of 500 large-cap U.S. listed companies. It is one of the most commonly followed indices and is considered a bellwether for the U.S. economy. The SPX options we offer on the S&P 500 Index are exclusive to Cboe and contribute substantially to our volumes and transaction fees. Because of the S&P 500 Index's status as a bellwether, SPX options are used in many different trading strategies by customers with different goals, including pension funds hedging their equity exposure by buying put options, asset managers seeking enhanced returns by selling covered call options and hedge funds using risk-managed strategies to capture so-called "risk premia" embedded in option prices. We also offer Mini- and Nano-SPX options, FLEX- and FLEX micro-SPX options, and SPX Weeklys options, which have settlements on Mondays, Tuesdays, Wednesdays, Thursdays, Fridays and on the last trading day of each month and 24x5 trading in SPX options. We believe these additional expirations provide customers with more precision when hedging overall portfolio risk.

Volatility Trading

Cboe pioneered the trading of exchange-traded volatility products with its introduction of VIX futures in 2004 and VIX options in 2006. The VIX Index (as defined below), although not directly tradable, is based on the mid-point of real-time quotes of SPX options and is designed to reflect investors' consensus view of future 30-day expected stock market volatility. The VIX methodology provides the basis for the creation of VIX options and futures. The final settlement value of VIX derivatives is determined on their expiration date through a Special Opening Quotation ("SOQ") of the VIX Index. The SOQ calculation uses opening trade prices of selected options; unless there is no opening price, in which case the opening price used in the SOQ calculation is the midpoint of the highest bid and lowest offer at the time of the opening. Since we started offering these products, we have seen trading from a number of different customer segments utilizing a number of different trading strategies, including hedging extreme stock market declines, also known as "tail risk" hedging, and risk-managed strategies that seek to capture the relative price changes of expected volatility at different times in the future. We also offer VIX Weeklys options and futures, mini VIX futures, and nearly 24x5 trading in VIX options and futures to provide investors with additional tools to trade volatility.

Proprietary Indices

We also calculate and disseminate proprietary indices that are licensed for use by third parties or are used as the basis for other proprietary products. These proprietary indices are built both through our in-house research and development staff of the Data and Access Solutions business and our strategic relationships and license agreements with index providers, which are both described below in further detail. Our proprietary indices include:

- volatility indices based on broad-based market indices, such as the S&P 500 and the Russell 2000,
- volatility indices based on ETFs, and
- options strategy benchmark indices, such as the Cboe BuyWrite, PutWrite and Collar indices based on the S&P 500 and Russell 2000, BuyWrite and PutWrite indices based on MSCI EAFE and MSCI Emerging Markets, and BuyWrite indices based on other broad-based market indices.

In addition to any transaction fee revenue generated on products created based on these indices, we have granted licenses for third parties to use and sublicense some of these proprietary indices to create third-party indices and products. Accordingly, we generate revenue from proprietary indices by distributing them for reference purposes, using them as the basis for proprietary products and licensing them for use for third-party indices and products.

Strategic Relationships

The Company has long-term business relationships with several providers of market indices. We license their indices, including on an exclusive basis, as the foundation for indices, index options and other products. The Company also acquires interests in and agrees to work jointly with key providers to develop new products and services that are expected to capitalize on our core competencies and diversify our sources of revenue. Of particular note are the following:

- **S&P Global.** We have the following licensing arrangements with S&P Global, Inc. subsidiaries:
 - **S&P.** We have the exclusive right to offer exchange-listed options contracts in the United States on the S&P 500 Index, the S&P 100 Index, the S&P 500 ESG Index, and the S&P Select Sector Indices as a result of a licensing arrangement with S&P Dow Jones Indices, LLC (“S&P”). Our license from S&P is through December 31, 2033, with an exclusive license to trade options on the S&P 500 Index through December 31, 2032. We use the market data from the trading of options on the S&P 500 Index and S&P 100 Index for the creation of Cboe volatility indices, such as the Cboe Volatility Index (“VIX Index”), and to create tradable products on those volatility indices.
 - **IHS Markit.** Under our licensing agreement with IHS Markit Ltd. (acquired by S&P Global in 2022), we have the worldwide exclusive license through August 23, 2023 to offer options and futures on indices designed to reflect values of U.S. corporate bonds. We currently offer futures on high yield and investment grade corporate bond indices.
 - **DJI Opco.** We have the exclusive right during standard U.S. trading hours to offer listed options contracts in the United States on the Dow Jones Industrial Average (“DJIA”) and Dow 10 Index, and non-exclusive rights to offer listed options on several other Dow Jones indices including the Dow Jones Utilities Average and Dow Jones Transportation Average. This licensing arrangement with DJI Opco, LLC (acquired by S&P in 2012) extends through December 31, 2033. We use market data from the trading of options on these indices to create Cboe volatility indices, variance indicators and BuyWrite indices, and to trade options and other products on these indices.
- **FTSE Russell.** Under our license agreement with the London Stock Exchange Group’s (“LSEG”) leading global index franchises, Frank Russell Company and FTSE International Limited (together “FTSE Russell”), we have the exclusive or first right in the United States to offer listed options on more than two dozen FTSE Russell indices, which represent a diverse group of domestic and global equities with international appeal. Our exclusive license from FTSE Russell is through April 1, 2030. We offer options on the Russell 2000, Russell 1000, Russell 1000 Value and Russell 1000 Growth indices and mini-options on the Russell 2000 Index.
- **MSCI.** We have an agreement with MSCI Inc. (“MSCI”) until December 31, 2031 in which we have the exclusive right to offer U.S.-listed options on ten of MSCI’s indices including the MSCI EAFE and MSCI Emerging Markets indices. We use market data from the trading of these options to calculate several versions of BuyWrite and PutWrite strategy indices.

Data and Access Solutions

The Data and Access Solutions business provides an offering of market data and information solutions products across multiple asset classes and geographic regions that are designed to suit our customers’ diverse needs. The Data and Access Solutions business consists of three product groups:

- **Market Data and Access Services.** Data products include real-time depth of book quotation information, auction and complex option information, top of book quotes and trades, last sale information, and consolidated equity feeds. In addition to market data, Access Services include all Access and Capacity products including connectivity, terminal and other equipment rights, maintenance services, trading floor space and permits for the opportunity to trade.
- **Cboe Global Indices.** Services include index creation, calculation, licensing, and data dissemination. In addition to index data dissemination, through Cboe’s Global Indices platform, we distribute real-time cryptocurrency prices and indicative net asset values. See above for additional information regarding our proprietary indices.

- **Risk and Market Analytics.** Services include analytics and historical data with three areas of focus:
 - **Data and Market Analytics.** Services include aggregated equity and derivative market statistics, theoretical values, trading indicators, portfolio and margin risk, scenarios, and historical data from Cboe's markets as well as third-party consolidated data.
 - **Front-End Platforms.** Cboe provides multiple trading solutions and services including Cboe Silexx, LiveVol Pro, FT Options and Trade Alert.
 - **Connectivity.** Services include FIX Order Routing, Trade Drop Copy Network, CAT reporting, and broker connectivity.

We provide data services to market participants globally through a number of distribution channels including direct, via our vendor partners and Cboe Global Cloud, which is our global cloud data distribution service.

U.S. Tape Plans

We also derive a portion of our revenue from market data fees from U.S. tape plans, including Unlisted Trading Privileges ("UTPs"), the Consolidated Tape Association ("CTA") and OPRA. Fees, net of plan costs, from UTP, CTA, and OPRA are allocated and distributed to plan participants like us according to their share of tape fees based on a formula, required by Regulation NMS, which may take into account both trading and quoting activity.

Our Market Models

We operate a variety of derivatives and cash and spot markets. Our markets use a combination of pricing and market models to differentiate them from each other and from our competitors.

For our U.S. derivatives options markets, Cboe Options is a hybrid market combining open outcry floor trading with electronic trading. For multi-listed products, we utilize public customer priority, market turner in certain products, participation rights and pro-rata allocation market models, combined with the "classic" pricing model. Under the classic pricing model, professional participants pay transaction fees, public customers generally do not pay transaction fees and market makers compensate brokers for sending order flow to the exchange (known as payment for order flow). For proprietary products, we use price-time or pro-rata allocation, sometimes with public customer priority, and market turner market models, combined with a pricing model where all market participants generally pay fees. Our other three options markets are fully electronic. BZX options utilizes a price-time market model, combined with a "maker-taker" pricing model. Under the maker-taker pricing model, market participants who make the market (a "maker") generally receive a rebate, while market participants who trade against those markets (a "taker") pay a transaction fee. EDGX options utilizes customer priority, participation rights and pro-rata allocation market models, combined with the classic pricing model. C2 options utilizes a pro-rata allocation market model, combined with the maker-taker pricing model.

For our U.S. derivatives futures market, which is fully electronic, CFE utilizes a price-time market model, combined with a pricing model where all market participants generally pay fees, subject to specified exceptions.

For our U.S. cash and spot markets, the U.S. equities exchanges, which are fully electronic, offer various market models. BZX equities utilizes a price-time market model, combined with the maker-taker pricing model. EDGX equities utilizes a price-time with retail priority market model, combined with the maker-taker pricing model. BYX equities utilizes a price-time with price improvement for retail customers market model, combined with the "taker-maker" pricing model. Under the taker-maker pricing model, market participants who make the market pay a transaction fee, while market participants who trade against those markets receive a rebate. EDGA equities utilizes a price-time market model, combined with a taker-maker pricing model. In addition to these market models, each of the U.S. equity exchanges provides numerous specific order types that are designed to enhance their respective market models.

For our cash and spot markets, BIDS Trading, the U.S. equities ATS market, which is fully electronic and is an independently managed and operated trading venue, separate from and not integrated with the Exchanges, utilizes a sponsored access model to provide anonymous executions in NMS stocks. BIDS Trading provides numerous order types, including both firm and conditional orders. All orders matched within BIDS Trading are executed at or better than the National Best Bid and Offer ("NBBO"). BIDS Trading charges fees based on disclosed, objective criteria: (i) means of access; (ii) the type of order; and (iii) the total volume of executions during the calendar month.

In Canada, for our cash and spot markets, MATCHNow, the Canadian equities ATS, which is fully electronic, utilizes a model that combines frequent call matches and continuous execution opportunities in a confidential trading book. The system uses real-time quotes for protected transparent Canadian markets, and orders may be firm or conditional. Firm orders matched within MATCHNow are executed at three levels of price improvement: (1) the mid-point between the Canadian best bid and offer (the “CBBO”); (2) one price increment better than the CBBO or; (3) at the bid or offer for orders that meet a specified large threshold. Trading fees are typically calculated as a function of trade volume and share price. Further, NEO, a recognized Canadian securities exchange, which is fully electronic, offers three order books: NEO-L, which provides resting orders with priority over high-frequency orders and combines a maker-taker pricing model with a NEO trader priority; NEO-N, which prioritizes larger resting orders over smaller orders, imposes a speed bump and displays volume aggregate by price, with a taker-maker pricing model; and NEO-D, which allows participants to submit marketable and resting orders with specified parameters and NEO trader priority with size-time priority, with a taker-maker pricing model.

In Europe, following the implementation of the Directive on Markets in Financial Instruments (Directive 2014/65/EU (“MiFID II”)), for the derivatives and cash and spot markets, rebates are generally available if they are tied to a market making scheme or specific service.

In Australia, for our derivatives and cash and spot markets, Cboe Australia, a regulated stock exchange, which is fully electronic, utilizes a model that charges a different ad valorem fee rate depending on whether a participant is making or taking liquidity. Fee waivers are also provided to participants registered as market makers, but payments for order flow are prohibited.

In Japan, for our cash and spot markets, Cboe Japan, offers two fully electronic displayed markets, Chi-Alpha, which utilizes a price-time market model, combined with the “maker-taker” pricing model and Chi-Select, which utilizes a price-time retail customers focused market model, combined with the “taker-maker” pricing model. Cboe Japan also offers two fully electronic non-displayed markets, Chi-Match, which matches VWAP orders during pre-market hours and Kai-X, which utilizes a price-time market model aiming for primary market mid-point trades.

For our FX spot markets, the Cboe FX platform utilizes a price-firmness-time priority market model, combined with a pricing model where users are charged either a flat or tiered commission rate based upon the notional amount traded on the platform. For our FX NDF markets, Cboe SEF and Cboe Swiss platforms utilize a price-firmness-time priority market model and charge a flat commission based upon the notional amount traded on the platform and the capacity in which a participant is trading. Cboe Digital, which is fully electronic, for our digital asset spot and futures markets, utilizes a price-time priority model.

Our markets also charge fees for the opportunity to trade or access our markets, including fees for trading-related functionality. To facilitate trading, we also charge fees for certain technology services, terminal and other equipment rights, maintenance services, trading floor space and telecommunications services.

Listing

Cboe operates five listing venues across the globe that are structured and designed, in the U.S. and Canada, for all types of equity instruments, such as ETPs, corporate securities, warrants and depositary receipts, while in the UK and EU they support ETPs only. In Australia, both ETPs and warrants are supported. Over the course of 2022, Cboe added approximately 800 listings across the globe and had approximately 1,800 listings for the year ended December 31, 2022.

Clearing

Our subsidiary Cboe Clear Europe, a European central counterparty (“CCP”), provides post-trade services, including clearing, to stock exchanges, multilateral trading facilities and for over-the-counter equities trades and derivatives trades. Cboe Clear Europe acts as a central counterparty that, for its clearing participants, becomes the buyer to every seller and the seller to every buyer. As a result, it guarantees the timely performance of the obligations of buyers and sellers and takes on the risk of the performance of the transactions that it clears. Additionally, as a critical Financial Market Infrastructure, Cboe Clear Europe is subject to strict business continuity requirements and regulatory oversight. In 2022, Cboe Clear Europe provided CCP protection for an average of €48 billion of cleared value on a daily basis. Through the process of netting, in 2022, Cboe Clear Europe eliminated 71%, or €34 billion of the average daily cleared value, leaving an average daily settlement value of €14 billion. In 2021, Cboe Clear Europe provided CCP protection for an average of €43 billion of cleared value on a daily basis. Through the process of netting, in 2021, Cboe Clear Europe eliminated 72%, or €31 billion of the average daily cleared value, leaving an average daily settlement value of €12 billion.

Cboe Clear Digital is a digital asset clearinghouse and central counterparty that provides clearing and settlement of digital asset trades for its affiliate, Cboe Digital Exchange. Cboe Clear Digital clears cryptocurrencies from 51 U.S. jurisdictions authorized by license or not subject to licensing. Since our acquisition of Cboe Digital, Cboe Clear Digital cleared \$4 billion in notional volume.

Customers

Our customers generally include financial institutions, trading platforms, institutional and individual investors, and professional traders. Our equities and options customers in the United States include trading permit holders and members of Cboe Options, C2, BZX, BYX, EDGX, and EDGA, which are SEC-registered broker-dealers, and the customers of those broker-dealers. Our Canadian equities customers include subscribers of MATCHNow and members of NEO, which are Canadian registered investment dealers, and certain clients of those dealers. Our Australian customers include trading participants of Cboe Australia, which are Australian registered investment dealers, and certain clients of those dealers. Our Japanese customers include participants of Chi-Alpha, Chi-Select, Chi-Match and Kai-X, which are Japanese registered broker-dealers, and certain clients of those dealers. Our ATS equities participants in the United States include subscribers of BIDS Trading, which are SEC-registered broker-dealers, and certain customers of those broker-dealers. Our futures customers include banks, futures commission merchants and their customers, hedge funds, asset managers, proprietary trading firms, and Commodity Trading Advisors. Similarly, our equities' customers in Europe are European Union ("EU") regulated brokerage and proprietary trading firms, as well as sponsored access clients of these brokerage firms and certain non-EU regulated and unregulated direct access participants. Cboe Clear Europe clears equities, equity like instruments from 18 European markets and from the United States. Cboe Clear Europe also clears equity derivative instruments as traded on Cboe NL. Cboe Clear Europe clearing participants include EEA regulated banks and brokerage trading firms. Our institutional global FX customers include banks, broker-dealers, hedge funds, asset managers, proprietary trading firms, Commodity Trading Advisors, and corporates. Our digital asset customers in the U.S. include SEC-registered broker-dealers, the customers of those broker-dealers, financial institutions, trading platforms, institutional and individual investors, futures commission merchants, introducing brokers, and professional traders. Access to our markets and trading rights and privileges depend upon the nature of the customer, such as whether the individual or firm is (or is eligible to become) a trading permit holder, trading privilege holder, member, participant, or subscriber of one of our markets.

Competition

The industry in which we operate is intensely competitive. We believe we face competition on a number of factors, including:

- price, quality and speed of our trade and clearing execution;
- functionality and ease of use of our trading and clearing platforms;
- reliability, integrity, range and functionality of our products and services;
- integrity of our marketplaces;
- technological innovation and adaption;
- our brand awareness; and
- our reputation.

We believe that we compete favorably with respect to these factors through a variety of methods, including:

- offering access to a broad array of products and services, including proprietary products and market data;
- offering fee schedules and pricing models that both attract order flow and provide incentives to liquidity providers;
- providing advanced technology that offers broad functionality, low latency, fast execution, ease of use, scalability, reliability and security;
- offering efficient, transparent and liquid marketplaces;
- offering deep and liquid markets with opportunities for price improvement;
- offering broad trading platform access in the EU;
- maintaining close relationships with customers; and
- providing customers with a comprehensive source of information on options and ETPs as well as extensive options education.

In our proprietary products, we compete against other futures exchanges and swap execution facilities that offer similar products, as well as against financial market participants that offer similar over-the-counter derivatives. We also compete against certain multi-listed options products, such as options on SPY, which may offer similar market exposure of our proprietary products, such as SPX options.

The multi-listed options industry is extremely competitive. We expect this trend to continue. As of December 31, 2022, we compete with 16 U.S. options exchanges, in large part due to existing exchange holding companies opening new exchanges that offer different markets and pricing models on existing technology. Most of the equity and ETP options listed and traded on our exchanges are also listed and traded on the other exchanges. In addition, the options exchanges that we compete with set fees and rebates to attract multi-listed options business to their exchanges, which has historically reduced the net revenue per contract that we generate from multi-listed options, and the options exchanges that we compete with structure their options businesses in partnership with established market participants, such as consolidators, and other order flow providers, to increase their volume traded.

Our U.S. equities and the BIDS Trading ATS compete against 16 other exchanges as of December 31, 2022, and several other ATSs and single dealer platforms. Market participants have multiple venues for the execution of orders, including national securities exchanges and numerous off-exchange venues, including other ATSs and broker-dealers that internalize orders off-exchange. Additionally, corporate and ETP issuers have multiple venues they can choose from in the listing of their products. In Canada, our equities ATS, MATCHNow, and our recognized Canadian securities exchange, NEO, compete with several Canadian exchanges and other ATSs. In Australia, our exchange, Cboe Australia, competes with other Australian exchanges and ATSs. In Japan, our equities exchanges and ATSs, compete with several Japanese exchanges and other ATSs.

The market for execution and clearing services in Europe became more competitive following the introduction of MiFID II and the Regulation on Markets in Financial Instruments (Regulation (EU) No 600/2014) (“MiFIR”). Furthermore, MiFID II and MiFIR placed more onerous conditions on trading venues and investment firms and restricted certain types of trading activity. Our major competitors in Europe include national stock exchanges, other pan-European MTFs, European clearinghouses, dark pools, and systematic internalizers.

The global FX market remains severely fragmented, with transparent automated marketplaces such as Cboe FX challenging a small number of similarly situated competitors. While the global FX market has experienced a shift from competing interbank platforms to ECNs, the electrification of the spot and NDF FX market may encounter resistance from customers that still prefer to utilize the phone, instant chats, terminals and key banking relationships for price discovery and trading. Furthermore, electrification of the FX market appears to be experiencing more resistance outside the United States. The electronic spot FX market is also intensely competitive, with over 10 other venues competing for market share as of December 31, 2022. Cboe measures and reports on market share against a narrower set of competitors, included in those venues.

Our digital asset spot market, regulated futures exchange, and regulated clearinghouse, compete against other spot trading platforms, futures exchanges, and decentralized trading platforms that offer similar instruments.

In addition, our data and access solutions face competition from other securities exchanges, technology companies, third-party market data providers, and information and software vendors, which have their own substantial market data distribution capabilities that serve as alternative means for receiving open market data feeds instead of connecting directly to our exchanges or trading venues. The sale of our proprietary data products is also under competitive threat from ATSs and trading venues that offer similar products. Distributors and consumers of our market data may also use our market data as an input into a product that competes against one of our traded or cleared products.

Technology

Cboe Trading Technology

The trading platform for our equities, options, and futures markets is developed, owned, and operated in-house and is designed to optimize reliability, speed, scalability, and versatility. Our exchanges provide different market models, appealing to different user bases, and the trading technologies support all of them. Further, the technologies are designed to support many specialized features for each of the markets, such as: dark pools, trade reporting facility, systematic internalizer, Large-in-Scale, smart order routing, FLEX options, 24x5 trading, and hybrid trading (combining electronic and open outcry). In addition, Cboe and its applicable subsidiaries operate separate trading and/or clearing platforms, as applicable, for BIDS Trading, MATCHNow, NEO, Cboe Digital, Cboe Clear Europe, Global FX, Cboe Australia, and Cboe Japan.

Our trading platforms have generally experienced very low operational downtime and low latency. The trading platforms use readily available hardware, thereby minimizing capital outlays required for each new market entry. Also, in order to continue to implement new enhancements to our trading platforms, new releases of software are generally deployed routinely in all of the applicable markets.

Disaster Recovery

We operate and maintain geographically diverse disaster recovery facilities for all of our markets. We expect that the disaster recovery facilities can be up and running in a short period of time and in certain instances we work with our market participants to try to quickly reopen marketplaces. We regularly test our data center recovery plans and periodically carry out weekend tests using our back-up data centers, as well as an annual test with our U.S. trading participants. In Canada, as required by local regulations, NEO and MATCHNow conduct internal testing of their disaster recovery data processing capabilities at least annually, and they participate in the bi-annual testing coordinated by the self-regulatory organization formerly known as IIROC and now known as the New Self-Regulatory Organization of Canada (the "Canadian SRO"). Cboe Australia, NEO and Cboe Japan conduct internal testing of their disaster recovery data processing capabilities at least annually. In Europe, we also regularly test our data center recovery plans and periodically carry out weekend tests which use our back-up data center, as well as an annual test with our European trading participants. We continue to work to improve both the availability of our technology and our disaster recovery facilities.

Routing and Clearing

OCC is the sole provider of clearing on all of our U.S. options and futures exchanges. National Securities Clearing Corporation ("NSCC"), a subsidiary of the Depository Trust and Clearing Corporation ("DTC"), is the sole provider of clearing on our U.S. listed equity exchanges. The Canadian Depository for Securities ("CDS") is the sole provider of clearing on all equities transactions occurring on MATCHNow and NEO. With respect to Australian equities and derivatives, Cboe Australia delivers matched trades of its customers to ASX Clear Pty Ltd and ASX Settlement Pty Ltd. ASX Clear Pty Ltd acts as a central counterparty on all transactions occurring on Cboe Australia. The Japan Securities Clearing Corporation ("JSCC") is the sole provider of clearing on all equities transactions occurring on Cboe Japan's Chi-Alpha, Chi-Select, Chi-Match and Kai-X. BofA Securities, Inc. ("BOA") is the sole provider of clearing on all equities transactions occurring on BIDS Trading. Cboe Europe Equities and Derivatives relies on LCH Limited and LCH SA ("LCH"), Cboe Clear Europe, and SIX x-clear Ltd ("SIX x-clear") to clear trades in European listed equity securities and derivatives as part of an interoperable clearing model. Cboe Digital Exchange relies on Cboe Clear Digital to clear digital asset trades.

Cboe Trading is a routing broker-dealer used by our four U.S. equities exchanges and our four U.S. options exchanges, including the electronic platform portion of Cboe Options. Cboe Trading's clearing firms are Wedbush Securities, Inc. ("Wedbush") and Morgan Stanley & Co. LLC ("Morgan Stanley").

Digital Assets and Recent Developments

Cboe Digital is an operator of a U.S. based digital asset spot market, a regulated futures exchange, and a regulated clearinghouse. As described in further detail below, Cboe Digital does not engage in proprietary trading activities and does not maintain a trading entity. Cboe Digital does not itself trade digital assets, does not trade on its own exchange, and does not maintain an affiliate trading entity for purposes of trading, market making, or liquidity provision on its exchange. Cboe Clear Digital maintains its own operating funds in separate bank accounts at separate banking institutions from where it maintains customer accounts. In addition, customer accounts and institutional accounts are maintained at separate banking institutions. Each bank account and digital wallet is appropriately titled in accordance with applicable regulatory requirements thus helping to ensure that customer assets are clearly denoted as such.

Cboe Digital takes several steps to isolate the digital assets held for customers from its own assets and to structure customer accounts in a way that reinforces customer ownership of digital assets. Primarily, Cboe Digital holds customer digital assets separate from its own assets in customer accounts, referred to as wallets, either through a third-party custodian, a licensed trust company, or in separate and distinct wallets managed by Cboe Digital. Customer digital assets are held in omnibus wallets titled for the benefit of customers of Cboe Digital. Digital assets of customers (but not those of Cboe Digital) are commingled in the omnibus wallets, and Cboe Digital maintains the records of the amount and type of digital asset owned by each of its customers in omnibus wallets. Cboe Digital does not commingle its own corporate assets with the customer digital assets in the omnibus wallets, other than corporate assets that are held in omnibus wallets to facilitate customer transactions relating to the digital assets contained in the omnibus wallet, including in order to pay customary transaction fees and expenses. Because Cboe Digital does not have a trading entity for proprietary or

liquidity trading purposes, Cboe Digital maintains its own digital assets only to facilitate customer trading. Cboe Digital does not currently pledge, rehypothecate, or invest customer digital assets, although its customer agreements and rulebook permit it to do so in the future. Additionally, Cboe Digital does not otherwise use customer digital assets for its own corporate or business purposes.

Further, Cboe Digital holds customers' digital assets custodially through self-custody and its accounts with custodians, such as banks or such other cryptocurrency custodial institutions selected by us to act as custodians. Cboe Digital's custody strategy is designed to maximize liquidity and efficient access to assets by making those assets readily available. Cboe Digital monitors its cash and the digital asset balances it maintains with custodians. Digital assets require control of one or more unique public and private keys relating to the local or online digital wallet in which the digital assets are held. The networks require one or more private keys relating to a digital wallet to authorize a spending transaction. If private keys are lost or destroyed, this could prevent the ability to transfer the corresponding digital asset. Security breaches, computer malware, and computer hacking attacks have been a prevalent concern in digital asset markets. Cboe Digital has committed to securely store digital assets it holds on behalf of users. As such, Cboe Digital may be liable to its users for losses arising from theft or loss of user private keys. Cboe Digital has no reason to believe it will incur any expense associated with such potential liability because (i) it has no known or historical experience of claims to use as a basis of measurement, (ii) it accounts for and continually verifies the amount of digital assets within its control, and (iii) it has established security around custodial private keys to minimize the risk of theft or loss.

Also, Cboe Digital is exposed to risk with respect to digital asset prices and valuations which are largely based on the supply and demand for those digital assets in financial markets. Cboe Digital's valuation governance framework includes numerous controls and other procedural safeguards that are intended to maximize the quality of fair value measurements. New products and valuation techniques are reviewed and approved by senior management. Cboe Digital's valuation process for digital assets are fair value estimates that are also validated by the finance control function independently. Independent price verification is performed by finance control through benchmarking fair value estimates with observable market prices or other independent sources. Reasonably designed controls and governance framework are in place and are intended to help ensure quality third-party pricing sources were used.

Cboe Clear Digital clears cryptocurrencies from 51 U.S. jurisdictions authorized by license or not subject to licensing. Cboe Clear Digital performs a guarantee function whereby Cboe Clear Digital helps to ensure that the obligations of the transactions it clears are fulfilled. Spot trading is either cleared on a fully funded basis or by providing non-material daily trading limits to certain well-qualified institutional clearing members. In order to help mitigate the impact of any potential default by such a clearing member, extension of any trading limits is accompanied by performing credit due diligence, requiring posting of collateral or other forms of financial guarantee and hard pre-trade limits. Cboe Digital does not allow access from unauthorized or impermissible jurisdictions, and has taken active steps to help prevent such access and to help prevent circumvention of our controls. To help ensure an orderly market, Cboe Digital maintains digital assets to support its clearing operations which may be subject to significant changes in value and therefore exposed to market risk with the fluctuation in market prices. Cboe Digital monitors this risk on a daily, weekly and monthly basis. The business model is such that Cboe Digital earns digital assets and at times may accumulate positions that are subject to market risk. Customer positions do have market risk based on daily activity and settlement prices.

While Cboe Digital and its vendors have experienced in the past cybersecurity threats and events of varying degrees, we are not aware of any of these threats or events having a material impact on Cboe Digital's business, financial condition or operating results to date. However, there can be no assurance that we or our vendors and custodians will not experience future threats or events that may be material. If any such threats or events materialize, we may be subject to contractual restrictions, liability and damages, loss of business, penalties, unfavorable publicity, and increased scrutiny by regulators, which may have an adverse effect on our business.

The pending bankruptcy of FTX and the bankruptcies of other digital asset platforms has brought increased scrutiny to the digital asset industry. While FTX's pending bankruptcy and the bankruptcies of other digital asset platforms has not had a direct material effect on Cboe's overall business or financial condition, Cboe's sole exposure to such bankruptcies was FTX and it was through Cboe's entitlement to an immaterial amount of Pyth tokens, which were held on the FTX exchange and were not received in exchange for Cboe participating on the Pyth network.

See "Risk Factors" for more information regarding Cboe Digital.

Regulatory Environment and Compliance

Various aspects of our business are subject to regulation by the SEC, CFTC, FINRA, the New York Department of Financial Services (“NYDFS”), various state regulators, the Canadian SRO, the Canadian Securities Administrators (and, in particular, the Ontario Securities Commission or “OSC”), the Australian Securities & Investments Commission (“ASIC”), JFSA, JSDA, ESMA, FCA, the Central Bank of the Netherlands (“DNB”), AFM, and other international regulatory authorities where our exchanges or Cboe Clear Europe may be authorized to act as foreign exchanges or provide clearing services, and market participants may be subject to regulation by the SEC, CFTC, FINRA, National Futures Association (“NFA”), FCA, Board of Governors of the Federal Reserve, U.S. Department of the Treasury and/or foreign regulators. The following is a discussion of the more significant areas of regulation of us by the SEC, the CFTC, and certain European regulators.

Recent Developments

Laws and regulations regarding our business are frequently modified or changed to address perceived problems, new products, or competition or at the request of market participants. The following is a brief discussion of recent regulatory developments that may significantly impact our business.

United States

Consolidated Data Plan Order

On May 6, 2020, the SEC issued an order (the “Consolidated Data Plan Order”) that would require U.S. equities exchanges and FINRA to develop and file a new consolidated data plan (the “Plan”) that would replace the three current U.S. equities tape data plans and require certain governance provisions, such as changes to the voting structure. Pursuant to the Consolidated Data Plan Order, we and the other U.S. equities exchanges and FINRA were required to file the proposed Plan for public comment before the SEC took any definitive action on such new plan. The proposed Plan was filed on August 11, 2020 and on August 6, 2021 the SEC approved such Plan. The Plan was subsequently challenged by exchanges and the courts granted a stay of the Plan. On July 5, 2022, the D.C. Circuit Court upheld parts of the Consolidated Data Plan Order, while vacating certain of its other requirements including the Plan’s requirements regarding the voting structure. As such, the current data plans will continue to govern. Our equities exchanges, BZX, BYX, EDGX, and EDGA, may require additional resources to comply with or challenge the Consolidated Data Plan Order and the Plan may have a material impact on our business, financial condition and operating results if, for example, there is a negative impact on the applicable market data revenues that we receive that are generated from such new plan. See “Risk Factors” for more information.

Market Data Infrastructure Rule

On December 9, 2020, the SEC issued a Market Data Infrastructure Final Rule (“MDIR”), which makes significant additions to the content available on the Securities Information Processors (“SIPs”) and replaces the exclusive processors with a competing consolidator model. The MDIR was subsequently challenged by several exchanges in court, but was upheld by the D.C. Circuit Court on May 24, 2022. In connection with the MDIR’s requirements, the exchanges filed fee amendments for the new market data content required under the MDIR, as well as non-fee amendments, which were subsequently disapproved by the SEC on September 21, 2022. Because the implementation of the MDIR is predicated on the approval of the fee and non-fee amendments, the MDIR has yet to take effect. Until such time, the SEC orders the exchanges to file new fee and non-fee amendments, the MDIR is at a standstill. However, should MDIR be implemented, the new rules could cause Cboe’s equities exchanges, BZX, BYX, EDGX, and EDGA, to require additional resources to comply with the new rules and they may have a material impact on our business, financial condition and operating results if, for example, there are lower SIP plan revenues or we must reduce the fees we charge for market data. See “Risk Factors” for more information.

Equity Market Structure

In December 2022, the SEC released four proposals that could impact equity market structure: (1) Disclosure of Order Execution Information (Rule 605); (2) Regulation NMS Amendments: Tick Size, Access Fees, and Transparency; (3) Regulation Best Execution; and (4) Proposed Rule to Enhance Order Competition. These proposals have been noticed for public comment. If adopted as-is, final implementation of these equity market structure proposals could occur in late 2024 and 2025 and could result in market technology changes and additional compliance costs to Cboe. Further, it is possible that additional proposals or changes to the existing equity market structure, which could have a negative

impact on our operations. In addition, bills are sometimes introduced in the U.S. Congress that could also potentially impact equity market structure and adversely impact our volumes and operations. See “Risk Factors” for more information.

Digital Asset Legislation

Members of U.S. Congress have introduced various bills related to the regulation of digital assets, however no legislation has been passed and the details of any potential legislation remain to be discussed and agreed. While some of these contemplated changes could reduce regulatory uncertainty, increase transparency, and promote investor protection, which could be beneficial for Cboe Digital’s volumes and liquidity, the implementation of certain changes could result in a reduction in overall volumes and liquidity or require additional resources to comply with any new rules included as part of the legislation, which could have a negative impact on our operations. See “Risk Factors” for more information.

Europe

Capital Markets Union

The European Council (“E.C.”) has highlighted one of its top priorities as being the establishment of a fully functioning, well-regulated Capital Markets Union (“CMU”). An Action Plan of concrete steps was set out in September 2015, and an update of the list of initiatives was published in September 2016. In November 2019, the E.C. set up a High Level Forum on CMU, resulting in a final report published in June 2020. On September 24, 2020, the E.C. published a new CMU Action Plan, and on November 25, 2021, published a set of legislative proposals in furtherance of the CMU, including proposals to amend the Markets in Financial Instruments Regulation (“MiFIR”) described in the EU Transparency Rules section below. This therefore remains an ongoing project for the E.C., which may result in additional regulation or legislation. In November 2021 the EU Commission published an update regarding progress against the CMU Action Plan alongside a number of new legislative proposals designed to contribute to the objectives of CMU. These included proposals to:

- Create a European Single Access Point (“ESAP”) which will be a common source of public, free information about EU companies and investment products, regardless of where in the EU they are located or originated.
- Amendments to the ELTIF framework to promote long-term investments through European Long-Term Investment Funds (“ELTIFs”).
- Making funding more diversified for companies by reviewing the Alternative Investment Fund Managers Directive (“AIFMD”).
- Enhancing market transparency by reviewing the Markets in Financial Instruments Regulation (“MiFIR”).

OTC Derivatives, Central Counterparties and Trade Repositories

Regulation (EU) No 648/2012 of the European Parliament and of the Council of July 4, 2012 on OTC derivatives, central counterparties and trade repositories (the “European Market Infrastructure Regulation” or “EMIR”) sets out rules relating to over-the-counter (“OTC”) derivatives markets, central counterparties and trade repositories. The rules introduce a reporting obligation for OTC derivatives markets, a clearing obligation for eligible OTC derivatives markets, measures to reduce counterparty credit and operational risk for bilateral OTC derivatives markets, CCPs, and trade repositories, and rules on the establishment of interoperability between CCPs. EMIR was enhanced and amended in June 2019. In December 2022, the EU Commission published a proposal to further amend EMIR with the primary goal of making EU clearing services more attractive to market participants. In addition, regulation governing the authorization and supervision of Central Securities Depositories (“CSDR”) was approved in September 2014, with the publication of most “Level 2” Regulatory Technical Standards in March 2017, with implementation in March 2019. The introduction of mandatory buy-ins for OTC business in 2022 was postponed for three years and in 2022, the EU Commission published proposals to further review CSDR, including the mandatory buy-in regime. Rules in relation to the calculation and collection of cash penalties have come in to force in February 2022. In November 2022, ESMA published a proposal to amend CSDR to simplify the cash penalties process for cleared transactions. The Central Counterparty Recovery and Resolution Regulation (“R&R Regulation”) was published in the Official Journal of the EU on January 22, 2021, which resulted in an increase in the amount of prefunded capital Cboe Clear Europe is required to maintain. This additional prefunded capital is required to be drawn before any recovery measures can be taken by the CCP. On July 12, 2021, and November 18,

2021, ESMA proposed a set of level 2 and level 3 guidance pursuant to the R&R Regulation, which are being finalized and are being adopted in stages. As European authorities finalize and adopt level 2 and 3 guidance, the final R&R Regulation may have a material adverse effect on our clearing business, financial condition and operating results.

EU Transparency Rules

On November 11, 2021, the European Council (“E.C.”) published its proposal for a review of EU market structure legislation, including proposed amendments to Markets in Financial Instruments Regulation (“MiFiR”) and Directive 2014/65/EU on markets in financial instruments (“MiFiD II”). The proposal includes, among other provisions, provision for a consolidated tape for the EU and changes to the transparency regime for equities. These proposals are expected to be implemented in late 2023 or early 2024.

In addition, the European Securities and Markets Authority (“ESMA”) also published its proposal for a review of EU transparency rules. The proposal includes, among other provisions, provision for increased pre-trade transparency for periodic auctions and post-trade flagging. These proposals may be implemented by the end of 2023, although they may also be incorporated into the wider MiFiR review.

As proposed, these proposals may have a material adverse effect on our business, financial condition and operating results. See “Risk Factors” for more information.

Compliance

U.S. Securities Industry

Federal securities laws have established a two-tiered system for the regulation of securities exchanges and market participants. The first tier consists of the SEC, which has primary responsibility for enforcing federal securities laws. The second tier consists of self-regulatory organizations (“SROs”), which are non-governmental entities that must register with and are regulated by the SEC. The Exchanges are SROs, each registered under Section 6 of the Exchange Act of 1934, as amended (“Exchange Act”) as a “national securities exchange,” and are subject to oversight by the SEC.

SROs are an essential component of the regulatory scheme of the Exchange Act for providing fair and orderly markets and protecting investors. To be registered as a national securities exchange, an exchange must successfully undergo an application and review process with the SEC prior to beginning operations. Among other things, the SEC must determine that the SRO has the ability to comply with the Exchange Act and to enforce compliance by its members and persons associated with its members with the provisions of the Exchange Act, the rules and regulations thereunder and the rules of the exchange.

In general, an exchange SRO is responsible for operating its trading platforms consistent with its rules, and regulating its members through the adoption and enforcement of rules governing the business conduct of its members. The rules of the exchange must also assure fair representation of its members in the selection of its directors and administration of its affairs and, among other things, provide that one or more directors be representative of issuers or investors and not be associated with a member of the exchange or with a broker or dealer. Additionally, the rules of the exchange must be adequate to ensure fair dealing and to protect investors and may not impose any burden on competition not necessary or appropriate in furtherance of the purposes of the Exchange Act.

As registered national securities exchanges, virtually all facets of our Exchange operations are subject to the SEC’s oversight, as prescribed by the Exchange Act. The Exchange Act and the rules thereunder impose on us many regulatory and operational responsibilities, including record keeping and the day-to-day responsibilities for market operations and broker-dealer oversight. Furthermore, as SROs, the Exchanges are potentially subject to regulatory or legal action by the SEC or other interested parties. The SEC also has broad enforcement powers to censure, fine, issue cease-and-desist orders, prohibit us from engaging in some of our businesses, suspend or revoke our designation as a registered securities exchange or remove or censure any of our officers or directors who violate applicable laws or regulations. For example, in 2013, Cboe Options and C2 and, in 2015, EDGX and EDGA, entered into consent orders with the SEC, under which they were censured, ordered to cease and desist from violating certain sections of the Exchange Act, paid fines and agreed to complete certain undertakings. We have certified to the completion of these undertakings and are no longer required to certify.

As part of its regulatory oversight, the SEC conducts periodic reviews and inspections of exchanges, and the Exchanges have been subject to such routine reviews and inspections. To the extent such reviews and inspections result

in regulatory or other changes, we may be required to modify the manner in which we conduct our business, which may adversely affect our business. We collect certain fees to cover Section 31 fees charged to the Exchanges by the SEC and certain fees derived from our regulatory function and fines in connection with our disciplinary proceedings. The Exchanges are responsible for the ultimate payment of Section 31 fees to the SEC. Additionally, under the rules of each of our exchanges, as required by the SEC, any revenue derived from the regulatory fees and fines cannot be used for non-regulatory purposes.

Section 19 of the Exchange Act also provides that we must submit to the SEC proposed changes to any of the Exchanges' rules, including revisions of their certificates of incorporation, bylaws, or other governing documents of the SROs or their parent companies. The SEC will typically publish the proposal for public comment, following which the SEC may approve or disapprove the proposal, as it deems appropriate. Certain categories of rule changes, like fee changes, can be effective on filing, but the SEC retains the ability to suspend or reject such filings within a prescribed period of time.

Canadian Securities Industry

MATCHNow and NEO are subject to comprehensive regulation and oversight by their primary provincial securities regulatory authority, the OSC. In addition, each of MATCHNow and NEO is a Marketplace Member of, and subject to a regulation services agreement with, the Canadian SRO. The regulations applicable to MATCHNow and NEO cover a wide array of areas, including, but not limited to, marketplace operations (which include corporate governance, fair access, systems compliance and integrity, and conflict management requirements), trading rules, electronic trading risk management, and financial viability.

Australian Securities Industry

Cboe Australia is subject to comprehensive regulation and oversight by ASIC. The regulations applicable to Cboe Australia cover a wide array of areas, including, but not limited to, marketplace operations (which include corporate governance, fair access, systems compliance and integrity, and conflict management requirements), trading rules, electronic trading risk management, and financial viability.

Japanese Securities Industry

Cboe Japan is subject to comprehensive regulation and oversight by the JFSA and the JSDA. The regulations applicable to Cboe Japan cover a wide array of areas, including, but not limited to, marketplace operations (which include corporate governance, fair access, systems compliance and integrity, and conflict management requirements), trading rules, electronic trading risk management, and financial viability.

Futures and Swaps Industry-CFE and Cboe SEF

The operations of each of CFE and Cboe SEF are subject to regulation by the CFTC under the Commodity Exchange Act ("CEA"). The CEA generally requires that futures trading in the United States be conducted on a designated contract market and, in some cases, requires swaps trading to be conducted on a swap execution facility ("SEF") or designated contract market ("DCM"). The CEA and CFTC regulations establish criteria for an exchange to be designated as a contract market on which futures and futures options contracts may be traded, and for a trading platform to be designated as a swap execution facility on which certain swaps may be traded. Designation as a contract market or swap execution facility for the trading of specified futures or swaps contracts is non-exclusive. This means that the CFTC may permit additional exchanges or trading platforms to be contract markets or swap execution facilities for trading the same or similar contracts.

CFE is a designated contract market, and Cboe SEF is a swap execution facility, each of which is subject to the oversight of the CFTC and to a variety of ongoing regulatory and reporting responsibilities under the CEA. As a designated contract market, CFE is required to comply with the applicable core principles and regulations under the CEA, as is Cboe SEF as a swap execution facility. Each of CFE and Cboe SEF has surveillance and regulatory operations and procedures to monitor and enforce compliance by trading privilege holders with CFE rules, and by participants with Cboe SEF rules, as applicable. If CFE or Cboe SEF fails to comply with applicable laws, rules or regulations, it may be subject to censure, fines, cease-and-desist orders, suspension of its business, removal of personnel or other sanctions, including revocation of CFE's designation as a contract market or Cboe SEF's designation as a swap execution facility.

Digital Assets

Cboe Digital Exchange is a designated contract market, and Cboe Clear Digital is a derivatives clearing organization, each of which is subject to the oversight of the CFTC and to a variety of ongoing regulatory and reporting responsibilities under the CEA. As a designated contract market, Cboe Digital Exchange is required to comply with the applicable core principles and regulations under the CEA, as is Cboe Clear Digital as a derivatives clearing organization. Each of Cboe Digital Exchange and Cboe Clear Digital has surveillance and regulatory operations and procedures to monitor and enforce compliance by trading privilege holders with Cboe Digital Exchange rules, and by participants with Cboe Clear Digital rules. If Cboe Digital Exchange or Cboe Clear Digital fails to comply with applicable laws, rules or regulations, it may be subject to censure, fines, cease-and-desist orders, suspension of its business, removal of personnel or other sanctions, including revocation of Cboe Digital Exchange's designation as a contract market or Cboe Clear Digital's designation as a derivatives clearing organization.

Cboe Clear Digital also maintains a license to operate as a money transmitter in the states where such licenses or equivalent are required to conduct business. In addition, Cboe Clear Digital has a BitLicense from the NYDFS. As a licensed money transmitter and an entity subject to the BitLicense regulatory regime, Cboe Clear Digital is subject to, among other things, the Bank Secrecy Act, restrictions and requirements with respect to the investment of customer funds and use and safeguarding of customer funds and crypto assets, and bonding, net worth, customer notice and disclosure, reporting and recordkeeping requirements applicable to the company and control persons, and inspection and examination by state regulatory agencies.

Europe

Cboe Europe is located in London and is subject to regulation in the UK and to certain European regulations. The current UK regulatory system was established by the Financial Services Act 2012 ("FSA12"), which amended the Financial Services and Markets Act 2000. The legislation replaced the previous financial services regulator, the Financial Services Authority, with three new bodies: The Financial Policy Committee ("FPC"), The Prudential Regulation Authority, and the FCA. Financial conduct of markets, including activity on, and the operation of, markets is regulated by the FCA, which is an independent non-governmental body, given statutory powers by the FSA12. The FCA has three statutory objectives: to secure an appropriate degree of protection for consumers; to protect and enhance the integrity of the UK financial system; and to promote effective competition in the interests of consumers in the markets for financial services. The FCA is accountable to His Majesty's Treasury Ministers and, through them, to Parliament.

Cboe Clear Europe and Cboe NL are located in Amsterdam and subject to Dutch law and regulation. The current Dutch regulatory system was established by the Act on Financial Supervision. Financial conduct of markets, including activity on, and the operation of, markets is regulated by the AFM. Financial conduct of CCPs, including clearing activity is regulated by the AFM and DNB. The AFM is an independent non-governmental body, given statutory powers by the Act on Financial Supervision. The AFM has three strategic objectives: to promote the fair and conscientious provision of financial services, to promote the fair and efficient operation of the capital markets and to contribute to the stability of the financial system. The AFM is accountable to the Minister of Finance. The DNB is the Dutch central bank, financial sector supervisor and resolution authority. The DNB is committed to a stable financial system: stable prices, solid financial institutions and properly functioning payment transfers.

Much of the UK and Dutch financial services regulation originates from the EU. Such regulation includes organizational requirements, capital resources requirements and the specific requirements for RMs and MTFs and are applicable to both Cboe Europe and Cboe NL. MiFID II and MiFIR set out requirements for RMs and MTFs with respect to the establishment of transparent and non-discretionary rules and procedures governing access and for fair and orderly trading and the efficient execution of orders, as well as to facilitate the efficient settlement of transactions conducted on RMs and MTFs and monitoring compliance with the rules. EMIR governs the CCPs operating in the EU and requires them to meet common risk management, governance and capital adequacy standards. The regulatory functions required of Cboe Europe Equities and Derivatives, including Cboe Clear Europe and Cboe NL, by MiFID II, MiFIR, EMIR and other relevant legislation and regulations are performed by in-house staff. Cboe Europe Equities and Derivatives utilizes the same state-of-the-art, real-time surveillance system is used on the U.S. to monitor trading and market activities on BZX, BYX, EDGA, and EDGX. Cboe Clear Europe utilizes proprietary risk management software to monitor settlement and funding flows.

Global FX

While the global institutional spot FX market remains largely unregulated, the enactment of the Dodd Frank Act and its related regulations in the United States and the ongoing implementation of MiFID II and MiFIR in Europe have impacted the regulatory landscape for currency derivative products. For example, certain standardized currency derivative products are required to trade on an organized trading venue such as a SEF or DCM in the United States or on an MTF or organized trading facility in Europe. Moreover, even in the largely unregulated spot FX market, this movement towards additional trading standards and norms is highlighted by the publication of the FX Global Code in 2017 by the Global Foreign Exchange Committee, reflecting principles of good conduct for the wholesale FX market, and whose publication may lead to additional oversight in the global FX market. Cboe FX issued a Statement of Commitment declaring its commitment to conduct its FX market activities in a manner consistent with the principles of the FX Global Code. Following the publication of the FX Global Code regulators are taking a new look at the spot FX market, and any decision to impose new regulations may affect our spot FX business line.

Broker-Dealers

Cboe Trading, BIDS Trading, and Cboe Fixed Income Markets, LLC (“Cboe Fixed Income”) are registered broker-dealers regulated by the SEC, FINRA, other SROs of which they are members and various state securities regulators. Cboe Trading currently operates as a routing broker-dealer for sending orders from the Exchanges to other venues for execution, including routing orders among the Exchanges. Cboe Trading is considered a facility of each of the Exchanges and is subject to the rules of the Exchanges. The Exchanges are responsible for enforcing Cboe Trading’s compliance with their rules, including to ensure Cboe Trading is not given preferential treatment. BIDS Trading currently operates an ATS, which is designed to bring counterparties together to anonymously trade large blocks of U.S. equities. BIDS Trading is not a member of any of the U.S. national securities exchanges and is not subject to exchange rules. Cboe Fixed Income, which became an effective broker-dealer registered with the SEC and a member of FINRA on July 6, 2022, operates an electronic trading system for U.S. government securities targeted at the institutional inter-dealer market for trading on-the-run U.S. Treasury bonds and notes in the secondary OTC markets. Cboe Fixed Income’s participants are SEC registered broker-dealers that are members of The Depository Trust and Clearing Corporation’s Fixed Income Clearing Corporation.

Cboe Trading, BIDS Trading, and Cboe Fixed Income are subject to SEC and SRO rules, as applicable, and, as registered broker-dealers, regulations concerning all aspects of their businesses, including trading practices, order handling, best execution, anti-money laundering, handling of material non-public information, safeguarding data, reporting, capital adequacy, record retention, market access and the conduct of their officers, employees and other associated persons. The SEC, SROs and state securities commissions may conduct proceedings which can result in injunctions or other sanctions, censures, fines, the issuance of cease and desist orders or the suspension or expulsion of a broker-dealer, its officers or employees. The SEC and FINRA impose certain minimum capital requirement rules that require notification when a broker-dealer’s net capital falls below certain predefined criteria, dictate the ratio of debt to equity in the regulatory capital composition of a broker-dealer, constrain the ability of a broker-dealer to expand its business under certain circumstances and impose certain requirements that may have the effect of prohibiting a broker-dealer from distributing or withdrawing capital.

In addition, the ATS operated by BIDS Trading is not a registered national securities exchange or a facility thereof, as such, Cboe intends to maintain the BIDS ATS as an independently managed and operated trading venue, separate from and not integrated with the Exchanges. The Chief Executive Officer of BIDS Trading is expected to lead BIDS Trading as an independent business within Cboe, reporting into an independent committee of the board of Cboe Global Markets. Further, Cboe Trading will not route orders to BIDS Trading on behalf of the Exchanges.

Cboe Global Markets

Certain aspects of Cboe Global Markets are also subject to SEC, FCA and AFM oversight, including certain ownership and voting restrictions on its stockholders. The focus of the SEC’s regulation of Cboe Global Markets is to assure fair representation of members in the selection of the directors of the Exchanges, public participation in the governance of the Exchanges and that the Exchanges can satisfy their regulatory responsibilities under the Exchange Act. Furthermore, the SEC requires that Cboe Global Markets give due regard to the preservation of the independence of the self-regulatory function of the Exchanges and to Cboe Global Markets’ obligations to investors and the general public. The SEC also requires that Cboe Global Markets not take any actions that would interfere with the effectuation of any decisions by the Board of Directors of any of the Exchanges relating to its regulatory functions or the structure of the market that it regulates or that would interfere with the ability of such Exchange to carry out its responsibilities under the

Exchange Act. To the extent that Cboe Global Markets' business activities involve or relate to the Exchanges, the officers and directors of Cboe Global Markets may be deemed to be officers and directors of the exchanges for purposes of and subject to oversight under the federal securities laws. Accordingly, the SEC may exercise direct supervision and disciplinary authority over certain Cboe Global Markets' activities and those activities may be subject to SEC approval and, in some cases, public notice and comment.

In addition, Cboe Global Markets indirectly holds all of the issued share capital and voting rights in Cboe Europe and its wholly-owned subsidiaries, Cboe Chi-X Europe and Cboe NL. As a result, we and any person who holds, or has voting power with respect to, 10% or more of the outstanding shares of Cboe Global Markets common stock may be subject to certain regulatory requirements under UK and Dutch law.

U.S. Regulatory Responsibilities

Our U.S.-based exchanges are responsible for assessing the compliance of their TPHs or members, including Cboe Trading, with the respective exchange's rules and the applicable rules of the SEC and/or CFTC. The main activities that the exchanges, as applicable, are required to monitor for the purpose of compliance with these rules include:

- surveillance designed to detect violations of exchange trading rules;
- surveillance designed to detect violations of SEC and/or CFTC rules;
- investigation of matters involving potential rule violations;
- the investigation of complaints about possible rule violations brought by customers, TPHs, members or other SROs; and
- the examination of TPHs or members for compliance with rules such as those related to net capital, books and records, market access and other matters related to the TPHs' or members' exchange business functions.

In order to ensure market integrity, we regulate and monitor our TPHs' and members' trading activities by using both our employees and third parties under regulatory services agreements ("RSAs"). See "Regulatory Agreements" below. Providing effective regulation is important for attracting and retaining the confidence and participation of market-makers, broker-dealers and institutional and retail investors.

We expend considerable time, financial resources and effort to ensure that the exchanges' rules and regulations conform to regulatory best practices within the securities and futures exchange industries and within the regulatory regime overseen by the SEC and CFTC, our primary U.S. regulators. In order to support our efforts and those of our market participants to comply with applicable law and our exchange rules, we developed a regulatory program to monitor market activity on our exchanges.

All of our Exchanges and CFE are participants in the Intermarket Surveillance Group ("ISG"). ISG is an international information-sharing cooperative governed by a written agreement that provides for a comprehensive surveillance sharing arrangement. In addition to the agreement for confidential information sharing, the ISG provides a framework for the coordination of regulatory efforts among exchanges trading securities, commodity futures and related products to address potential intermarket manipulations and trading abuses.

As part of the regulatory program, each of our Exchanges and CFE have rules pertaining to their respective disciplinary processes.

U.S. Regulatory Agreements

The Exchanges and CFE have entered into agreements under which third parties have agreed to perform regulatory functions on behalf of our markets (e.g., RSAs). As discussed below, in addition, in certain other instances for our Exchanges, a third party has been allocated the regulatory responsibility under Rule 17d-1 or Rule 17d-2 under the Exchange Act, while in others, we retain the regulatory responsibility for the activities.

Regulatory Services Agreement with FINRA

The Exchanges have entered into agreements with FINRA under which FINRA has agreed to provide regulatory services to the Exchanges. Under these agreements, FINRA performs certain regulatory functions on behalf of the Exchanges and, to avoid any potential conflicts of interest concerning the regulation and oversight of Cboe Trading, certain regulatory services specific to Cboe Trading. The Exchanges remain responsible for the regulation of their TPHs,

members and marketplaces, and retain the authority for bringing disciplinary actions against their TPHs and members, although FINRA performs certain disciplinary-related functions on behalf of the Exchanges. Over the course of 2019 through 2021, certain regulatory and disciplinary-related functions that FINRA had performed on behalf of the Exchanges have been moved back in-house from FINRA.

Regulatory Services Agreement with OCC

While CFE also performs most regulatory and disciplinary-related functions in-house, OCC has performed and continues to perform certain regulatory functions on behalf of CFE pursuant to an RSA with CFE. Whether performed under an RSA or in-house, CFE retains overall responsibility for the regulation of its marketplace and for bringing disciplinary actions. CFE is also a party to cooperative and regulatory information sharing agreements with other SROs and is a member of the ISG, described above.

Rule 17d-1 Designations and Rule 17d-2 Agreements

Section 17(d) of the Exchange Act and the related Exchange Act rules permit SROs to allocate certain regulatory responsibilities to avoid duplicative oversight and regulation. Under Exchange Act Rule 17d-1, the SEC designates one SRO to be the designated examining authority (“DEA”) for each broker-dealer that is a member of more than one SRO. The DEA is responsible for the regulatory oversight of applicable financial responsibility rules pertaining to that broker-dealer. Cboe Options is the DEA for several of its TPHs. Cboe Trading’s assigned DEA is FINRA.

Exchange Act Rule 17d-2 permits SROs to enter into agreements, commonly called Rule 17d-2 agreements, which are approved by the SEC and concern the allocation of regulatory responsibility for rules applicable to TPHs and members that those SROs have in common. The Exchanges have entered into certain bi-lateral Rule 17d-2 agreements under which FINRA is allocated responsibility for enforcing certain federal securities laws and certain exchange rules that are common with FINRA rules. The Exchanges have entered into certain other multi-party Rule 17d-2 agreements that allocate responsibility among the participating SROs, which may include the Exchanges, for oversight of their allocated common members compliance with certain rules governing, among other items, options related sales practices, options related market surveillance, insider trading, NMS and consolidated audit trail NMS plan (“CAT”) compliance.

National Market System Plans

We are member participants of several NMS plans including, but not limited to, the following: Cboe Options, C2, BZX, and EDGX are member exchanges in OPRA, which is the designated securities information processor for market information that is generated through the trading of exchange-listed securities options in the United States, and it disseminates certain core trading information, such as last sale reports and quotations. Cboe Options, BZX, BYX, EDGA, and EDGX also participate in the CTA/CQ and the UTP Plans, which perform analogous services for the U.S. equities market. Securities Information Automation Corporation (“SIAC”) acts as the “processor” for OPRA and the CTA/QC Plans. Nasdaq Stock Market, LLC acts as the processor for the Nasdaq Unlisted Trading Privileges Plan. Also, see “Regulatory Environment and Compliance – Recent Developments – United States – Consolidated Data Plan Order”, “Risk Factors” and “Legal Proceedings” for more information regarding the Consolidated Data Plan Order and the Plan.

Cboe Options, C2, BZX, and EDGX are also parties to the Options Order Protection and Locked/Crossed Market Plan, which is designed to prohibit trade-throughs and avoid locked/crossed markets. Cboe Options, C2, BZX, and EDGX are also parties to the Options Listing Procedures Plan, which sets forth the procedures that the options exchanges must follow to list new options. Cboe Options, BZX, BYX, EDGA, and EDGX are also parties to the NMS plan for the selection and reservation of securities symbols.

Under the Options Regulatory Surveillance Authority Plan (“ORSA Plan”), U.S. securities options exchanges are permitted to act jointly in the administration, operation and maintenance of a regulatory system for the surveillance, investigation and detection of the unlawful use of undisclosed, material information in trading in one or more of their markets. The ORSA Plan is intended to enhance the effectiveness and efficiency with which the exchanges regulate their respective markets and to avoid duplication of certain regulatory efforts. FINRA operates the ORSA Plan facility for options insider trading.

The CAT involves the creation of a consolidated audit trail that strives to enhance regulators’ ability to monitor trading activity in the U.S. securities markets through a phased implementation. Data is required to be reported to a central repository the following day by each SRO (a “Plan Participant”) and broker-dealer (an “Industry Member”). On November 15, 2016, the SEC approved the CAT. The first of various phases of CAT was originally required to begin in November

2017; however, there were some delays. In 2017, Thesys CAT LLC (“Thesys”), a subsidiary of Thesys Technologies, LLC, was selected as the plan processor with the responsibility to build and operate the CAT. The first phase of CAT (“Phase 1”) ultimately went live in November 2018, at which time we and other SROs/Plan Participants began initial reporting of order and trade file submissions to the CAT. In 2019, Thesys was replaced by a new plan processor, FINRA CAT, LLC, a subsidiary of FINRA. The second phase of CAT (“Phase 2”) for Industry Member began with order and trade file submissions in June 2020 (Phase 2a for NMS stocks and OTC equities) and July 2020 (Phase 2b for listed options), Additional sub-phases (Phases 2c and 2d) related to order and trade file submissions were implemented by December 2021. While the final Phase 2 implementation sub-phase (Phase 2e), related to Industry Member submissions to the customer and account information submissions system (“CAIS”) is live in production, its completion is delayed and further delay is anticipated.

On May 15, 2020, the SEC adopted amendments to the CAT to establish financial accountability provisions to achieve full CAT implementation, including a financial accountability milestone requiring full implementation of the CAT requirements by December 30, 2022. If the SEC were to determine any financial accountability milestone was not met, it may limit the SROs/Plan Participants’ recovery of certain costs. Due to the delayed completion of CAIS, the SROs/Plan Participants have submitted to the SEC requests to extend the timeline for the completion of Phase 2e and the deadline for the final financial accountability milestone and additional requests may be submitted. If the SEC does not grant extensions and finds that the SROs/Plan Participants did not satisfy the related last financial accountability milestone, it could result in the SROs/Plan Participants not being able to recover certain costs associated with this final sub-phase, which amount of unrecoverable costs may increase for additional delays.

While the funding of the CAT is ultimately expected to be provided by both the SROs/Plan Participants (which includes our U.S.-based securities exchanges) and Industry Members, until the CAT funding model is approved by the SEC and related fee filings associated with the funding model are effective, the funding to date has solely been provided by the SROs/Plan Participants. The funding by the SROs/Plan Participants has been done in exchange for promissory notes, a portion of which is expected to be repaid by the Consolidated Audit Trail, LLC to the SROs/Plan Participants once Industry Member fees are collected by the Consolidated Audit Trail, LLC pursuant to the CAT funding model. Until those fees are collected and remitted, the SROs/Plan Participants may continue to incur additional significant costs, or result in the uncollectibility of portions of promissory notes related to the funding of the implementation and operation of the CAT. See Note 8 (“Credit Losses”) and Note 9 (“Other Assets, Net”) for further information.

The SROs/Plan Participants formed the Consolidated Audit Trail, LLC to implement CAT requirements. On December 16, 2020, the SEC issued two exemptive orders regarding the CAT (“December 2020 Orders”). In February 2021, Consolidated Audit Trail, LLC: (1) filed with the SEC motions to stay all or portions of the December 2020 Orders, and (2) petitioned the U.S. Court of Appeals for the District of Columbia Circuit (“D.C. Circuit”) for judicial review of the December 2020 Orders asserting that the orders are unlawful. On March 3, 2021, the D.C. Circuit granted an unopposed motion to hold the litigation in abeyance. On May 10, 2022, the D.C. Circuit granted a motion to lift the abeyance. On July 8, 2022, the SEC issued an Order Granting Temporary Conditional Relief that superseded the December 2020 Orders (“Third Order”). On August 3, 2022, the parties filed a stipulation of voluntary dismissal of the litigation as being moot in light of the Third Order, which the D.C. Circuit granted on August 5, 2022. On September 6, 2022, Consolidated Audit Trail, LLC petitioned the D.C. Circuit for judicial review of the Third Order asserting the order was unlawful. On October 3, 2022, the D.C. Circuit granted a motion to hold the litigation in abeyance and ordered the parties to file motions to govern future proceedings by February 14, 2023. On February 14, 2023, the parties filed a joint motion for a two-week extension of the stay, which the D.C. Circuit granted on February 15, 2023. Motions to govern future proceedings are due on March 1, 2023.

Intellectual Property

We own or have rights to a number of intellectual property assets, including trademarks, service marks, domain names, trade names, copyrights, trade secrets and patents. While the majority of our intellectual property is protected under U.S. law, we have many intellectual property assets protected by laws in Europe, Asia and other parts of the world. We license some intellectual property assets to other entities. We attempt to protect our intellectual property rights, while respecting the legitimate intellectual property rights of others.

Human Capital Management

Cboe has a robust human capital management program in place focused on equal opportunities including diversity, equity and inclusion (“DEI”), performance and career development, health and well-being, comprehensive benefits, training, talent acquisition, and succession planning. Additional information on our approach to human capital and ESG

issues can be found in the Cboe Global Markets, Inc. Environmental, Social and Governance Report located in the Corporate Social Responsibility section of our website at <https://markets.cboe.com/about/corporate-social-responsibility>, which does not form a part of this Form 10-K.

Equal Opportunity, Diversity, and Pay Equity

Cboe believes in a culture of diversity and inclusion that promotes creativity, collaboration and innovation, which is critical to the success of our business and defining the markets of tomorrow. Cboe is an equal opportunity employer and provides equal employment opportunities to all qualified persons without regard to sex, race, color, ethnicity, creed, religion, national origin, ancestry, citizenship status, age, veteran or military status, disability, marital status, domestic partnership or civil union status, pregnancy, sexual orientation, genetic status, gender identity or expression, and any other characteristic protected by law (a "Protected Characteristic"). Cboe is committed to applying our Equal Employment Opportunity Policy to all employment practices that impact the terms and conditions of employment including, but not limited to, hiring, evaluation, discipline, promotion, training, compensation, transfer, and termination. Actively nurturing and maintaining a diverse and inclusive culture at Cboe is a core imperative. We believe that our collective and unique perspectives fuel our capabilities, enhance our team spirit and enable us to attract and retain top talent as we define the markets of the future. Our commitment and responsibility in this regard starts at the top, with leadership and support from the full Cboe Board of Directors and executive team.

One of the most compelling examples of our pledge to equality, diversity and inclusion throughout our Company is the completion of our first pay equity study in 2019. In 2020, we finalized the implementation of the findings of our inaugural study. To maintain and strengthen our efforts in this area, we also review the critical touchpoints across the employee journey with Cboe to keep a level playing field, from the talent selection, promotion, leadership development and succession planning processes and make adjustments, as necessary, to ensure opportunity parity across the Company. Our goal is to ensure that equal pay and equal opportunity for all that results in a collaborative, high performing organization bringing new innovations to market and providing superior service to our customers.

We also have associate resource groups, such as the Cboe Women's Initiative, the Diversity Leadership Council, the Veterans Initiative and PRISM+ (People Respecting Individuality and Sexuality in Markets).

- The Cboe Women's Initiative works toward its mission: *to increase representation, strengthen voices, and build a culture of opportunity and advancement for the women of Cboe*. The Women's Initiative is led by an associate board and engages women throughout the Company on a variety of programs. More specifically, the Women's Initiative is comprised of three committees that target areas where its membership strives to promote change, such as networking events, building a formal mentorship program and an advocacy group aimed at gathering input on topics of importance for its membership. This outreach helps shape the planning and focus for the Initiative. Networking events include the "Trailblazers" events where senior women share their success stories through personal accounts of career growth and impact and speakers on Male Allyship in the workplace. In 2022, the mentorship program paired over 60 mentors with mentees across the Company.
- The Diversity Leadership Council focuses on unlocking the potential of a variety of perspectives, capabilities and cultural experiences. We believe in a culture of diversity and inclusion that promotes creativity, collaboration and innovation, which is critical to the success of our business and defining the markets of tomorrow. To reinforce this belief, this council is a collective voice on how Cboe strives to create a diverse workforce that reflects the world in which we operate. Further, they are charged with oversight on how we build an inclusive culture where every employee feels welcome, safe and empowered. In 2021, we also created a new DEI leadership position within our human resources organization to be accountable for helping to establish the strategy and execution of our DEI approach to attract develop and retain top diverse talent while fostering a community of belonging and inclusion.
- The Cboe Veterans Initiative operates based on four main pillars: recruiting, mentorship, service, and networking. The vision for the Cboe Veterans Initiative is to actively seek Veteran talent, provide mentorship to veterans within and outside of the Company, commit to giving back to the Veteran community through financial and non-monetary support, and encourage outreach to Cboe Veterans.
- PRISM+ is focused on celebrating the LGBTQIA+ community through education and allyship. All Cboe associates are welcome to become involved as members or allies.

To reinforce our commitment to organization wide education and commitment to diversity and inclusion we also provide Unconscious Bias training for employees.

We also have a community engagement program, Cboe Empowers, that provides mentorship, scholarship and guidance to under-resourced students throughout their educational journey through access to Cboe's associates, resources, work environment and other learning and experience opportunities. Initially launched in Chicago, the vision for Cboe Empowers is to support students through all stages of education from elementary or primary school to career by providing mentorship, learning and experience opportunities, professional development and scholarships to students within the Chicago Public School system and graduates pursuing higher education. Cboe Empowers expects to supplement its own programs by collaborating with local partners, including the Greenwood Project and Working in the Schools, to help create maximum impact for its participants. In 2022, Cboe Empowers awarded five full-ride college scholarships to Black and Latinx high school students from the South and West sides of Chicago to attend the school of their choice.

Performance and Career Development

Cboe expects employees to perform their duties to the best of their ability and to develop their competencies for career growth. We recognize the need to provide ongoing, timely, and constructive performance feedback. Cboe has designed a Performance Management Program that drives the professional development of our employees while also providing fair and equitable rewards and recognition.

The principles of performance management include:

- align performance expectations with strategy and goals of the business,
- ongoing open dialogue regarding performance and development,
- foster accountability for behaviors and actions which contribute to a positive culture, and
- commitment to deliver results which drive our business.

Employee Health and Well-Being and Comprehensive Benefits Program

Cboe's vision is to support the overall wellness of employees and their families through education and activities that encourage a healthy lifestyle, resulting in improved health and productivity. Our programs and benefit plans provide a corporate atmosphere of collective well-being and incorporate strategies for physical, emotional, mental and financial wellness. Our programs include enhanced employee assistance programs, wellness programs and challenges (which address both mental and physical well-being), and webinars and classes through our retirement vendor to support the financial health of our employees.

With the global pandemic in 2020 and 2021, there was further focus on our Employee Assistance program, which was strengthened across the globe with a diverse set of mental health resources aimed at supporting our employees during a unique and challenging time.

Employee Engagement and Pulse Surveys, Town Halls and an Open-Door Policy

In 2022, Cboe conducted our fifth annual employee engagement survey and has implemented career, leadership, and culture focused programs in response to the survey findings. Our participation rate exceeds standard benchmarks and a significant majority of our employees would recommend Cboe as a great place to work. To further cement our commitment to Diversity and Inclusion, we added new, enhanced questions in this area. Our Diversity Leadership Council hosted a special focus group to review these specific results to listen to the voices of our diverse population, prioritize their feedback and ideas, and create commitments for actionable improvements.

Our senior management team continues to hold the commitment to an open-door policy and encourages the free flow of information and communication in furtherance of active transparency. With the global pandemic, our ability to tap into the voice of our employees was critically important. We conducted regular pulse surveys to gauge sentiment in making critical decisions. Our CEO also issues weekly letters to help connect with our employees. Human Resources also

provided ongoing regular resources and tips to help support the variety of challenges from the new reality of hybrid work to childcare and elder care that our employees faced throughout 2022.

Cboe also continues to create an open and frank atmosphere in which any grievance, complaint, suggestion or question receives a timely response. Cboe offers a whistleblower hotline for complaints, which can be made anonymously. Additionally, employees can raise questions and suggestions to the Cboe Human Resources team either in-person or via a group email address and are either responded to individually or addressed at our Global Town Hall meetings. The objective of these town halls is to provide employees an update on Company news, share updates from major business lines, as well as provide a forum to ask questions and offer feedback. Town halls can include updates on anything from legislation that may impact our business to ESG topics. Employees are encouraged to participate in free flow of information and communication and to offer positive and constructive feedback in furtherance of active transparency.

To further reinforce our commitment to employee engagement as a result of changing work styles due to COVID-19, we completed in early 2022 a future-of-work study with a third party that helped determine Cboe’s employees might be best suited to a hybrid work environment, a combination of in the office and remote work.

Training and Succession Planning

We believe that the development of all Cboe employees helps drive our collective success. Through skill and competency development we signal our investment in all while also enabling enhanced productivity. Through our tuition reimbursement program, our employees receive financial support in their pursuit of specialized university courses and degrees. In addition to our ongoing offering of online courses on diverse topics through our corporate university, CboeU, employees can participate in the CboeLearns hybrid program focused on virtual classroom instruction combined with work application and CboeLive, which is focused on business topics to foster organizational-wide knowledge sharing and education.

Leadership is another critical element of our success at Cboe. Global Senior leaders participated in a Clifton StrengthsFinder assessment and workshop to learn about their leadership style and how to empower Cboe associates based on their natural strengths. We also have provided and plan to provide other leadership training programs that help to expand on the development of our high potential leaders, further strengthening the leadership bench and accelerating readiness of this key talent pool.

Cboe has held several succession planning discussions with the Compensation Committee and Board of Directors to plan for the fulfillment of essential roles, such as the CEO and other senior officers. This process includes investments in advanced development planning for targeted successors to accelerate their readiness through key internal projects and assignments as well as tailored training. Diversity and inclusion are a formal part of Cboe’s succession planning process as we work to identify and advance internal diverse talent and, in parallel, continually scan external talent pools for successors.

Employees

As of December 31, 2022, we employed 1,543 individuals in the following locations:

<u>Location</u>	<u>Number of Employees</u>
United States	1,024
United Kingdom	164
Netherlands	108
Canada	79
Australia	63
Philippines	62
Japan	21
Hong Kong	14
Singapore	6
Switzerland	2

Of these employees, 558 were involved in technology or operations and 183 were involved in direct support of trading operations. The remaining 802 employees provide business development, financial, regulation, human resources, compliance, legal, planning and research, administrative, and managerial support.

We have five building engineers that are covered by a collective bargaining agreement, which expires on June 30, 2023, with the International Union of Operating Engineers Local 399, AFL-CIO. Management believes that we have strong relationships with our employees, and we have never experienced a work stoppage.

Information about our Executive Officers

Set forth below is information regarding our executive officers:

Name	Age	Position
Edward T. Tilly	59	Chairman of the Board, and Chief Executive Officer
David Howson	46	Executive Vice President, Global President
Christopher A. Isaacson	44	Executive Vice President and Chief Operating Officer
Brian N. Schell	57	Executive Vice President, Chief Financial Officer and Treasurer
Catherine R. Clay	55	Executive Vice President, Data and Access
John F. Deters	52	Executive Vice President, Chief Strategy Officer
Patrick Sexton	58	Executive Vice President, General Counsel and Corporate Secretary
Jill M. Griebenow	43	Senior Vice President, Chief Accounting Officer

Edward T. Tilly. Mr. Tilly is our Chairman and Chief Executive Officer. Mr. Tilly has served as our Chairman since February 2017 and as CEO and director since May 2013. He also served as our President from January 2019 to May 2022. Prior to becoming CEO, Mr. Tilly served as President and Chief Operating Officer from November 2011, and Executive Vice Chairman from August 2006 until November 2011. He was a member of CBOE from 1989 until 2006, and served as Member Vice Chairman from 2004 through July 2006. He holds a B.A. degree in Economics from Northwestern University.

David Howson. Mr. Howson is our Executive Vice President, Global President, a position he has held since May 2022. Previously, he was our Executive Vice President, President Europe and Asia Pacific, from July 2021 to May 2022, Executive Vice President, President Europe from January 2020 to July 2021 and Chief Operating Officer of Cboe Europe from 2013 to 2019. Prior to that, he served as Founder, Chief Technology Officer of Equiduct from April 2006 through June 2013. Prior to that he held various international Financial Services consulting roles between 1998 and 2006 for TIBCO Finance Technology and Thomson Reuters. Mr. Howson holds a First Class Honours bachelor's degree from the University of Newcastle-upon-Tyne.

Christopher A. Isaacson. Mr. Isaacson is our Executive Vice President and Chief Operating Officer, a position he has held since January 2019. Previously he was our Executive Vice President and Chief Information Officer, a position he was appointed to upon the Company's acquisition of Bats. Prior to that, he served as Bats' Executive Vice President and Global Chief Information Officer since February 2014, he served as Bats' Senior Vice President and Chief Operation Officer from 2007 to 2014 and he has held other various senior leadership positions since 2005. Prior to being one of the founders of Bats, Mr. Isaacson was a software developer at Tradebot Systems, Inc. from 2003 to 2005. Mr. Isaacson serves on the Boards of Directors of Cboe Japan and Cboe Australia, as the Chairman of the Board of Directors of Cboe Digital and previously served as the Chairman of the Board of Directors of CFE and SEF and on the Board of Directors of OCC. Mr. Isaacson holds a B.S. degree in information systems with a minor in math from Nebraska Wesleyan University and an M.B.A. degree from the University of Nebraska-Lincoln.

Brian N. Schell. Mr. Schell is our Executive Vice President, Chief Financial Officer and Treasurer, a position he has held since January 2018. He also serves as the Chairman of the Board of Directors of the Exchanges, CFE, and SEF. Mr. Schell also served as interim Chief Human Resources Officer from January 2022 to June 2022. Previously, he was Deputy Chief Financial Officer of the Company's subsidiary Cboe Exchange, Inc., a position he was appointed to upon the Company's acquisition of Bats. Prior to that, he served as Chief Financial Officer of Bats since March 2011. Prior to joining Bats, he held various senior leadership positions at H&R Block Inc., as well as various positions at the FDIC, KPMG and JP Morgan. Mr. Schell holds a B.B.A. degree with an emphasis in finance from the University of Notre Dame and an M.B.A. degree from The George Washington University.

Catherine R. Clay. Ms. Clay is our Executive Vice President, Data and Access Solutions, a position she has held since March 2021. Previously, she was Senior Vice President, Global Head of Information Solutions of the Company's subsidiary Cboe Exchange, Inc. from February 2019 to March 2021, and she has held other various senior leadership positions since 2015, including Vice President Business Development, a position she was appointed to upon the Company's acquisition of Livevol, Inc. Prior to that, she served as Chief Executive Officer of Livevol, Inc. from 2013 to

2015 and as its Chief Strategy Officer from 2010 to 2013. Prior to that, she served as Founder of Thales LLC from 2006 through 2010. Ms. Clay holds a B.S. degree from University of Colorado-Boulder.

John F. Deters. Mr. Deters is our Executive Vice President, Chief Strategy Officer, a position he has held since 2018. He has previously served as our Head of Multi-Asset Solutions from 2018 to 2019 and as Chief Strategy Officer from 2013 to 2018. Prior to joining Cboe in 2013, Mr. Deters was most recently a Vice President and Investment Banker of Financial Institutions Group, Investment Banking at Barclays from 2008 to 2013. Mr. Deters holds a B.A. degree from Wheaton College, an M.B.A. degree from the University of Chicago, and a J.D./M.S. dual degree from Georgetown University Law Center.

Patrick Sexton. Mr. Sexton is our Executive Vice President, General Counsel and Corporate Secretary, a position he has held since March 2018. Previously, he was Deputy General Counsel of the Company's subsidiary Cboe Exchange, Inc. He served in that capacity from July 2013 to March 2018 and has acted as legal, regulatory and compliance counsel with increasing responsibility and oversight since joining the Company in 1997. Mr. Sexton holds a B.A. degree from the University of Notre Dame and a J.D. degree with honors from Notre Dame Law School.

Jill M. Griebenow. Ms. Griebenow is our Senior Vice President, Chief Accounting Officer, a position she has held since August 2018. Previously, she served as Chief Financial Officer, Europe of the Company's subsidiary Cboe Europe, a position she was appointed to upon the Company's acquisition of Bats. She also previously served as Chief Financial Officer, Europe of Bats' subsidiary Bats Europe Limited since February 2014 and was employed by Bats in the financial area since 2011. Prior to that, she held various positions at Ernst & Young LLP from 2001 to 2011. Ms. Griebenow is a certified public accountant and holds a bachelor's degree in accounting from the University of Northern Iowa.

Corporate Social Responsibility

The Company recognizes that operating in a socially responsible manner helps promote the long-term interests of our investors, associates, customers, community members, and all other stakeholders with whom we live and work. We are actively engaged with policymakers on behalf of our customers to promote fairness, innovation, trust, and confidence in our markets, and we continuously seek to further our corporate social responsibility efforts through:

- **Industry Leadership** – As an industry leader, we are deeply committed to building trusted markets for participants.
- **Diversity and Associate Engagement** – We strive to create a diverse workforce that reflects the world in which we operate, and to build an inclusive culture where every associate feels welcome, safe and empowered.
- **Corporate Governance** – Corporate governance is embedded in the operations of our company. The Company's Board of Directors recognizes that operating in a socially responsible manner helps promote the long-term interests of our organization, stockholders, associates, industry and community.
- **Promoting Transparency and Efficient Capital Markets** – We maintain a comprehensive regulatory program in support of providing trusted markets and integrity in the marketplace.
- **Environmental Performance** – The financial services industry has a unique, impactful role in supporting society's transition to a net-zero economy and we recognize the need to do our part.

We believe being a good citizen means that we hold ourselves accountable for the integrity of the markets and to the communities we serve, seek to help resolve conflicts and build consensus, inform those impacted before taking action, lead by example and serve as part of the solution. We also seek to be good citizens to the communities we serve by being committed to being environmentally conscious. Additionally, being good citizens also means that we strive to support our associates and better serve our industry and community through our human capital development, volunteerism and policies. See "Human Capital Management" subsection above for more information.

Additional information on our approach to ESG can be found in the 2022 Cboe Global Markets, Inc. Environmental, Social and Governance Report located in the Corporate Social Responsibility section of our website at <https://www.cboe.com/about/esg/>, which does not form a part of this Form 10-K.

Available Information

Our website is www.cboe.com. The Company files annual, quarterly and current reports, proxy statements and other information with the SEC under the Exchange Act. The Company makes available, free of charge, on its website its annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as soon as reasonably practicable after such reports are electronically filed with, or furnished to, the SEC. The Company's reports filed with, or furnished to, the SEC are also available on the SEC's website at www.sec.gov.

In addition, we have posted on our website the charters for our (i) Audit Committee, (ii) Compensation Committee, and (iii) Nominating and Governance Committee, as well as our Code of Business Conduct and Ethics and Corporate Governance Guidelines. We will provide a copy of these documents without charge to stockholders upon written request to Investor Relations, Cboe Global Markets, Inc., 433 West Van Buren Street, Chicago, Illinois 60607. Our website and information included in or linked to our website are not part of this Form 10-K.

Item 1A. Risk Factors.

The risks and uncertainties described below are those that we believe are material at this time relating to our business. These risks and uncertainties, however, are not the only risks and uncertainties that we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial may also significantly impact us. Any of these risks and uncertainties may materially and adversely affect our business, financial condition or results of operations, liquidity, and cash flows.

Summary of Risk Factors

The following is a summary of the key risks and uncertainties described below that we believe are material to us at this time:

- the loss of our right to exclusively list and trade certain index options and futures products;
- economic, political and market conditions;
- compliance with legal and regulatory obligations;
- price competition and consolidation in our industry;
- decreases in trading or clearing volumes, market data fees or a shift in the mix of products traded on our exchanges;
- legislative or regulatory changes or changes in tax regimes;
- our ability to protect our systems and communication networks from security vulnerabilities and breaches;
- our ability to attract and retain skilled management and other personnel, including compensation inflation;
- increasing competition by foreign and domestic entities;
- our dependence on and exposure to risk from third parties;
- global expansion of operations;
- factors that impact the quality and integrity of our indices;
- our ability to manage our growth and strategic acquisitions or alliances effectively;
- our ability to operate our business without violating the intellectual property rights of others and the costs associated with protecting our intellectual property rights;
- our ability to minimize the risks, including our credit and default risks, associated with operating a European clearinghouse;
- our ability to accommodate trading and clearing volume and transaction traffic, including significant increases, without failure or degradation of performance of our systems;
- misconduct by those who use our markets or our products or for whom we clear transactions;
- challenges to our use of open source software code;
- our ability to meet our compliance obligations, including managing potential conflicts between our regulatory responsibilities and our for-profit status;
- our ability to maintain BIDS Trading as an independently managed and operated trading venue, separate from and not integrated with our registered national securities exchanges;
- damage to our reputation;
- the ability of our compliance and risk management methods to effectively monitor and manage our risks;
- restrictions imposed by our debt obligations and our ability to make payments on or refinance our debt obligations;
- our ability to maintain an investment grade credit rating;
- impairment of our goodwill, long-lived assets, investments or intangible assets;
- the impacts of pandemics;
- litigation risks and other liabilities; and
- operating a digital asset business, and clearinghouse, including the expected benefits of our Cboe Digital acquisition, cybercrime, changes in digital asset regulation, losses due to digital asset custody, and fluctuations in digital asset prices.

Risks Relating to Our Business

Loss of our right to exclusively list and trade certain index options and futures could have a material adverse effect on our financial performance.

We hold exclusive licenses to list securities index options on the S&P 500 Index, the Russell 2000 Index, as well as others, granted to us by the owners of such indices, and additionally hold exclusive rights to our proprietary VIX

methodology that provides the basis for VIX options and futures. In 2022, approximately 60.7% of our net transaction and clearing fees (defined below) were generated by futures and index options, the overwhelming majority of which were generated by our exclusively-licensed products (e.g., SPX options) and products based on our proprietary VIX methodology (e.g., VIX options and futures). The bulk of this revenue is attributable to our SPX options and VIX options and futures. As a result, our revenues less cost of revenues are dependent in large part on the exclusive licenses we hold for these products and our ability to maintain our exclusive proprietary rights in the VIX methodology and related products and indices.

There is a risk, with respect to each of our current exclusive licenses, that the owner of the index may not renew the license with us on an exclusive basis or at all. In the first event, we would be subject to multiple listing in the trading of what is now an index product traded by us on an exclusive basis, which could result in a loss of market share and negatively impact our profitability. In the second event, we could lose the right to list the index product entirely. The loss or limited use of any of our exclusive index licenses, especially for the S&P 500 Index, for any reason could have a material adverse effect on our business and profitability.

In addition to the risks related to our exclusive licenses, if we are unable to retain exclusive proprietary rights in the VIX methodology and related products and indices, our volatility products could be subject to multiple listing which could have a material adverse effect on us.

The EU has adopted legislation affecting providers and users of benchmark indices in the EU. MiFIR requires benchmarks used to value a financial instrument in the EU to be made available on a non-discriminatory basis to all EU trading venues and central counterparty clearinghouses for the purposes of trading and clearing. As a result, owners of such benchmarks must provide licenses on fair, reasonable and non-discriminatory terms. While similar legislation to MiFIR has not been proposed in the U.S., if it were passed, it could cause us to lose our exclusive rights to list and trade proprietary and licensed index products. Further, in 2018, the EU implemented the EU Benchmark Regulation, which regulates users, data providers and calculators of benchmarks (“administrators”) in the EU, and among other things (subsequent to the transitional period applicable to third country benchmark administrators) prohibits use of benchmarks provided by administrators outside the EU in connection with EU financial instruments unless the administrator is deemed to be subject to an EU equivalent regulatory regime or the benchmark is endorsed or recognized in the EU. These regulations and other emerging regulatory regimes around the world may impact international customers’ interest in or ability to trade index-based products listed on our U.S. exchanges, as well as impact our expansion into foreign trading of our index-based products and our ability to license proprietary indices for use outside of the U.S.

Furthermore, our competitors may succeed in developing, offering and providing a market for the trading of index-based or volatility products that are economically similar to those that we offer and they may become successful and take away volume from our products. It is also possible that a third party may offer trading in index-based products that are the same as those that are the subject of one of our exclusive licenses, but in a jurisdiction in which the index owner cannot require a license or in a manner otherwise not limited by our exclusive license.

The value of our licenses to exclusively list securities index options and futures also depends on the continued ability of index owners to require licenses for the trading of options and futures based on their indices. Although we and other index owners have prevailed in legal actions seeking to challenge our rights to exclusively license indices, we may be subject to changes in the law or other actions taken in the future that might impede our ability to exclusively offer trading in certain index options and futures.

General economic conditions and other factors beyond our control could significantly reduce demand for our products and services and harm our business.

The volume of trading and clearing transactions and the demand for our products and services are directly affected by economic, political and market conditions in the U.S., Europe and elsewhere in the world that are beyond our control, including:

- economic, political and geopolitical market conditions;
- broad trends in business and finance;
- concerns over inflation levels and recessions;
- wavering institutional or retail confidence levels;
- government or central bank actions, such as changes in government fiscal and monetary policy and foreign currency exchange rates;
- other legislative and regulatory changes;

- the availability of short-term and long-term funding and capital;
- the perceived attractiveness of the U.S., European, Canadian, Australian or Japanese capital markets;
- the availability of alternative investment opportunities;
- changes in the level of trading activity in underlying instruments;
- changes and volatility in the prices of securities;
- changes in the volume of foreign currency transactions;
- changes in supply and demand for currencies;
- movements in currency exchange rates;
- the level and volatility of interest rates;
- changes in the financial strength of market participants;
- consolidation among market participants and market data subscribers;
- unforeseen market closures, suspensions of open outcry trading or other disruptions in trading and clearing; and
- disruptions due to terrorism, war, extreme weather events, pandemics or other catastrophes.

Any of these factors, individually or collectively, could have a material adverse effect on our business, financial condition and operating results by causing a substantial decline in the financial services markets and reducing trading and clearing volumes and demand for market data.

Our business may be adversely affected by price competition.

The securities industry is characterized by intense price competition, especially with respect to transaction fees. We may be required to adjust pricing to respond to actions by new or existing competitors, which could adversely impact our business, financial condition and operating results. We also compete with respect to the pricing of market data and value-added market data, such as historical market data.

In our options segment, the pricing model for trade execution has changed in response to competitive market conditions, and our competitors have adjusted transaction fees and fee structures accordingly, including by opening new exchanges, which allow them to offer multiple pricing models that can appeal to different segments of market participants. These changes have resulted in significant pricing pressures on us, especially on transaction fees and incentives for multi-listed products. As a result of these pricing pressures, our average rate per multi-listed options contract may decrease. It is likely that this pressure will continue and even intensify as our competitors continue to seek to increase their share of trading by further reducing their transaction fees or by offering other financial incentives to order providers and liquidity providers to induce them to direct orders to their markets.

In addition, one or more competitors may engage in aggressive pricing strategies and significantly decrease or completely eliminate their profit margin for a period of time in order to capture a greater share of trading volume. Some order-providing firms on our exchanges have taken ownership positions in options exchanges that compete with us and such exchanges have given those firms added economic incentives to direct orders to them.

With respect to our proprietary products, we compete with futures exchanges and swap execution facilities that offer similar products and other financial market participants that offer over-the-counter derivatives. We also compete against certain multi-listed options products, such as SPY, which offer some of the features of our proprietary products, such as SPX.

To attract market share, we may offer “inverted” pricing specials or no-transaction fee trading from time to time, per various fee schedules across our equities exchanges. These forms of promotions, along with other supplemental liquidity programs, may adversely affect our profitability.

Further, regulatory and legal developments, including the new equity market structure proposals, could also impact our ability to adjust pricing to respond to actions by new or existing competitors or may adversely impact the amount of liquidity providers can provide. In the U.S., we are generally required to file with the SEC any changes to the fees that we charge and in recent years the SEC has more heavily scrutinized pricing changes.

If we are unable to compete successfully with respect to the pricing of our services and products, our business, financial condition and operating results may be materially and adversely affected. We could lose a substantial percentage of our share of trading if we are unable to price transactions in a competitive manner. Also, our profits could decline if competitive pressures or regulatory changes force us to reduce fees.

A significant portion of our operating revenues is generated by our transaction and clearing-based business. If the amount of trading volume on our markets or clearing volume decreases, or the product mix shifts to lower revenue products, our revenues from transaction and clearing fees will most likely decrease.

In 2022, approximately 68.1% of our revenues less cost of revenues were generated by our transaction and clearing-based business. This business is dependent on our ability to attract and maintain order flow, both in absolute terms and relative to other market centers. If the amount of trading volume on our Exchanges, Cboe Digital Exchange, CFE, BIDS Trading, NEO, and MATCHNow, notional value traded on Cboe FX, Cboe SEF, Cboe Europe Equities and Derivatives, Cboe Australia, and Cboe Japan or clearing volumes at Cboe Clear Europe or Cboe Clear Digital decrease, we are likely to see a decrease in fees.

Our total trading or clearing volumes could decline if our market participants reduce their trading or clearing activity for any reason, such as:

- heightened capital requirements;
- transaction tax;
- regulatory or legislative actions;
- reduced need to trade due to changes in volatility and/or passive investment trends;
- reduced access to capital required to fund trading activities;
- consolidation among market participants;
- suspensions of open outcry trading; or
- significant market disruptions.

Over the past few years, a number of legislative actions have been taken, both domestically and internationally, that may cause market participants to be subject to increased capital requirements and additional compliance burdens. These actions, including MiFID II, MiFIR, and the new equity market structure proposals, may incentivize trading away from our markets or cause market participants to reduce trading activity on or routing to our markets.

In addition, the transaction fees generated are different based on type of product and other factors, including the type of customer and certain volume discounts. If the amount of our trading volume decreases or the mix traded shifts to our lower revenue per contract products, our revenues from transaction fees will most likely decrease. We can offer no assurance that we would be able to reduce our costs to match the amount of any such decrease.

Revenues from our market data fees and access and capacity fees may be reduced due to declines in our market share, trading volumes or regulatory changes.

The occurrence of any event that reduces the amount of market data fees that we receive, whether as a result of fee reductions, fewer members subscribing to the U.S. tape plans or other market data offerings, declines in market share, trading volumes, or notional volumes, or regulatory changes may have a direct negative impact on our business, financial condition, and operating results. For example, if our market share of U.S. listed equities and options or Cboe's European equities trading volume were to decline, our share of market data fees could also decline. Moreover, market data fees could decline as a result of a reduction in the number of market data users, for example because of consolidation among market data subscribers or due to a decline in professional subscriptions as a result of staff reductions in the financial services industry or otherwise.

Regulatory and legal developments could also impact the fees we receive from market data and access and capacity, or our cost in providing such services. In the U.S., we are generally required to file with the SEC any changes to the fees that we charge for our securities market data products and access and capacity fees. In recent years, certain industry groups have objected to the ability of exchanges to charge for certain market data products. In addition, the SEC and some media have scrutinized market data and market access. As discussed above, the implementation of MDIR or the new equity market structure proposals could cause Cboe's equities exchanges, BZX, BYX, EDGX, and EDGA, to require additional resources to comply with the new rules, and may have a material impact on our business, financial condition, and operating results, including if, for example, there are lower SIP plan revenues or we must reduce the fees or access fee caps we charge.

In addition, as discussed above, the SEC approved a Consolidated Data Plan to replace the three equity data plans that govern the dissemination of real-time, consolidated market data for NMS stocks. While the Consolidated Data Plan order must be resubmitted by SEC, the plan may have a negative impact on the applicable market data revenues that we receive that are generated from such new plan.

We believe Cboe Europe Equities and Derivatives currently offers market data to customers on a non-discriminatory basis at a reasonable cost. As European regulators determine how market data should be disaggregated and what is a reasonable commercial basis for providing market data, it could affect our ability to offer market data products in the same manner that we do today thereby causing an adverse effect on our European market data revenues. While MiFID II and MiFIR aim to encourage a commercial solution to a consolidated tape in Europe, should this fail to materialize, policy makers might be encouraged to implement a mandatory solution that could impact our ability to develop our own commercial offering. As discussed above, the E.C. published provisions for a consolidated tape for the EU, which is expected to be implemented in late 2023 or early 2024. As proposed, these provisions may have a material impact on our business, financial condition and operating results if, for example, we must reduce the fees we charge for market data.

The technology upon which we rely, including that of our service providers, may be vulnerable to security vulnerabilities or breaches that could harm our business and our role in the global marketplace puts us at heightened risk relative to other public companies.

The secure and reliable operation of our technology, including our computer systems and communications networks, and those of our service providers, market participants and other third-parties, is a critical element of our operations. These systems and networks may be subject to various cybersecurity incidents, improper or inadvertent access to or disclosure of confidential, commercially sensitive, or personally identifiable information, data theft, corruption or destruction, cyber-attack, ransomware, supply chain attack, denial of service attack, malware and other security problems, as well as acts of terrorism, attacks by threat actors including criminal groups, political activist groups and nation-state actors, attacks in connection with geopolitical activity such as the war between Russia and Ukraine, natural disasters, human error, criminal insider activity, employee error, power loss, service provider, market participant or third-party disruptions or security breaches and other events that are beyond our control. Our increased adoption of remote working, usage of mobile and cloud-based technologies and amount of newly acquired companies and related integrations may increase our risk for a cybersecurity incident. Moreover, given our position in the global financial services industry and as critical infrastructure, we may be more likely than other companies to be a direct target, or an indirect casualty, of such events. While we have experienced in the past, and we expect to continue to experience, cybersecurity threats and events of varying degrees, we are not aware of any of these threats or events having a material impact on our business, financial condition or operating results to date, however we cannot assure you that we will not experience future threats or events that may be material.

We currently maintain policies, procedures and controls designed to reasonably protect the confidentiality, integrity, availability and reliability of our systems, networks and information more broadly, and to guard against cybersecurity incidents and unauthorized access. These policies, procedures and controls are subject to periodic monitoring, auditing, and evaluation practices, pursuant to our enterprise risk management program, which is supported by a three lines of defense approach, and our other governance practices. Further, we developed and maintain cybersecurity and data privacy training programs for our employees and our third-party consultants who have access to our systems, which include simulations, tabletop exercises, and response readiness tests. Independent third-party cybersecurity penetration assessments are also routinely performed. Collectively, these safeguards and measures or those of our third-party providers, including any cloud technologies, may prove inadequate to prevent the attendant risk posed by cybersecurity incidents, subjecting us to contractual restrictions, liability and damages, loss of business, penalties, unfavorable publicity, and increased scrutiny by our regulators, and materially impacting our business, financial condition and operating results. We may be required to expend significant resources in the event of any real or threatened breaches in security or system failures, including to protect against threatened breaches, to alleviate harm caused by an actual breach, and to address any reputational harm or litigation or regulatory liability. Despite our cybersecurity measures, it is possible for security vulnerabilities or breaches to remain undetected for an extended period of time. Such harms also could cause us to lose market participants, experience lower trading volume, and negatively impact our competitive advantage and business, financial condition and operating results.

Additionally, as threats continue to evolve and increase, and as the domestic and international regulatory environment related to information security, data collection and use, and privacy becomes increasingly rigorous, we may be required to devote significant additional resources to modify and enhance our security controls and to identify and remediate any security vulnerabilities, which could have an adverse effect on our business, financial condition and operating results.

If we fail to attract or retain highly skilled management and other employees our business may be harmed.

Our success largely depends on the skills, experience and continued efforts of management and other key personnel. As a result, to be successful, we must retain and motivate executives and other key employees. However, we have no assurances that these employees will remain with us. The roles and responsibilities of departing executive

officers and employees will need to be filled either by existing or new officers and employees, which may require us to devote time and resources to identifying, hiring and integrating replacements for the departed executives and employees that could otherwise be used to pursue business opportunities, which could have a material adverse effect on our overall business, financial condition and operating results.

There is substantial competition for qualified and capable personnel, particularly in the technology space, which may make it difficult for us to retain and recruit qualified employees in sufficient numbers. This competition has continued due to employee resignations, tighter supply of available labor, compensation inflation, as well as the growth of new asset classes such as the digital asset space. We have faced increased challenges in retaining and attracting qualified employees. If we fail to retain our current employees, it would be difficult and costly to identify, recruit and train replacements needed to continue to conduct and expand our business. In particular, failure to retain and attract qualified technology personnel could result in systems failures. Consequently, our reputation may be harmed, we may incur additional costs and our profitability could decline. There can be no assurance that we will be able to retain and motivate our employees in the same manner as we have historically done.

Additionally, effective succession planning is also important to our long-term success. Failure to ensure effective transfer of knowledge and smooth transitions involving our management team and key employees could hinder our strategic planning and execution.

Intense competition could materially adversely affect our market share and financial performance.

The market for trade execution services, clearing and products is intensely competitive in the asset classes and geographies in which we operate. Increased competition may result in a decline in our share of trading activity and a decline in our revenues from transaction and clearing fees and market data fees, thereby materially adversely affecting our operating results. We compete with a number of entities on several different fronts, including the cost, quality and speed of our trade execution, functionality and ease of use of our trading and clearing platforms, range of our products and services, our technological innovation and adaptation and our reputation. In particular, we have seen increased competition from off-exchange venues, which have increased their share of trading activity. See “Business – Competition” for more information.

Some of our competitors and potential competitors have greater financial, marketing, technological, personnel and other resources than we do. These factors may enable them to develop similar or more innovative products, to offer lower transaction and clearing fees or better execution to their customers or to execute their business strategies more quickly or efficiently than we can. In addition, our business, financial condition and operating results may be materially adversely affected if we cannot successfully develop, introduce and/or market new services and products or if we need to adopt costly and customized technology for our services and products.

Furthermore, new or existing competitors may:

- respond more quickly to competitive pressures;
- develop products that compete with our products or are preferred by our customers;
- offer products and services at prices below ours to gain market share and to promote other businesses;
- develop and expand their technology and service offerings more efficiently;
- provide better, more user-friendly and more reliable technology;
- take greater advantage of acquisitions, alliances and other opportunities;
- market, promote, bundle and sell their products and services more effectively;
- leverage existing relationships with customers and alliance partners more effectively or exploit brand names to market and sell their services; and
- exploit regulatory disparities between traditional, regulated exchanges and alternative markets, including over-the-counter markets, that benefit from a reduced regulatory burden and lower-cost business model.

If our products, markets, services and technology are not competitive or we fail to anticipate or respond adequately to changes in technology, customer preferences and regulatory requirements or we encounter any significant delays in product development efforts our business, financial condition and operating results could be materially harmed.

We depend on third-party service providers for certain services that are important to our business. An interruption, significant increase in fees or cessation or impairment of such service by any third party could have a material adverse effect on our business, financial condition and operating results.

We depend on a number of service providers, including clearing organizations such as OCC, NSCC, DTC, CDS, LCH, Cboe Clear Europe, and Cboe Clear Digital, our wholly-owned subsidiaries, JSCC, ASX Clear Pty Ltd, and SIX x-clear; securities information processors such as the CTA, UTP Securities Information Processor and OPRA; regulatory and other service providers such as FINRA and OCC; the hosts of our data and disaster recovery centers; and various vendors of communications and networking products and services. In addition, we also depend on third party routing and clearing firms that are involved in processing transactions on our behalf. More specifically:

- If OCC, NSCC, DTC, CDS, LCH, Cboe Clear Europe, Cboe Clear Digital, JSCC, ASX Clear Pty Ltd, and SIX x-clear were unable to perform clearing services for existing or new products, or their clearing members were unable or unwilling to clear through them, transactions could likely not occur on our markets or there may be delays, including until clearing is moved to another clearing agency. In 2022, approximately 60.7% of our net transaction and clearing fees were generated by options and futures that were cleared through OCC.
- OPRA, UTP Securities Information Processor and the CTA consolidate options and equities market information, respectively, such as last sale reports and quotations. If any of them were unable to provide this information for a sustained period of time, we may be unable to offer trading on our options and equities markets.
- We are heavily dependent on technology for our markets, including third-party operation of production and disaster recovery data centers, as well as certain communications and networking products and services. If this technology is unavailable, as a result of a number of potential causes, including technical failure, natural disasters, extreme weather events, fraud or security attacks that we cannot predict or prevent, and cannot be replaced in a sufficiently short time period, we may be unable to operate our markets.
- We utilize a third-party cloud service provider to maintain secondary offsite backups of our and our customers' data and to distribute real-time data, and we may utilize third-party cloud service providers in the future for additional services. We do not control the operations of third-party cloud service providers or their facilities and may be vulnerable to disruptions in our access to the platform as a result of a number of potential causes, including technical failure, natural disasters, extreme weather events, fraud or security attacks that we cannot predict or prevent. Additionally, any vulnerability of third-party cloud service providers could expose our or our customers' confidential data, which could result in harm to our business reputation.
- FINRA and OCC provide certain regulatory services and functions for our options, equities and futures exchanges, while we retain regulatory responsibilities for such services. If FINRA or OCC stopped providing services, or provided inadequate services, we may be subject to action by the SEC or CFTC, or may have limitations placed upon our markets.
- We rely on FINRA CAT LLC, a subsidiary of FINRA, to provide services for the implementation of the CAT. If FINRA CAT LLC or its third-party service providers stop providing services or provide inadequate services, we and the other SROs may not be able to recover costs related to the implementation of CAT, incur penalties for delays of implementation, incur related litigation and other expenses, or incur regulatory liability including enforcement action by the SEC or limitations placed upon our markets. In addition, until the SEC approves a funding model that shares the cost of the CAT between the SROs and industry members, the SROs may continue to incur additional significant costs, or result in not being able to collect on the promissory notes related to the funding of the implementation and operation of the CAT. See Note 8 ("Credit Losses") and Note 9 ("Other Assets, Net") for further information.
- We rely on third party routing and clearing firms to clear trades in U.S. listed equity securities routed by us to other markets, and to execute trades in options that we route to other markets.

With respect to options, all contracts traded on our exchanges must be cleared through clearing members of OCC. At December 31, 2022, there were 118 TPHs that are clearing members of OCC. Two clearing members accounted for approximately 61.3% of transaction and other fees collected through OCC in 2022. The next largest clearing member accounted for approximately 18.2% of transaction and other fees collected through OCC. Additionally, the three largest clearing members clear the majority of the market-maker sides of transactions at Cboe Options, C2, BZX, EDGX and at all of the options exchanges. Should one of these clearing members or liquidity providers exit the business or withdraw from our options exchanges, impose additional market-maker financial requirements or if market-makers were unable to transfer to another clearing member or other liquidity providers were unable to provide additional liquidity, this could create a significant disruption to the options markets, including ours.

We cannot provide assurance that any of these providers will be able to continue to provide these services in an efficient manner or that they will be able to adequately expand their services to meet our needs. An interruption or

malfunction in or the cessation or impairment of an important service by a third party or disruption of a third party's operations could cause us to halt trading in some or all of our products or our services, make us unable to conduct other aspects of our business, cause us to experience the loss of a significant number of market participants or cause us to experience a significant reduction in trading activity on our options and futures markets, each of which could have a material adverse effect on our business, financial condition and operating results. In addition, our inability to make alternative arrangements, such as moving clearing to another clearing agency, in a timely manner, or at all, could have a material adverse impact on our business, financial condition and operating results.

If an index provider from which we have a license or a service provider with respect to proprietary products fails to maintain the quality and integrity of their indices or fails to perform under our agreements with them, if we fail to maintain the quality and integrity of our proprietary indices or indices and other values that we calculate as an index provider, or if customer preferences change, the revenues that are generated from the trading of proprietary products or the calculation and dissemination of index values may suffer.

We are a party to a number of license agreements that permit us to list tradeable products related to various indices that are among the most actively traded products on our exchanges. We also enter into agreements pursuant to which we act as an index provider and calculate and disseminate proprietary indices and other values. We believe that demand for our products is based in part on market perception of the quality and integrity of these indices. The quality and integrity of these indices are dependent on the ability of index providers, including us, to maintain the index. Maintenance includes ongoing index calculation, index rebalancing and dependance on index providers for a number of things, including the provision of index data. We also rely on index providers to enforce intellectual property rights against unlicensed uses of the indices and uses of the indices that infringe on our licenses. Some of our agreements concerning our proprietary products obligate the parties to those agreements to provide important services to us. If any of our index providers, including us, are unable to maintain the quality and integrity of indices, or if any of the index providers or service providers, including us, fail to perform their obligations under the agreements, trading in these products, and therefore transaction fees we receive, may be materially adversely affected or we may not receive the financial benefits of the agreements that we negotiated.

Differences in the calculations from methodologies described in published materials or incorrect calculations of spot VIX Index values or our other spot volatility indices, including those instances that we announced on July 30, 2021, or the failure to implement any planned remedial changes may result in the loss of perceived quality and integrity of our indices, loss of demand for our products, increased potential for investigations and enforcement proceedings, increased potential for failure to perform our obligations under agreements concerning our products or in our capacity as an index provider, and increased exposure to third party claims and related litigation expenses, which could have a material adverse effect on our business, financial condition and operating results.

We selectively explore acquisition opportunities and strategic alliances relating to other businesses, products or technologies. We may not be successful in integrating other businesses, products or technologies with our business. Any such transaction also may not produce the results we anticipate, which could materially adversely affect our business, financial condition and operating results.

We selectively explore and pursue acquisition and other opportunities to strengthen our business and grow our Company. We may enter into business combination transactions, make acquisitions or enter into strategic partnerships, joint ventures or alliances, any of which may be material. The market for acquisition targets and strategic alliances is highly competitive, which could make it more difficult to find appropriate merger or acquisition opportunities. If we are required to raise capital by incurring debt or issuing additional equity for any reason in connection with a strategic acquisition or investment, financing may not be available or the terms of such financing may not be favorable to us and our stockholders, whose interests may be diluted by the issuance of additional stock.

For example, in 2022 we completed our acquisitions of Cboe Digital, an operator of a U.S. based digital asset spot market, a regulated futures exchange and a regulated clearinghouse, and NEO, a recognized Canadian securities exchange. In 2021 we purchased Cboe Asia Pacific, a holding company of alternative market operators in Australia and Japan, and in 2020, we purchased Hanweck and the assets of FT Options, which are providers of risk analytics market data, the assets of Trade Alert, a real-time alerts and order flow analysis service provider, Cboe Clear Europe, an operator of a European clearinghouse, and MATCHNow, an operator of an equities ATS in Canada. At the end of 2020, we also purchased BIDS Trading, a registered broker-dealer and operator of the BIDS ATS in the U.S., which is not a registered national securities exchange or a facility thereof. Cboe maintains the BIDS ATS as an independently managed and operated trading venue, separate from and not integrated with the Exchanges.

The process of integration, including in new geographies and asset classes with new regulatory regimes, may expose us to a number of unforeseen risks and operating difficulties, including risks relating to information technology migrations, integrations and security, regulatory issues, and other issues, and may divert the attention of management from the ongoing operation of our business and harm our reputation. We may not successfully achieve the integration objectives, and we may not realize the anticipated cost savings, revenue growth and synergies in full or at all, or it may take longer to realize them than expected, any of which could negatively impact our business, financial condition and operating results.

Further, the success of acquisitions, integrations, and future operations may also depend in part on our ability to retain following acquisitions key employees of acquired companies or find suitable candidates to replace such key employees who leave. If we are unable to retain such key employees, including management, we could face disruptions in our operations, integrations, loss of customers, loss of key information, expertise or know-how, and unanticipated additional recruitment costs.

For additional risks related to our Cboe Digital acquisition, see the Risk Factors Section entitled “Risks Relating to Our Business Following Consummation of Cboe Digital Acquisition” below.

Our global operations are complex and subject us to increased business and economic risks that could adversely affect our financial results.

In addition to our operations in the U.S., we have operations in the UK, continental Europe, Canada, Hong Kong, Australia, Japan, Philippines, and Singapore. In connection with our expanded global operations, we face certain risks inherent in doing business globally. These risks include:

- fluctuations in currency exchange rates;
- complying with extensive and complex compliance requirements, regulations and oversight by regulators other than our primary functional regulators;
- difficulties in staffing and associated costs in managing multiple international locations;
- general economic, social, and political conditions;
- protectionist laws and business practices that favor local businesses in some countries;
- reduced protection for intellectual property rights in some countries;
- different technology platforms;
- language and cultural differences;
- potentially adverse tax consequence; and
- natural disasters and extreme weather events that may impact global operations differently.

If we are unable to manage the complexity of our global operations successfully, or if the risks above become substantial for us, our financial performance and operating results could suffer. Further, any measures we may implement to reduce risks of our global operations may not be effective, may increase our expenses and may require significant management time and effort.

More specifically, we have exposure to exchange rate movements between the British pound, the Euro, the Canadian dollar, the Hong Kong dollar, the Australian dollar, the Japanese Yen, the Philippine Peso, and the Singapore dollar against the U.S. dollar. Significant inflation or changes in foreign exchange rates with respect to one or more of these currencies could occur as a result of general economic or political conditions, acts of war or terrorism, changes in governmental monetary or tax policy, or changes in local interest rates. These exchange rate differences would affect the translation of our non-U.S. results of operations and financial condition into U.S. dollars as part of our consolidated financial statements. See Note 16 (“Segment Reporting”) for additional information about the Company’s geographic exposure.

We and our licensors may not be able to protect our respective intellectual property rights.

We rely on patent, trade secret, copyright and trademark laws, the law of the doctrine of misappropriation and contractual provisions to protect our proprietary technology, proprietary products, index methodologies and other proprietary rights. In addition, we rely on the intellectual property rights of our licensors in connection with our listing of exclusively-licensed index options and futures products. We and our licensors may not be able to prevent third parties from copying, or otherwise obtaining and using, our intellectual property without authorization, listing our proprietary or exclusively-licensed index products without licenses or otherwise infringing on our rights. We and our licensors may have to rely on litigation to enforce our intellectual property rights, determine the validity and scope of the proprietary rights of others or defend against claims of infringement or invalidity. We and our licensors may not be successful in this regard.

Such litigation, whether successful or unsuccessful, could result in substantial costs to us, diversion of our resources or a reduction in our revenues, any of which could materially adversely affect our business.

Our clearinghouse operations expose us to associated risks, including credit, liquidity, market and other risks related to the defaults of clearing participants and other counterparties.

We are subject to risks related to operating our clearinghouse, Cboe Clear Europe, including the risks of failing to meet strict business continuity requirements and regulatory oversight, risks of default by clearing participants and counterparties, due to bankruptcy, lack of liquidity, operational failure or other reasons, and the risks associated with the adequacy of participants' margin and default funds. These risks could subject our business to substantial losses, reputational harm, regulatory consequences, including litigation, fines and enforcement actions, and the inability to operate our business, including the continued development of the European derivatives buildout. See below for additional risks related to our digital asset clearinghouse, Cboe Clear Digital.

To mitigate the credit risks related to defaults of clearing participants and other counterparties, including the market risk that we would only be able to close out a defaulting participant's positions at a loss, there are minimum participation criteria to become a clearing participant and clearing participants are required to provide collateral to cover the margin requirement and default fund contributions. No guarantee can be given that the collateral provided will at all times be sufficient or provide absolute assurance against us experiencing financial losses from defaults by the participants or counterparties on their obligations. In addition, although such collateral is preferably held in European central banks, Cboe Clear Europe also holds collateral in central securities depositories and commercial banks, which can expose us to risk of default by those institutions. In addition, Cboe Clear Europe entered into a €1.25 billion committed syndicated multicurrency revolving and swingline credit facility that is available to be drawn by Cboe Clear Europe towards (a) financing unsettled amounts in connection with the settlement of transactions in securities and other items processed through Cboe Clear Europe's clearing system and (b) financing any other liability or liquidity requirement of Cboe Clear Europe incurred in the operation of its clearing system, however we can give no assurance that this facility will be sufficient to meet all such obligations or sufficiently mitigate Cboe Clear Europe's liquidity risk to meet its payment obligations when due. Substantial amounts of the collateral, and any amounts drawn under this facility, may be at risk if a clearing participant defaults on its obligations to our clearinghouse and its margin and default fund deposits are insufficient to meet its obligations. This facility is expected to terminate on June 29, 2023 and we may not be able to enter into a replacement facility on commercially reasonable terms, or at all. We cannot assure you that the mitigating measures, policies, safeguards and risk management procedures will be sufficient to detect problems or to protect us from a default or that we will not be materially and adversely affected in the event of a significant default.

Computer and communications systems failures and capacity constraints could harm our reputation and our business.

Our business depends on the integrity and performance of our computer and communications systems. If our systems cannot expand to cope with increased demand or otherwise fail to perform, as a result of a number of potential causes, including technical failure, natural disasters, extreme weather events, flooding, fraud or security attacks that we cannot predict or prevent, and cannot be replaced in a sufficiently short time period, we could experience unanticipated disruptions in service, slower response times and delays in the introduction of new products and services. These consequences could result in trading outages, lower trading and clearing volumes, financial losses, decreased customer service and satisfaction and regulatory sanctions and could have a material adverse effect on our ability to conduct our business. Although we have a back-up plan with respect to our significant trading and key corporate systems, the back-up systems or disaster recovery plans may prove to be inadequate in the event of a systems failure or cyber-security breach. Despite having disaster recovery facilities, there can be no guarantees that we will be able to open an efficient, transparent and liquid marketplace, if we can open at all, following a systems failure. Moreover, with extended trading hours, we have to operate our systems longer and have fewer non-trading hours to address any potential concerns with the systems on which we rely.

Our markets and clearinghouses have experienced occasional systems failures and delays in the past and in the future our systems may fail, in whole or in part, or may operate slowly, causing one or more of the following:

- unanticipated disruption in service to our participants;
- failures or delays during peak trading times or times of unusual market volatility;
- slower response times and delays in trade execution, clearing and processing;
- incomplete or inaccurate accounting, recording, clearing or processing of trades; and
- distribution of inaccurate or untimely market data to participants who rely on this data in their trading activity.

Any of these events may cause:

- a loss in transaction, clearing or other fees due to the inability to provide services for a time;
- requests by market participants or others that we reimburse them for financial loss, either within the constraints of the limited liability provisions of our exchanges' rules or in excess of those amounts;
- trading and clearing volumes to diminish on our markets and clearinghouse due to dissatisfaction with the platforms; and
- one or more of our regulators to investigate or take enforcement action against us.

As a consequence of any of these events, our business, financial condition and results of operations could suffer materially.

In addition to other measures, we test our systems to confirm whether they will be able to handle anticipated present and future peak trading and clearing activity or times of unusual market volatility. However, we cannot assure you that our estimates of future trading or clearing volume will be accurate or that our systems will always be able to accommodate actual trading or clearing volume without failure or degradation of performance.

We anticipate that we will need to continue to make significant investments in hardware, software and telecommunications infrastructure to accommodate the increases in traffic, technology migrations, and system updates. Additionally, disruptions to the supply chain may interfere with the ability of our employees, vendors, technology equipment suppliers, data and disaster recovery centers, and other service providers to provide the requested hardware, software, and telecommunications infrastructure. If we cannot migrate, update, or increase the capacity and capabilities of our systems to accommodate increased trading or clearing activity and to execute our business strategy, our ability to maintain or expand our businesses would be materially adversely affected.

Our use of open source software code may subject our software to general release or require us to re-engineer our software, which could harm our business.

Our technology platform uses open source software code. Companies that incorporate open source software into their products have, from time to time, faced claims challenging the ownership of open source software. As a result, we could be subject to suits by parties claiming ownership of what we believe to be open source software. In addition, some open source software licenses require users who distribute open source software as part of their software to publicly disclose all or part of the source code in their software and make any derivative works of the open source code available on unfavorable terms or at no cost. Open source license terms may be ambiguous, and many of the risks associated with usage of open source software cannot be eliminated. We believe that our use of open source software is in compliance with the relevant open source software licenses and does not require disclosure of any of our source code. However, if we were found to have inappropriately used open source software, we may be required to release our proprietary source code, re-engineer or discontinue use of our software or take other remedial action any or all of which could cause disruptions in, or impose significant costs on, our business.

Damage to our reputation could have a material adverse effect on our business, financial condition and operating results.

We believe one of our competitive strengths is our strong industry reputation. Various issues may give rise to reputational risk, including issues relating to:

- the representation of our business in the media;
- the quality and benefits of using our proprietary products, including the reliability, integrity and functionality of our transaction-based business and index calculations and the accuracy of our market data;
- the ability to execute our business plan, key initiatives or new business ventures and the ability to keep up with changing customer demands and regulatory initiatives;
- our regulatory compliance and our enforcement of compliance on our customers;
- the accuracy of our customer billing, financial statements, and other financial and statistical information;
- the quality of our corporate governance structure;
- the quality of our disclosure controls and internal controls over financial reporting, including any failures in supervision;
- the integrity and performance of our computer and communications systems;
- the ability to successfully complete technology migrations;

- the failure to successfully expand into new asset classes, such as the digital asset space or U.S. Treasuries, or new geographies;
- security breaches, including any unauthorized delivery of proprietary data to third parties;
- management of our outsourcing relationships, including our relationship with FINRA and NFA;
- any misconduct or fraudulent activity by our employees, especially senior management, or other persons formerly or currently associated with us;
- our listings business and our enforcement of our listing rules; and
- any negative publicity surrounding the ETPs that we serve as the listing destination.

Damage to our reputation could cause a reduction in the trading volume of our proprietary products or on our markets or cause us to lose customers. This, in turn, may have a material adverse effect on our business, financial condition and operating results.

Financial or other problems experienced by third parties could have an adverse effect on our business.

We are exposed to credit risk from third parties, including customers, clearing agents and counterparties. For example, we are exposed to credit risk for transaction fees we bill to customers on a monthly basis in arrears. Our customers and other third parties may default on their obligations to us due to a lack of liquidity, operational failure, bankruptcy or other reasons. For additional credit risks related to our clearinghouse operations, see the Risk Factor “Our clearinghouse operations expose us to associated risks, including credit, liquidity, market and other risks related to the defaults of clearing participants and other counterparties.”

In addition, with respect to orders Cboe Trading routes to other markets for execution on behalf of our customers, Cboe Trading is exposed to counterparty credit risk in the case of failure to perform on the part of our routing and clearing firms that are involved in processing equities and options transactions on our behalf, as well as failure on the part of such brokers to pass back any transactional rebates. Wedbush and Morgan Stanley guarantee equity trades until one day after the trade date, after which time NSCC provides a guarantee. Thus, Cboe Trading is potentially exposed to credit risk to the counterparty to an equity trade routed to another market center between the trade date and one day after the trade date in the event that Wedbush or Morgan Stanley fails to perform. Additionally, BIDS Trading has counterparty credit risk exposure to BOA related to clearing until the day following the trade date, after which time NSCC provides a guarantee. With respect to U.S. listed equity options and futures, we deliver matched trades of our customers to the OCC, which acts as a central counterparty on all transactions occurring on Cboe Options, C2, BZX, EDGX, and CFE and, as such, guarantees clearance and settlement of all of our matched options and futures trades. With respect to Canadian equities, we deliver reports of matched trades of our customers to CDS, which acts as a central counterparty on all transactions occurring on MATCHNow and NEO and, as such, guarantees clearance and settlement of all of our matched Canadian equities trades. With respect to Australian equities and derivatives, we deliver matched trades of our customers to ASX Clear Pty Ltd and ASX Settlement Pty Ltd. ASX Clear Pty Ltd acts as a central counterparty on all transactions occurring on Cboe Australia and, as such, guarantees clearance and settlement on all of our matched trades in Australia. With respect to Japanese equities, we deliver matched trades of our customers to the JSCC, which acts as a central counterparty on all transactions occurring on Cboe Japan and, as such, guarantees clearance and settlement on all of our matched trades in Japan.

With respect to routed U.S. equity transactions, Cboe Trading has counterparty credit risk exposure to Wedbush and Morgan Stanley related to clearing until the day following the trade date. Cboe Trading uses Wedbush to clear trades routed through affiliates of Credit Suisse Securities (USA) LLC as well as for trades routed directly to other exchanges and optionally dark pools. Morgan Stanley clears trades routed through the Morgan Stanley routing brokers and also clears executions routed to most dark pools. Cboe Trading maintains counterparty credit risk exposure from routing brokers with respect to rebates earned until completion of the routing brokers next invoice cycle following the execution.

With respect to U.S. listed equity and exchange traded product options, Cboe Trading is subject to counterparty credit risk exposure with respect to rebates earned from routing brokers until completion of the routing brokers' next invoice cycle following the execution.

Our exposure to credit risk may be further impacted by volatile securities markets that may affect the ability of our customers, counterparties and other third parties to satisfy their obligations to us. Moreover, we may not be successful in managing our credit risk through mitigating measures, policies, safeguards and risk management procedures, reporting and control procedures or by maintaining credit standards. Any losses arising from such defaults or other credit losses could materially adversely affect our financial condition and operating results.

While neither Cboe FX nor Cboe SEF has direct counterparty risk, Cboe FX or Cboe SEF may suffer a decrease in transaction volume if a bank or prime broker experiences an event that causes other prime brokers to decrease or revoke the credit available to the prime broker experiencing the event. Therefore, Cboe FX and Cboe SEF may have risk that is related to the credit of the banks and prime brokers that trade spot FX on the Cboe FX platform, or NDFs on Cboe SEF.

We may be required to assume ownership of a position in securities in connection with our order routing service, which could subject us to trading losses when our broker-dealer disposes of that position.

We offer a smart-order routing service through our broker-dealer subsidiary, Cboe Trading, which provides its customers with access to other market centers when we route their orders to those market centers for execution. In connection with this service, we may assume ownership of a position in securities. This may occur, for example, when a market center to which we have routed a customer's order experiences systemic issues and is unable to determine the status of that order. When this happens, we may make a business decision to provide a cancellation notice to our customer, relieving our customer of any liability with respect to the order. We may be informed later, however, that the order was executed at the market center to which we routed it, in which case Cboe Trading would be required to take ownership of that securities position. Our third party clearing brokers maintain error accounts on behalf of Cboe Trading into which such positions settle, and we require the respective clearing broker to trade out of those positions as expeditiously as possible, which could result in our incurring trading losses.

We may not effectively manage our growth, which could materially harm our business, financial condition and operating results.

We expect that our business will continue to grow, which may place a significant strain on our management, personnel, systems and resources. We must continually improve our operational, billing, financial and regulatory systems and managerial controls and procedures, and may need to continue to expand, train and manage our workforce. We must also maintain close coordination among our technology, legal, accounting, finance, marketing, sales, regulatory and compliance functions. If we fail to manage our growth effectively, our business, financial condition and operating results could be materially harmed. Furthermore, failure to successfully expand into new asset classes, such as the digital asset space or U.S. Treasuries, or new geographies may materially adversely affect our growth strategy and our future profitability.

Our continued growth will require increased investment by us in technology, facilities, personnel, and financial and management systems and controls. It also will require expansion of our procedures for monitoring and assuring our compliance with applicable regulations, and we will need to integrate, train and manage a growing employee base. The expansion of our existing businesses, any expansion into new businesses and the resulting growth of our employee base will increase our need for internal audit and monitoring processes, which may be more extensive and broader in scope than those we have historically required. We may not be successful in identifying or implementing all of the processes that are necessary. Further, unless our growth results in an increase in our revenues that is proportionally greater than or equal to the increase in our costs associated with this growth, our business, financial condition and operating results may be materially adversely affected.

A pandemic, such as the COVID-19 pandemic, and its effects may have significant impacts on economies around the world. Impacts of a pandemic could also have a material adverse effect on our business, financial condition, operating results and cash flows.

A pandemic, such as the COVID-19 pandemic, may have significant impacts on economies around the world. Governments, public institutions, and other organizations around the world may take or reimpose previous, emergency measures to combat a potential pandemic, including vaccination requirements, implementation of travel bans, stay-at-home orders, border closures, and closures of offices, factories, schools, public buildings and businesses. These measures may disrupt the supply chain and may interfere with the ability of our employees, vendors, technology equipment suppliers, data and disaster recovery centers, and other service providers to perform their respective responsibilities and obligations relative to the conduct of our business. In addition to uncertain expenses and impacts to our business we may incur due to a pandemic as part of us providing a safe and healthy work and trading environment, employees working remotely from different locations and in connection with our return to our offices, we may also be subject to claims from employees or customers alleging failure to maintain safe premises and restrictions with respect to protocols relating to such pandemic. Further, changes in trading behavior, impacts to trading behavior due to market disruptions, temporary suspensions of open outcry trading, temporary regulatory measures and other future developments caused by the effects of a pandemic, including a re-occurrence of cases and the emergence of variants, could impact trading volumes and the demand for our products, market data and services, which could have a material

adverse effect on our business, financial condition, operating results and cash flows and could heighten many of the other risks described herein.

Risks Relating to Legal and Regulatory Matters

We operate in a highly regulated industry and may be subject to censures, fines and other legal proceedings if we fail to comply with legal and regulatory obligations.

Cboe Options, C2, BZX, BYX, EDGX, and EDGA are registered national securities exchanges and SROs, and, as such, are subject to comprehensive regulation by the SEC. CFE is a DCM and Cboe SEF is a SEF, each registered with the CFTC and subject to comprehensive regulation by the CFTC. In addition to its other SRO responsibilities, BZX, as a listing market, also is responsible for evaluating applications submitted by issuers interested in listing their securities on BZX and monitoring each issuer's compliance with BZX's continued listing standards. The Exchanges may be subject to additional responsibilities in other international jurisdictions where the Exchanges may be authorized to act as foreign exchanges. Failure to comply with these SRO and other responsibilities could result in potential sanctions or fines and a negative impact on Cboe's reputation and/or branding.

Our European businesses are subject to regulatory oversight in the UK by the FCA and in the Netherlands by the DNB and the AFM, which, through the "passporting" regime, provides authorization to carry on business in other Member States of the EU and the EEA in accordance with the applicable EU legislation and regulation to which our European business is subject. MATCHNow and NEO are subject to regulatory oversight in Canada by their primary provincial securities authority, the OSC. In addition, each of MATCHNow and NEO is a Marketplace Member of, and subject to a regulation services agreement with, the Canadian SRO. Cboe Australia is subject to regulatory oversight in Australia by the ASIC. Cboe Japan is subject to regulatory oversight in Japan by the JFSA and the JSDA. BIDS Trading is a registered broker-dealer subject to regulatory oversight in the U.S. by the SEC and FINRA and is intended to be maintained as an independently managed and operated trading venue, separate from and not integrated with the SROs. The Chief Executive Officer of BIDS Trading is expected to lead BIDS Trading as an independent business within Cboe, reporting into an independent committee of the Board of Directors of Cboe Global Markets. If a regulatory authority makes a finding of non-compliance, conditional fines could be imposed, and our licenses could be revoked. Any such fine or revocation of a license could have a material adverse effect on our business, financial condition and operating results.

In addition to the requirements related to operating our U.S. markets imposed by the SEC and the CFTC, we also have certain responsibilities for regulating the TPHs and members that trade on our Exchanges. While we have entered into agreements under which FINRA, with respect to our options and equities exchanges provides certain regulatory services, and under which OCC, with respect to CFE provides certain financial surveillance and regulatory services, we retain ultimate responsibility for the regulation of our TPHs and members. We have begun to perform internally more of the regulatory services that FINRA used to handle and now perform internally the regulatory functions that NFA previously handled on behalf of CFE.

Our ability to comply with applicable laws and rules is largely dependent on the establishment and maintenance of appropriate systems and procedures, our ability to attract and retain qualified personnel, the ability of FINRA and OCC to perform under their respective RSAs, the ability of FINRA and OCC to transition to us any other potential responsibilities under their respective RSAs, our ability to complete the new additional responsibilities for regulating our TPHs and members and our oversight of the work done by FINRA and OCC. The SEC and CFTC have broad powers to audit, investigate and enforce compliance and to punish noncompliance by, as applicable, SROs, DCMs and SEFs pursuant to applicable laws, rules and regulations.

If a regulatory authority were to find one of our programs of enforcement or compliance to be deficient, our SROs, DCM, or SEF could be the subject of investigations and enforcement proceedings that may result in substantial sanctions, including revocation of registration as a national securities exchange, DCM, or SEF. Any such investigations or proceedings, whether successful or unsuccessful, could result in substantial costs, the diversion of resources, including management time, and potential harm to our reputation, which could have a material adverse effect on our business, financial condition and operating results. In addition, our SROs, DCM, or SEF may be required to modify or restructure their regulatory functions in response to any changes in the regulatory environment, or they may be required to rely on third parties to perform regulatory and oversight functions, each of which may require us to incur substantial expenses and may harm our reputation if our regulatory services are deemed inadequate.

In addition, SROs are required by federal law to perform a variety of regulatory functions. In light of these responsibilities, some courts have held that SROs are immune to certain private causes of action relating to the

performance of these regulatory functions. There is a risk that some courts may not apply this immunity doctrine to all claims. There is also a risk that legislative or regulatory developments may change the application of this immunity doctrine. Limitations on the application of the immunity doctrine could result in an increased exposure to litigation, and increase liability and/or other legal expenses. Further under the CEA, CFE, Cboe SEF and Cboe Digital Exchange may be subject to litigation alleging that they have acted in bad faith. We also could be exposed to liability to regulators or other governmental authorities even in situations where immunity would bar a civil claim.

Legislative or regulatory changes affecting our markets could have a material adverse effect on our business, financial condition and operating results.

Changes in regulation by the SEC, CFTC, FCA, Central Bank of the Netherlands (“DNB”), AFM, IIROC, Canadian SRO, OSC, ASIC, JFSA, JSDA, other foreign regulators or other government action, including SEC approval of rule filings by other SROs or entities, including OCC, could materially affect our markets, products and clearinghouse. In recent years, the securities and derivatives industries have been subject to regulatory changes as a result of increasing government and public scrutiny of the securities and derivatives industries. We have also experienced, and we may also experience due to changes in administrations in the U.S. and expansion into other asset classes, such as the digital asset space or U.S. Treasuries and geographies, an increase in rulemaking and legislation that could affect our business.

In particular, in December 2022, the SEC released four proposals that could impact equity market structure: (1) Disclosure of Order Execution Information (Rule 605); (2) Regulation NMS Amendments: Tick Size, Access Fees, and Transparency; (3) Regulation Best Execution; and (4) Proposed Rule to Enhance Order Competition. These proposals have been noticed for public comment. If adopted as-is or additional proposals or changes to the existing equity market structure proposals emerge, we could experience market technology changes, incur additional compliance costs, experience negative impacts on our volumes, liquidity, and fees, all of which could have a material adverse effect on our business, financial condition and operating results.

Under EU and UK regulations, European and UK banks and other European and UK financial institutions become subject to punitive capital charges if they transact options or futures through a third country central counterparty (“CCP”) that is not recognized in the applicable jurisdiction. OCC, our clearinghouse for U.S. options and futures, is recognized as a third country CCP by the EU and is currently operating under the UK’s temporary recognition regime. Although the UK has not issued any equivalency determination with respect to U.S. CCPs, OCC has submitted its application for permanent recognition in the UK. The current deadline for recognition in the UK is December 31, 2024, and may be extended by His Majesty’s Treasury in the future in increments of 12 months each. As a prerequisite to ultimately achieving recognition in the UK, it is possible that OCC could be required by the UK to contribute capital to its default waterfall applicable in the event of clearing member default. This capital could be required to be drawn before the default fund contributions of non-defaulting clearing members in the event that a defaulting clearing member’s margin and other contributions were to be exhausted. OCC’s stockholders, including Cboe Options, could effectively be required to fund this capital. If the UK does not recognize OCC as a third country CCP, then UK market participants that clear through OCC would become subject to punitive capital charges. As a result, we could experience the loss of a significant number of UK market participants and a significant reduction in trading activity on our options and futures markets, which could have a material adverse effect on our business, financial condition and operating results.

The implementation of MiFID II and MiFIR in Europe at the beginning of 2018 has encouraged competition among market centers in Europe. MiFID II and MiFIR have introduced a number of new rules, including enhanced internal organizational and compliance monitoring requirements, which apply directly to European trading venues such as our MTF and RM. The impact of MiFID II and MiFIR is significant, and the increased competition among market centers could reduce trading volumes and trading fees, while increasing our costs of operating in Europe. Additionally, European authorities are currently undertaking a review of MiFID as a result of which new rules may come into effect that could have a material impact on our business.

In 2021 the E.C. published proposals for the review of EU market structure, including provisions for a consolidated tape for the EU and changes to the transparency regime for equities. These proposals are expected to be implemented during late 2023 or early 2024. As proposed, these new rules may have a material adverse effect on our business, financial condition and operating results.

The legislative and regulatory environment in which the spot FX market operates is evolving and has undergone significant changes in the recent past, and there may be future regulatory changes in the spot FX industry. The FX Global Code was published in 2017 and sets forth standards of conduct agreed by market participants and central banks on a global basis to apply to the wholesale FX market, and the effect of its publication on conduct and future regulation

continues to evolve. Cboe FX issued a Statement of Commitment declaring its commitment to conduct its FX market activities in a manner consistent with the principles of the FX Global Code. Amendments to the FX Global Code, changes in the interpretation or enforcement of existing laws and regulations by applicable governmental bodies and regulatory organizations, or the adoption of new legal or regulatory requirements, may also adversely affect our spot FX business. Further, our FX NDF business may also be adversely affected by proposed regulatory changes to the rules governing swap execution facilities.

It is also possible that there will be additional legislative and regulatory changes or efforts in the environment in which we operate, or plan to operate, our businesses. Actions on any of the specific regulatory issues currently under review in the U.S. or internationally and other proposals could have a material impact on our business.

In addition, U.S. and foreign legislatures and regulators could impose legislative or regulatory changes that could materially adversely impact the ability of our market participants to use our markets or participate in the securities industry at all. Any such changes could result in the loss of a significant number of market participants or a reduction in trading activity on our markets, either of which could have a material adverse effect on our business, financial condition and operating results. Changes or proposed changes in regulation may also result in additional costs of compliance and modification of market participants' trading activity on our Exchanges and markets.

Any infringement by us on intellectual property rights of others could result in litigation and could have a material adverse effect on our operations.

Our competitors, as well as others, have obtained, or may obtain, patents or may otherwise hold intellectual property rights that are related to our technology or the types of products and services we offer or plan to offer. We may not be aware of all intellectual property that may pose a risk of infringement by our products, services or technologies. In addition, some potential patent applications in the U.S. are confidential until a patent is issued, and therefore we cannot evaluate the extent to which our products, services or technologies may be covered or asserted to be covered in pending patent applications. Thus, we cannot be sure that our products, services or technologies do not infringe on the rights of others or that others will not make claims of infringement against us. Claims of infringement are not uncommon in our industry, and even if we believe that such claims are without merit, they can be time-consuming and costly to defend and divert management resources and attention. If one or more of our products, services or technologies were determined to infringe a patent or other intellectual property right held by another party, we may be required to pay damages, stop using, developing or marketing those products, services or technologies, obtain a license from the intellectual property rights holders, or redesign those products, services or technologies to avoid infringement. If we were required to stop using, developing or marketing certain products, services or technologies, our business, financial condition and operating results could be materially harmed. Moreover, if we were unable to obtain required licenses, we may not be able to redesign our products, services or technologies to avoid infringement, which could materially adversely affect our business, financial condition and operating results.

Misconduct by our TPHs, members, participants or others could harm us.

We run the risk that our TPHs, members, participants, other persons who use our markets or our products, other persons for whom we clear transactions, our employees or those with which we have business relationships may engage in fraud, market or product manipulation, or other misconduct, which could result in regulatory and legal sanctions and penalties and serious harm to our reputation, especially because we are the parent company of SROs. It is not always possible to deter misconduct, or market or product manipulation, and the precautions we take to prevent and detect this activity may not be effective in all cases. In addition, misconduct, or market or product manipulation by, or failures of, participants on our or other exchanges may discourage trading on our Exchanges or of our products, which could reduce revenues.

Potential conflicts of interest between our for-profit status and our regulatory responsibilities may adversely affect our business.

As a for-profit business with regulatory responsibilities, we are responsible for disciplining TPHs and members for violating our rules, including by imposing fines and sanctions. This may create a conflict of interest between our business interests and our regulatory responsibilities. Any failure by us to fulfill our regulatory obligations could significantly harm our reputation, increase regulatory scrutiny or cause the SEC or CFTC to take action against us, all of which could materially adversely affect our business, results of operations or financial condition.

BIDS Trading's ability to operate under its current regulatory framework is dependent upon the sufficiency of a novel operational and governance framework we have developed to govern our relationship with BIDS Trading and our ability to comply with such framework and if we fail to adhere to such framework or the BIDS Trading ATS is otherwise deemed a "facility" of our registered national securities exchanges, our business, financial condition and operating results may be adversely affected.

The U.S. equities ATS operated by BIDS Trading is regulated as a broker-dealer sponsored alternative trading system and not a registered national securities exchange. Because we acquired BIDS Trading, it is now under common ownership with our registered national securities exchanges that, in some cases, offer trading in the same securities as those traded on the BIDS Trading ATS. Absent sufficient separation, this common ownership of an ATS and registered national securities exchanges offering trading in the same securities presents the potential for the BIDS Trading ATS to be deemed a "facility" of our registered national securities exchanges. If the BIDS Trading ATS were to be deemed to be a "facility" of our registered national securities exchanges, certain exchange regulations could be extended to the BIDS Trading ATS, which could have a material adverse impact on BIDS Trading's business model. This could reduce the BIDS Trading ATS' competitiveness and volumes and could result in a reduction of the value of the BIDS Trading ATS to us. This could also potentially result in fines or other penalties being assessed against us for our failure to operate the BIDS Trading ATS as a "facility," which could have a material adverse effect on our business, financial condition and operating results.

To mitigate the risk that the BIDS Trading ATS is deemed a "facility" of our registered national securities exchanges, we have developed and implemented an operational and governance framework for our ownership of BIDS Trading that is intended to preserve the strategic, technological, business, and operational independence of the BIDS Trading ATS from our registered national securities exchange businesses, such that the BIDS Trading ATS and our registered national securities exchanges would not be deemed to be integrated or otherwise linked for "facility" purposes. This framework is supported by highly detailed policies, procedures and controls. However, because of the lack of precedent for common ownership of an ATS and registered national securities exchanges offering trading in the same securities, there is risk that our framework and supporting policies, procedures and controls could be deemed to be insufficient to prevent the BIDS Trading ATS from being deemed to be a "facility" of our registered national securities exchanges. In addition, because of the comprehensive and highly detailed nature of our framework and supporting policies, procedures and controls, there is risk that we could inadvertently fail to fully adhere to our operational and governance framework and related policies, procedures and controls. There is also risk that new legislation or regulation, or changes in existing regulation or other government action, relating to "facilities" of registered national securities exchanges and/or the common ownership of an ATS and registered national securities exchanges offering trading in the same securities could materially affect our ability to own and operate the BIDS Trading ATS under the current operational and governance framework, including without the BIDS Trading ATS being deemed a "facility" of our registered national securities exchanges. Occurrence of any of the risks described in this paragraph could result in the BIDS Trading ATS being deemed to be a "facility" of our registered national securities exchanges, which could reduce the BIDS Trading ATS' competitiveness and volumes and could result in a reduction of the value of the BIDS Trading ATS to us, and could also potentially result in fines or other penalties being assessed against us for our failure to operate the BIDS Trading ATS as a "facility," which could have a material adverse effect on our business, financial condition and operating results.

If our risk management and compliance methods are not effective, we may suffer adverse consequences, such as investigations and enforcement actions from regulators, our business, financial condition and operating results may be adversely affected.

Our ability to comply with applicable laws and rules is largely dependent on our establishment and maintenance of compliance, risk, audit, and reporting systems and procedures, as well as our ability to attract and retain qualified compliance, risk and audit management personnel. These systems and procedures may not be fully effective. We face the risk of intervention by regulatory authorities, including extensive examination and surveillance activity. In the case of actual or alleged non-compliance with applicable laws or regulations, we could be subject to investigations and judicial or administrative proceedings that may result in penalties, settlements or civil lawsuits, including by customers, or third parties, for damages, which may be substantial. For example, the SEC has previously brought actions against exchange operators, including us, for failing to fulfill their obligations to have an effective regulatory system. Any failure to comply with applicable laws and rules could materially adversely affect our business, reputation, financial condition and operating results and, in extreme cases, our ability to conduct our business or portions thereof. As the parent company for SROs, other markets, and a clearinghouse, we are responsible for maintaining markets that comply with securities and futures laws, SEC, FCA, AFM, DNB, Canadian SRO, OSC, ASIC, JFSA, JSDA, ESMA, and CFTC regulations and the rules of the respective exchanges, markets and clearinghouse.

We have methods to identify, monitor and manage our risks. Management of legal, compliance, and regulatory risk, among other risks, requires policies and procedures to properly monitor and manage risk. Additionally, as we continue to integrate the technology, associates, and processes of recent acquisitions, we may not be able to identify additional risks. Further, the practices we utilize to integrate these acquisitions may not be effective at identifying or monitoring and managing risks related to ongoing integration activities. If our policies, procedures, and compliance systems are not effective or we are not successful in monitoring or evaluating the risks to which we are or may be exposed, our business, reputation, financial condition and operating results could be materially adversely affected. We cannot provide assurance that our policies and procedures will always be effective, or that our management, compliance department, risk department and related enterprise risk management program and internal audit department would be able to identify any such ineffectiveness. If these departments or the enterprise risk program, and related policies and procedures are not effective, we may be subject to monetary or other penalties by our regulators, and our insurance policies may not provide adequate coverage.

Our ability to implement or amend rules could be limited or delayed because of regulation, which could negatively affect our ability to implement needed changes.

Our Exchanges registered with the SEC must submit proposed rule changes to the SEC for its review and, in many cases, its approval. Even where a proposed rule change may be effective upon filing with the SEC, the SEC retains the right to suspend and disapprove such a rule change. Also, the CFTC may stay or disapprove rules that we file with it for CFE or Cboe SEF. The rule review process can be lengthy and can significantly delay the implementation of proposed rule changes that we believe are necessary to the operation of our markets. If the SEC or CFTC delays, including because of a government shutdown, or does not allow one of our Exchanges to implement a rule change, this could negatively affect our ability to make needed changes or implement business activities.

Similarly, the SEC must approve amendments to our exchange subsidiaries' certificates of incorporation and bylaws as well as certain amendments to the certificate of incorporation and bylaws of Cboe Global Markets. The SEC may decide not to approve a proposed amendment or may delay such approval in a manner that could negatively affect our ability to make a desired change, which could prevent or delay us from improving the operations of our markets or recognize income from new products.

Changes in the tax laws and regulations affecting us, our products and our market participants could have a material adverse effect on our business.

Legislation may be proposed, both domestically and internationally, that could add a transaction tax on our products or change the way that our market participants are taxed on the products they trade on our markets. A number of federal, state and local jurisdictions in the U.S. and EU Member States have considered a financial transaction tax, but many details remain to be discussed and agreed, including how to assess the tax. Additionally, legislation has been proposed from time to time on a federal level that would introduce in the U.S. mark-to-market tax treatment for all derivatives contracts and require gains and losses be taxed at ordinary income tax rates. Implementation of such taxes could result in a reduction in volumes and liquidity, which would have a negative impact on our operations.

In addition to proposed tax changes that could affect our market participants, like other corporations, we are subject to taxes at federal, state and local levels, as well as in non-U.S. jurisdictions. Changes in tax laws, regulations or policies or successful claims by tax authorities could result in our having to pay higher taxes, which would in turn reduce our net income. If this occurs, we may experience a higher effective tax rate.

We are subject to litigation risks and other liabilities.

Many aspects of our business involve substantial risks of litigation and other liabilities. Although under current law we expect to be immune from private suits arising from conduct within our regulatory authority and from acts and forbearances incident to the exercise of our regulatory authority, we expect this immunity will only cover certain of our activities in the U.S., and we could be exposed to liability under foreign, national and local laws, court decisions and rules and regulations promulgated by regulatory agencies.

Some of our other liability risks arise under the laws and regulations relating to the tax, employment, intellectual property, anti-money laundering, technology export, cybersecurity, foreign asset controls, foreign corrupt practices, employee labor and employment areas, including anti-discrimination and fair-pay laws and regulations. Liability could also result from disputes over the terms of a trade executed on one of our markets, claims that a system failure or delay cost a

customer money, claims we entered into an unauthorized transaction or claims that we provided materially false or misleading statements in connection with a transaction.

For example, we are subject to on-going legal disputes that could result in the payment of fines, penalties or damages and could expose us to additional liability in the future. See Item 3 “Legal Proceedings” in this Annual Report for a general description of our legal proceedings and claims and Note 23 (“Commitments, Contingencies, and Guarantees – Legal Proceedings”) to the consolidated financial statements and related notes, which are included elsewhere in this Annual Report, for a summary of specific legal proceedings.

Further, we could incur significant expenses vigorously defending the claims mentioned above (including those found to be barred due to immunity) and any future claims, even those without merit, which could adversely affect our business, financial condition and operating results. The outcomes of existing claims and any future claims cannot be determined and an adverse resolution of any lawsuit or claim against us may require us to pay substantial damages or impose restrictions on how we conduct business, either of which could adversely affect our business, financial condition and operating results. In addition, we may have to establish accruals for those matters in circumstances when a loss contingency is considered probable and the related amount is reasonably estimable. Any such accruals may be adjusted as circumstances change.

Risks Related to Our Common Stock and Indebtedness

We have outstanding indebtedness and commitments, which may decrease our business flexibility and adversely affect our business, financial condition and operating results.

As of December 31, 2022, we had \$304.7 million outstanding under our term loan facility, which matures in December 2023, \$647.3 million of senior unsecured notes due 2027, \$494.0 million of senior unsecured notes due 2030, \$296.0 million of senior unsecured notes due 2032, no funds outstanding under our revolving credit facility and no funds outstanding under the Cboe Clear Europe credit facility. The financial and other covenants to which we have agreed and our indebtedness may have the effect of reducing our flexibility to respond to changing business and economic conditions, thereby placing us at a competitive disadvantage compared to competitors that have less indebtedness and making us more vulnerable to general adverse economic and industry conditions. Further, we may default on our obligations or violate the covenants, in which case, we may be required to seek a waiver of such default or the debt obligations may be accelerated. A default under any of our indebtedness with cross default provisions could result in a default on our other indebtedness. Our indebtedness may also increase future borrowing costs, and the covenants pertaining thereto may also limit our ability to repurchase shares of our common stock, increase dividends or obtain additional financing to fund working capital, capital expenditures, acquisitions or general corporate requirements. We are also required to dedicate a larger portion of our cash flow from operations to payments on our indebtedness, thereby reducing the availability of our cash flow for other purposes, including working capital, capital expenditures, regulatory capital requirements, and general corporate purposes. Further, a portion of our borrowings are at variable rates of interest, which exposes us to the risk of increased interest rates unless we enter into offsetting hedging transactions. Also, our ability to fund capital expenditures and return capital to stockholders may depend on the amount of capital committed related to lines of credit granted by the Company to our subsidiaries in connection with their regulatory capital requirements.

Our ability to make payments on and to refinance our debt obligations and to fund planned capital expenditures depend on our ability to generate cash from our operations. This, to a certain extent, is subject to general economic, financial, competitive, legislative, regulatory and other factors that are beyond our control.

We may not be able to refinance any of our indebtedness on commercially reasonable terms, or at all. If we cannot service our indebtedness, we may have to take actions such as selling assets, seeking additional equity or reducing or delaying capital expenditures, strategic acquisitions, investments and alliances, any of which could impede the implementation of our business strategy or prevent us from entering into transactions that would otherwise benefit our business. Additionally, we may not be able to affect such actions, if necessary, on commercially reasonable terms, or at all. Any of the foregoing consequences could materially adversely affect our business, financial condition and operating results.

Deterioration in our credit profile may increase our costs of borrowing money.

As of December 31, 2022, we have investment grade credit ratings from S&P Global Ratings (A-) and Moody's Investor Service (A3). Ratings from credit agencies are not recommendations to buy, sell or hold our securities, and each rating should be evaluated independently of any other rating. There is no assurance that we will maintain such credit

ratings, since credit ratings may be lowered or withdrawn entirely by a rating agency if, in its judgment, the circumstances warrant. If a rating agency were to downgrade our rating below investment grade, our borrowing costs could increase.

If our goodwill, long-lived assets, investments in non-consolidated subsidiaries and intangible assets become impaired, the resulting charge to earnings may be significant.

We are required to assess investments in non-consolidated subsidiaries and intangible assets for impairment at least annually. Goodwill impairment testing is performed annually in the fiscal fourth quarter or more frequently if conditions exist that indicate that the asset may be impaired. In the future, we may take charges against earnings resulting from impairment. Any determination requiring the write-off of a significant portion of our goodwill, long-lived assets, intangible assets or investments in non-consolidated subsidiaries could materially adversely affect our results of operations and financial condition.

Following the acquisition Cboe Digital, in the quarter ended June 30, 2022, negative events and trends in the broader digital asset environment emerged, such as deleveraging and bankruptcies, and certain negative trends in the broader digital asset environment that started in late 2021 intensified, such as the decline in digital asset prices, overall market activity, and market capitalization. Additionally, following the acquisition of Cboe Digital, the efforts to syndicate minority ownership interests in Cboe Digital to potential investors during the quarter ended June 30, 2022 became more challenging, and the outlook for the Digital segment's future market growth was negatively impacted. The Company considered these developments, in particular the syndication efforts during the quarter ended June 30, 2022, to be potential indications of impairment and performed an interim impairment test for the goodwill recognized in the Digital reporting unit during the quarter ended June 30, 2022. The Company concluded that the carrying value of the reporting unit exceeded its estimated fair value, which considered both market and income approaches, and recorded a goodwill impairment charge of \$460.1 million in the consolidated statements of income during the quarter ended June 30, 2022, and also recognized a deferred tax asset of \$116.2 million. This deferred tax asset, resulting from the excess of tax-deductible goodwill over book goodwill, relates to future tax deductions the Company expects to realize to reduce potential tax payments on future income. As a result, the carrying value of Cboe Digital decreased by \$343.9 million, to \$220.0 million as of June 30, 2022. The Company also performed testing over the intangible assets recognized as a result of the Cboe Digital acquisition during the quarter ended June 30, 2022, and based on the results of the assessments, determined there was no impairment required as the fair value approximated the carrying value. No other long lived assets were recognized as a result of the acquisition and subject to further assessment.

As a result of the finalization of the net working capital calculation associated with the acquisition of Cboe Digital during the quarter ended September 30, 2022, the Company recorded additional goodwill of \$0.8 million. Subsequently, the Company concluded that the indicators of impairment outlined in the previous paragraph continued to be relevant and recorded an additional goodwill impairment charge of \$0.8 million in the consolidated statements of income for the three months ended September 30, 2022, resulting in the write-down of the carrying value of the goodwill associated with the acquisition of Cboe Digital to zero.

As a result of the Company's annual impairment analysis, completed in the fourth quarter of 2022, in which all reporting units estimated fair value exceeded their carrying value, we do not consider our goodwill and indefinite-lived intangibles to have a significant risk of additional impairment.

Any decision to pay dividends on our common stock is at the discretion of our Board of Directors and depends upon the earnings and cash flow of our operating subsidiaries. Accordingly, there can be no guarantee that we will pay dividends to our stockholders.

Any decision to pay dividends on our common stock in the future will be at the discretion of our Board of Directors, which may determine not to declare dividends at all or at a reduced amount. The board's determination to declare dividends will depend upon our profitability and financial condition, contractual restrictions, restrictions imposed by applicable law and the SEC and other factors that the board deems relevant. As a holding company with no significant business operations of its own, Cboe Global Markets depends entirely on distributions, if any, it may receive from its subsidiaries to meet its obligations and pay dividends to its stockholders. If these subsidiaries are not profitable, or even if they are and they determine to retain their profits for use in their businesses, we will be unable to pay dividends to our stockholders.

Certain provisions in our organizational documents and governing law could prevent or delay a change of control.

Our organizational documents contain provisions that could block actions that stockholders might find favorable, including discouraging, delaying or preventing a change of control or any unsolicited acquisition proposals for us. These include provisions:

- prohibiting stockholders from acting by written consent;
- requiring advance notice of director nominations and of business to be brought before a meeting of stockholders; and
- limiting the persons who may call special stockholders' meetings.

In addition, our organizational documents include provisions that:

- restrict any person from voting or causing the voting of shares of stock representing more than 20% of our outstanding voting capital stock; and
- restrict any person from beneficially owning shares of stock representing more than 20% of the outstanding shares of our capital stock.

Furthermore, our Board of Directors has the authority to issue shares of preferred stock in one or more series and to fix the rights and preferences of these shares without stockholder approval. Any series of our preferred stock is likely to be senior to our common stock with respect to dividends, liquidation rights and, possibly, voting rights. The ability of the Board of Directors to issue preferred stock also could have the effect of discouraging unsolicited acquisition proposals, thus materially adversely affecting the market price of our common stock.

Delaware law makes it difficult for stockholders that have recently acquired a large interest in a corporation to cause the merger or acquisition of the corporation against the board's wishes. Under Section 203 of the Delaware General Corporation Law, a Delaware corporation may not engage in any merger or other business combination with an interested stockholder for a period of three years following the date that the stockholder became an interested stockholder except in limited circumstances, including by approval of the corporation's Board of Directors.

Furthermore, the European countries where we operate regulated entities, such as the UK and Netherlands, may require prior governmental approval before an investor acquires 10% or more of the outstanding shares of our common stock.

Risks Relating to Our Business Following Consummation of Cboe Digital Acquisition

We may not realize the expected benefits of our acquisition of Cboe Digital (formerly known as ErisX) and the acquisition introduces additional risks to our business due to its evolving business model.

On May 2, 2022, the Company completed its acquisition of ErisX, which was subsequently rebranded as Cboe Digital. Cboe Digital operates a U.S.-based digital asset spot market, a regulated futures exchange and a regulated clearinghouse. Leveraging digital asset data from Cboe Digital's and our existing index calculation capabilities, we intend to develop and distribute digital asset indices for potential use in exchange traded products and other derivative product opportunities. We also plan to develop a robust market data offering based on actionable bid and offer prices from the Cboe Digital spot crypto market, and ultimately intend to develop a benchmark to help Cboe Digital's industry partners and other market participants evaluate the appropriateness of crypto execution prices and offer digital asset trading to their clients. We are subject to increased financial and reputational risks if there is a failure to develop and launch one or more of the anticipated products resulting from this acquisition, or if the development or launch of a new product is unsuccessful. Also, there can be no assurance that we will be able to maintain the necessary regulatory approvals or receive support from market participants, industry partners and users to develop and launch products as planned, that Cboe Digital will continue to operate as anticipated, or that we will realize the expected return on our investment. Furthermore, our investment in Cboe Digital entails numerous risks, including risks relating to our ability to:

- manage the complexity of its business model to stay current with the industry;
- successfully enter categories and markets in which it may have limited or no prior experience;
- successfully develop and integrate products, systems or personnel into its business operations; and
- maintain required licenses and regulatory approvals for its business.

In addition, certain market participants acquired minority ownership interests in Cboe Digital and intend to serve as partners in the growth of the business. If these market participants do not serve as partners in the growth of the business, then we may not be able to realize the expected return on our investment. Insufficient participation from market participants in ownership and partnership may adversely affect the ability of Cboe Digital to operate as anticipated or grow, which may have a material adverse effect on the Cboe Digital business.

As digital assets technologies evolve, Cboe Digital may add, modify or discontinue certain aspects of its business model relating to the product mix and service offerings. Future additions and modifications to Cboe Digital's business will increase the complexity of its business and may place significant strain on our management, personnel, operations, systems, technical performance, financial resources and internal financial control and reporting functions. We cannot offer any assurance that these or any other additions or modifications will be successful or will not result in harm to our business. Additionally, sources of Cboe Digital revenue are dependent on digital assets and the broader blockchain ecosystem. Due to the highly volatile nature of the blockchain ecosystem and the prices of digital assets, Cboe Digital's operating results have fluctuated, and may continue to fluctuate, significantly from period to period in accordance with market sentiments and movements in the broader blockchain ecosystem.

Additionally, the blockchain ecosystem is highly innovative, rapidly evolving and characterized by intense competition, experimentation and frequent introductions of new products and services, and is subject to uncertain and evolving industry and regulatory requirements. We expect competition to increase in the future as existing and new competitors introduce new products or enhance existing products that may compete with Cboe Digital. We have limited experience applying Cboe Digital's technology platform to a global exchange and clearing infrastructure for digital assets. The creation and operation of a global digital assets spot and derivatives trading market is subject to potential technical, legal and regulatory constraints. Any problems that we encounter with the operation of the Cboe Digital systems, including technical, legal and regulatory problems, could negatively impact our business and plan of operations.

The characteristics of digital assets and digital asset platforms have been, and may in the future continue to be, exploited to facilitate illegal activity such as fraud, money laundering, tax evasion, ransomware scams and other types of cybercrime, as well as other technical issues, which could adversely affect the Cboe Digital business. Additionally, illegal activity conducted by other digital asset platforms in the digital asset space may erode trust in the digital asset industry which could have a broad-based negative reputational effect on the Cboe Digital business.

Digital assets and the digital asset industry are relatively new and, in many cases, lightly regulated or largely unregulated. Digital asset platforms on which digital assets trade pose special risks, as these platforms are generally new and the rules governing their activities are unsettled and their activities may be largely unregulated, and may therefore be more exposed to theft, fraud, and failure than established, regulated exchanges for other products.

Some types of digital assets, particularly cryptocurrencies, have characteristics, such as the speed with which transactions can be conducted, the ability to conduct transactions without the involvement of regulated intermediaries, the ability to engage in transactions across multiple jurisdictions, the irreversible nature of certain transactions and encryption technology that anonymizes these transactions, that make those assets potentially susceptible to use in illegal activity such as fraud, money laundering, tax evasion, ransomware scams and other types of cybercrime. Digital asset platforms have been shut down or experienced losses of assets placed on the platform as a result of cybercrime, and any such event is likely to result in the complete loss of assets placed on such a platform. Any governmental or regulatory action against such a digital asset trading platform may cause assets on such platform to become frozen for a substantial period of time or forfeited, and could result in material opportunity costs or even in the total loss of such assets. In addition, banks may refuse to process or support wire transfers to or from digital asset trading platforms.

While we believe that our risk management and compliance framework is reasonably designed to detect any such illicit activities, we cannot ensure that we will be able to detect such illegal activity in all instances. Because the speed, irreversibility and anonymity of certain digital asset transactions potentially makes them difficult to track, fraudulent transactions may be more likely to occur. Cboe Digital may be specifically targeted by individuals seeking to conduct transfers for fraudulent purposes, and it may be difficult or impossible for us to detect and avoid such transactions in certain circumstances.

Various other technical issues with blockchain networks have also been uncovered from time to time that resulted in disabled functionality, exposure of certain users' personal data, theft of users' assets, and other negative consequences, and which required resolution with the attention and efforts of their global miner, user and development communities. If

any such risks or other risks materialize, the development and growth of digital assets may be significantly affected and, as a result, our Cboe Digital business, operating results and financial condition could be adversely affected.

Recent illegal activity by other institutions in the digital asset space may have a negative impact on our customer's and regulators' view of the digital asset industry as a whole and result in broadly applied reputational harm. Though we cannot control the actions of other entities in the digital asset space, Cboe Digital subscribes to strict risk management processes that are reviewed and updated to help prevent illegal activity from occurring within Cboe Digital.

Digital assets, digital asset trading platforms and blockchains are currently subject to many different, and potentially overlapping, regulatory regimes, and may in the future be subject to different regulatory regimes than those that are currently in effect. The current and future operation of Cboe Digital may increase our regulatory costs and risks, and there can be no assurance that our employees or agents will not violate applicable laws and regulations.

Various aspects of the business that we are engaging in, or planning to engage in, through Cboe Digital are heavily regulated. The Cboe Digital futures exchange and clearinghouse are regulated by the CFTC, and the Cboe Digital clearinghouse is registered with the Financial Crimes Enforcement Network and is licensed as a money transmitter in many U.S. states and territories. Further, the regulatory and legislative framework is unsettled with respect to many forms of digital assets, which means that federal or state regulators or legislators may in the future curtail or prohibit the acquisition, use or redemption of certain digital assets. Ownership of, holding or trading in certain digital assets may become subject to sanction. In light of recent events in the digital asset environment, including the FTX bankruptcy, Federal or state regulators or legislators are increasingly looking to take regulatory or legislative actions, such as the potential digital asset legislation discussed above, that may require additional resources for us to comply with any new regulations and laws and increase the cost and/or subject us and other companies to additional regulations and laws regarding custody or facilitating the trading of digital assets, which may have a material adverse effect on the Cboe Digital business. We are also subject to federal and state anti-money laundering and counter-terrorism financing laws and regulations.

In addition, as we expand the Cboe Digital business to new products and services, we will come under the jurisdiction of additional regulators - both with respect to jurisdiction and subject matter. Certain jurisdictions may impose restrictions on individual's ability to trade specific certain digital assets or at all. Any failure or perceived failure to comply with existing or new laws, regulations, or orders of any governmental authority (including changes to or expansion of the interpretation of those laws, regulations, or orders), including those discussed in this risk factor, may subject us to significant fines, penalties, criminal and civil lawsuits, forfeiture of significant assets, and enforcement, result in additional compliance and licensure requirements, increase regulatory scrutiny of its business, restrict Cboe Digital's operations, and force Cboe Digital to change its business practices, make product or operational changes, or delay planned product launches or improvements.

We currently maintain policies and procedures designed to reasonably help ensure compliance with applicable laws and regulations, but there can be no assurance that we or our employees or agents will be able to comply with all of the regulatory regimes that currently apply, or may in the future be applied, to the Cboe Digital platform or the digital assets supported by the Cboe Digital platform. Cboe Digital follows best practices designed to restrict unauthorized access by individuals in jurisdictions where it is impermissible to trade digital assets. We do not have exposure to any regulators outside of the United States and routinely seek out and receive legal analyses on which jurisdictions we can offer our services to and which customers may avail themselves of our products and services. Additionally, we evaluate which digital assets to include on our platform pursuant to a digital asset listing policy, which includes review by operational, legal and compliance functions. The SEC and its staff have taken the position that certain digital assets fall within the definition of a "security" under the federal securities laws, and it is possible the SEC may take this position with respect to assets that may be transacted on the Cboe Digital platform. The legal test for determining whether any given asset is a security is a highly complex, fact-driven analysis that evolves over time, and the outcome is difficult to predict. The SEC generally has not provided advance guidance or confirmation on the status of any particular digital asset as a security. Furthermore, the SEC's views in this area have evolved over time, and it is difficult to predict the direction or timing of any continuing evolution. In addition, a platform trading a digital asset determined to be a security may be required to register and be regulated by the SEC. A failure by us, including our employees or agents, to comply with applicable laws and regulations and subsequent judgment or settlement against us under these laws could subject us to monetary penalties, damages, expenses, and/or have a significant reputational impact.

Digital asset custodial solutions and related technology, including our systems and custodial arrangements, are subject to risks related to a loss of funds due to theft of digital assets, employee or vendor sabotage, security and cybersecurity risks, system failures and other operational issues which could cause damage to our reputation and brand. There is also legal uncertainty regarding digital asset custodian arrangements.

The secure storage and transmission of digital assets and data over networks is a critical element of our digital asset operations. Cboe Digital holds customer's digital assets custodially through self-custody, and it's accounts with custodians. The exchanges, brokers, dealers, banks or such other cryptocurrency custodial institutions selected by us to act as custodians may become insolvent or suffer from any of the custody risks described herein, causing us to lose all or a portion of the digital assets held by those custodians. Threats to the storage and transmission of digital assets and data may come from external factors such as governments, organized crime, hackers and other third parties such as outsourced or infrastructure-support providers and application developers, or may originate internally from an employee or service provider to whom we or our custodians have granted access to our systems.

Digital asset transactions may be irrevocable, and stolen or incorrectly transferred digital assets may be irretrievable. Once a transaction has been verified and recorded in a block that is added to the blockchain, an incorrect transfer of a digital asset generally will not be reversible, and we or our custodians may not be capable of seeking compensation for any such transfer or theft. It is possible that, through computer or human error, or through theft or criminal action, the digital asset could be transferred in incorrect amounts or to unauthorized third parties, or to uncontrolled accounts. Such events could have a material adverse effect on the ability of Cboe Digital to continue as a going concern, which may have an adverse effect on our business.

While we and our digital asset custodians maintain cybersecurity procedures and policies, those procedures and policies may not be adequate to avoid the potential losses caused by security breaches, and we or our custodians may lose digital assets without any recourse. Unlike bank accounts or accounts at some other financial institutions, in the event of loss or loss of utility value, there is no public insurer, such as the Securities Investor Protection Corporation or the Federal Deposit Insurance Corporation, to offer recourse to us or to any investor and the misappropriated digital assets may not easily be traced to the bad actor.

Cboe Digital takes several steps to isolate the digital assets held for customers from its own assets and to structure customer accounts in a way that reinforces customer ownership of digital assets. Primarily, Cboe Digital holds customer digital assets separate from its own assets in customer accounts, referred to as wallets, either through a third-party custodian, a licensed trust company, or in separate and distinct wallets managed by Cboe Digital. Customer digital assets are held in omnibus wallets titled for the benefit of customers of Cboe Digital. Digital assets of customers (but not Cboe Digital) are commingled in the omnibus wallets, and Cboe Digital maintains the records of the amount and type of digital asset owned by each of its customers in omnibus wallets. Cboe Digital does not commingle its own corporate assets with the customer digital assets in the omnibus wallets, other than corporate assets that are held in omnibus wallets to facilitate customer transactions relating to the digital assets contained in the omnibus wallet, including in order to pay customary transaction fees and expenses. Because Cboe Digital does not have a trading entity for proprietary or liquidity trading purposes, Cboe Digital maintains its own digital assets only to facilitate customer trading. Cboe Digital does not currently pledge, rehypothecate, or invest customer digital assets although its customer agreements and rulebook permit it to do so in the future. Additionally, Cboe Digital does not otherwise use customer digital assets for its own corporate or business purposes. A failure of Cboe Digital's policies and procedures regarding the separation of customer assets could subject Cboe Digital to regulatory scrutiny and could adversely affect Cboe Digital's digital asset business.

The obligations associated with these custodial and other arrangements to safeguard digital assets involve unique risks and uncertainties not present in arrangements to safeguard assets that are not digital assets. While other types of assets held in a similarly-segregated manner have been deemed not to be part of the custodian's bankruptcy estate under various regulatory regimes, bankruptcy courts have not yet considered the appropriate treatment of custodial holdings of digital assets, and any such determination may be highly fact-specific. Despite Cboe Digital's efforts, through contractual terms and account set up, to structure customer accounts and wallets in a manner that reinforces customer ownership of the assets, there can be no assurance that courts will not consider such assets as part of Cboe Digital's or an Cboe Digital custodian's bankruptcy estate. In that event, digital assets that Cboe Digital or its custodian holds on behalf of Cboe Digital customers may become subject to the bankruptcy proceedings, and such customers could be treated as general unsecured creditors. Moreover, even if digital assets ultimately are not treated as part of Cboe Digital's or an Cboe Digital custodian's bankruptcy estate, the lack of precedent and the fact-dependent nature of the determination could delay the return of such digital assets to customers or result in the return of all or a portion of the cash value of the digital assets rather than the digital assets themselves. As a result of these and other risks, customers may find digital assets to be more risky and less attractive than other assets, which could reduce demand for Cboe Digital's digital asset services and could adversely impact Cboe Digital's digital asset business.

Further, when cryptocurrency custodial solutions (whether involving Cboe Digital systems or others) experience system failures or other operational issues, such events could result in a reduction in digital asset prices or confidence and impact the success of Cboe Digital, and may ultimately have a material adverse effect on the ability of Cboe Digital to continue as a going concern.

While Cboe Digital and its vendors have experienced in the past cybersecurity threats and events of varying degrees, we are not aware of any of these threats or events having a material impact on Cboe Digital's business, financial condition or operating results to date. However, there can be no assurance that we or our vendors and custodians will not experience future threats or events that may be material. If any such threats or events materialize, we may be subject to contractual restrictions, liability and damages, loss of business, penalties, unfavorable publicity, and increased scrutiny by regulators, which may have an adverse effect on our business.

Digital assets are subject to volatile price fluctuations which can impact the Cboe Digital business.

The digital asset market has been characterized by significant volatility and unexpected price movements. Certain crypto assets may become more volatile and less liquid in a very short period of time, resulting in market prices being subject to erratic and abrupt market movement, which could harm the Cboe Digital business and the carrying value of the Digital reporting unit. As discussed above, the Company previously recorded goodwill impairment charges related to Cboe Digital, resulting in decreases in the carrying value of Cboe Digital. Prices of digital assets have fluctuated widely for a variety of reasons and may continue to experience significant price fluctuations. Such volatility could have a significant impact on the fair market value of digital assets and there can be no assurance that ongoing volatility will positively impact the value of digital assets. Factors that may affect the price of digital assets include:

- Total digital assets in existence;
- Global digital assets supply and demand;
- Investors' expectations with respect to the rate of inflation of fiat currencies;
- Digital asset market fragmentation and consolidation;
- Fiat currency withdrawal and deposit policies of digital asset trading platforms and liquidity of such markets;
- Interruptions in service from, bankruptcy of, or failure of major digital asset trading platforms;
- Cyber theft of digital assets from online digital asset wallet providers, or news of such theft from such providers, or theft from individual digital asset wallets;
- Investment and trading activities of hedge funds and other large digital asset investors;
- Monetary policies of governments, sanctions, trade restrictions, currency devaluations and revaluations;
- Regulatory measures, if any, that restrict or facilitate the ability to buy, sell or hold digital assets or use digital assets as a form of payment;
- Availability and popularity of businesses that provide digital asset-related services;
- Maintenance and development of the open-source software protocol of the digital asset network;
- Global or regional political, economic or financial events and uncertainty;
- Manipulative trading activity on digital asset trading platforms, which are largely unregulated;
- The adoption of digital assets as a medium of exchange, store-of-value or other consumptive asset and the maintenance and development of the open-source software protocol of the applicable digital asset;
- Forks in the applicable digital asset network;
- Consumer preferences and perceptions;
- An active derivative market for digital assets; and
- Fees associated with processing a transaction of digital assets and the speed at which such transactions are settled.

Volatility and unexpected price movements may be a factor in whether customers maintain their deposits on Cboe Digital Exchange. Excessive redemptions or withdrawals by customers may have an adverse impact on the profitability of the Cboe Digital business.

Cboe Digital's clearinghouse operations are exposed to risks, including credit, liquidity, market and other risks related to the potential defaults of clearing members and other counterparties.

Cboe Digital is subject to risks related to operating its clearinghouse, Cboe Clear Digital, which is a derivatives clearing organization ("DCO") registered with the CFTC. Risks associated with the operation of Cboe Clear Digital include failing to meet strict business continuity requirements and regulatory oversight, risks of default by clearing members and counterparties due to bankruptcy, lack of liquidity, operational failure or other reasons. There is no guarantee the collateral deposited will continue to maintain its value, and the use of digital assets as collateral may introduce additional

volatility in value. Further, to help ensure an orderly market, Cboe Digital maintains digital assets to support its clearing operations which may be subject to significant changes in value and therefore exposed to market risk with the fluctuation in market prices. Cboe Digital monitors this risk on a daily, weekly and monthly basis. The business model is such that Cboe Digital earns digital assets and at times may accumulate positions that are subject to market risk. Customer positions do have market risk based on daily activity and settlement prices. Please also refer to the risk factors above for a discussion of other risks associated with the use of digital assets. These risks could subject Cboe Digital to substantial losses, not being able to meet short term liquidity demands due to settlement activity, reputational harm, regulatory consequences, including litigation, fines and enforcement actions, and the inability to operate its business.

Item 1B. Unresolved Staff Comments

Not applicable.

Item 2. Properties

The Company is headquartered in Chicago with a network of domestic and global offices across the Americas, Europe, Asia and Australia, including main hubs in New York, London, Kansas City and Amsterdam. Our principal properties as of December 31, 2022 are listed in the table below:

Location	Classification	Owned/Leased	Lease Expiration	Approximate Size
400 South La Salle Street, Chicago, Illinois	Former global headquarters and office space; prior trading floor	Owned*	N/A	300,000 sq. ft.
433 W. Van Buren Street, Chicago, Illinois	New global headquarters and office space	Leased	August 2035	185,000 sq. ft.
8050 Marshall Drive, Lenexa, Kansas	Office space	Leased	February 2027, with two 5 year renewal options	62,000 sq. ft.
8050 Marshall Drive, Lenexa, Kansas	Office space	Leased	May 2023	18,500 sq. ft.
141 W. Jackson Boulevard, Chicago, Illinois	New trading floor and office space	Leased	October 2032	40,000 sq. ft.
Gustav Mahlerplein 73-83, Amsterdam, Netherlands	Office space	Leased	January 2032	29,500 sq. ft.
17 State Street, New York, New York	Office space	Leased	April 2024, with one 5 year renewal option	22,000 sq. ft.
11 Monument Street, London, United Kingdom	Principal UK office space	Leased	March 2027, with one 5 year renewal option	21,000 sq. ft.
Rockwell Business Center Sheridan, Sheridan Street Corner United Street, Highway Hills Mandaluyong City 1550 Philippines	Office space	Leased	December 2023	10,500 sq. ft.
111 S. Wacker Drive, Suite 4730, Chicago, IL	Office space	Leased	January 2024	9,500 sq. ft.
One Liberty Plaza, New York, New York	Office space	Leased	May 2027	8,500 sq. ft.
Strawinskylaan 1847 Amsterdam, Netherlands	Office space	Leased	August 2023	8,000 sq. ft.
65 Queen Street West Toronto, Ontario, Canada	Office space	Leased	June 2028	8,000 sq. ft.
1 Farrer Place, Sydney 2000 Australia	Office space	Leased	December 2026	7,000 sq. ft.

*Through our wholly-owned subsidiary, Cboe Building Corporation, we own the building that was previously the global headquarters. As a result of the Merger, there was a reduction in employee workspace needed in Chicago, which led to the decision to market for sale the former headquarters location. The Company classified the associated land, building,

and certain furniture and equipment of the former headquarters location as held for sale, performed an impairment assessment, and ceased depreciation effective May 1, 2019, as the Company anticipated selling the property held for sale in less than twelve months. However, due to the time elapsed since active marketing for sale of the building commenced, the Company reclassified the property to held and used, effective May 1, 2021, and the building was once again subject to depreciation. On April 28, 2022, the Company signed a non-binding letter of intent with an entity interested in purchasing the property, though in the quarter ended September 30, 2022, negotiations with this entity were terminated. The Company has continued discussions with other potential buyers. At this time the Company has no indications that the property's classification or carrying value needs to be updated as of December 31, 2022. The property is subject to depreciation as of December 31, 2022.

We believe that our properties are in good operating condition and adequately serve our current business operations. Generally, our properties are not earmarked for use by a particular segment. Instead, most of our properties are used by two or more segments. We also anticipate that suitable additional or alternative space will be available at commercially reasonable terms for future expansion to the extent necessary.

Our disaster recovery sites in the United States are located in Chicago, Illinois, Kansas City, Missouri, and Secaucus, New Jersey. In addition, we have agreements with a primary data center in Secaucus, New Jersey and a secondary data center in Chicago, Illinois. In Europe, our primary data center is in Slough, England. The secondary data center for Cboe Europe is in Park Royal, London. We operate a back-up location for our London operations in the United Kingdom.

See Note 7 ("Property and Equipment, Net") and Note 24 ("Leases") to the consolidated financial statements included herein for further information.

Item 3. Legal Proceedings

Cboe incorporates herein by reference the discussion set forth in Note 21 ("Income Taxes") and Note 23 ("Commitments, Contingencies, and Guarantees") of the consolidated financial statements included herein.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Common Stock

The Company's common stock is listed on Cboe BZX under the trading symbol CBOE. As of January 31, 2023, there were approximately 124 holders of record of our common stock.

Dividends

Each share of common stock, including restricted stock awards and restricted stock units, is entitled to receive dividend and dividend equivalents, respectively, if, as and when declared by the Board of Directors of the Company.

The Company's expectation is to continue to pay dividends. The decision to pay a dividend, however, remains within the discretion of the Company's Board of Directors and may be affected by various factors, including our earnings, financial condition, capital requirements, level of indebtedness and other considerations our Board of Directors deems relevant. Future debt obligations and statutory provisions, among other things, may limit, or in some cases prohibit, our ability to pay dividends.

As a holding company, the Company's ability to declare and continue to pay dividends in the future with respect to its common stock will also be dependent upon the ability of its subsidiaries to pay dividends to it under applicable corporate law.

Recent Sales of Unregistered Securities

Not applicable.

Use of Proceeds

Not applicable.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

Share Repurchase Program

In 2011, the Board of Directors approved an initial authorization for the Company to repurchase shares of its outstanding common stock of \$100 million and subsequently approved additional authorizations, for a total authorization of \$1.6 billion. The program permits the Company to purchase shares, through a variety of methods, including in the open market or through privately negotiated transactions, in accordance with applicable securities laws. It does not obligate the Company to make any repurchases at any specific time or situation.

Under the program, for the year ended December 31, 2022, the Company repurchased 876,238 shares of common stock at an average cost per share of \$115.20, totaling \$100.9 million. Since inception of the program through December 31, 2022, the Company has repurchased 18,948,367 shares of common stock at an average cost per share of \$70.30, totaling \$1.3 billion. As of December 31, 2022, the Company had \$217.9 million of availability remaining under its existing share repurchase authorizations.

Purchase of common stock from employees

During the fiscal quarter ended December 31, 2022, we purchased shares from employees in connection with the settlement of employee tax withholding obligations arising from the vesting of restricted stock units and restricted stock awards. The table below represents repurchases made by or on behalf of us or any “affiliated purchaser” of our common stock during the fiscal quarter ended December 31, 2022:

<u>Period</u>	<u>Total number of shares purchased</u>	<u>Average price paid per share</u>
October 1 to October 31, 2022	—	\$ —
November 1 to November 30, 2022	658	122.63
December 1 to December 31, 2022	—	—
Total	<u>658</u>	<u>122.63</u>

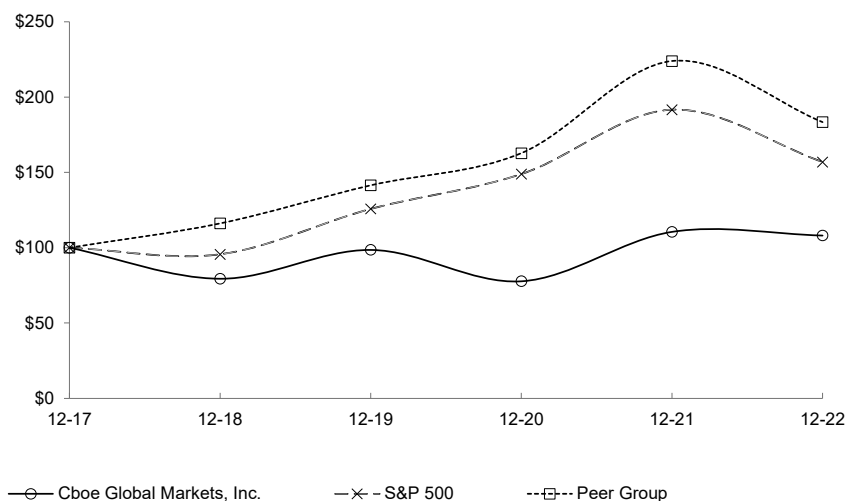
Stockholder Return Performance Graph

The following graph compares the cumulative total return provided to stockholders on our common stock since December 31, 2017 against the return of the S&P 500 Index and a customized peer group that includes CME Group Inc., Intercontinental Exchange Inc., and Nasdaq, Inc.

An investment of \$100, with reinvestment of all dividends, is assumed to have been made in our common stock, the index and the peer groups on December 31, 2017, and its performance is tracked on an annual basis through December 31, 2022.

Comparison of Cumulative Total Return of the Company, Peer Groups, Industry Indices and/or Broad Markets

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN* Among Cboe Global Markets, Inc., the S&P 500 Index and a Peer Group



*\$100 invested on 12/31/17 in stock or index, including reinvestment of dividends.
Fiscal year ending December 31.

Data Source: Yahoo Finance, Closing Price(s)

	<u>12/17</u>	<u>12/18</u>	<u>12/19</u>	<u>12/20</u>	<u>12/21</u>	<u>12/22</u>
Cboe Global Markets, Inc.	100.00	79.40	98.59	77.72	110.54	108.15
S&P 500	100.00	95.62	125.72	148.85	191.58	156.88
Peer Group.	100.00	116.15	141.44	162.74	223.96	183.42

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations

Management’s Discussion and Analysis of Financial Condition and Results of Operations (“MD&A”) is provided to assist the reader in understanding the results of operations, liquidity and capital resources, and critical accounting estimates and policies through the eyes of our management team. The following discussion should be read in conjunction with the consolidated financial statements of the Company and the notes thereto included in Item 8 of this Annual Report on Form 10-K. The following discussion contains forward-looking statements. Actual results could differ materially from the results discussed in the forward-looking statements. See “Risk Factors” and “Forward-Looking Statements” above.

A detailed comparison of the Company’s 2021 operating results to its 2020 operating results can be found in the Management’s Discussion and Analysis of Financial Condition and Results of Operations section in the Company’s 2021 Annual Report on Form 10-K filed February 18, 2022 at www.sec.gov.

INTRODUCTION

Management’s Discussion and Analysis of Financial Condition and Results of Operations is organized as follows:

- **Executive Summary** – Includes an overview of the Company’s business; a description of notable recent developments, current economic, competitive and regulatory trends relevant to our business; the Company’s current business strategy; and the Company’s primary sources of operating and non-operating revenues and expenses.
- **Results of Operations** – Includes an analysis of the Company’s 2022 and 2021 financial results and a discussion of any known events or trends which are likely to impact future results.
- **Liquidity and Capital Resources** – Includes a discussion of the Company’s future cash requirements, capital resources, and financing arrangements.
- **Critical Accounting Estimates** – Provides an explanation of accounting estimates which may have a significant impact on the Company’s financial results and the judgments, assumptions, and uncertainties associated with those estimates.
- **Recent Accounting Pronouncements** – Includes an evaluation of recent accounting pronouncements and the potential impact of their future adoption on the Company’s financial results.

EXECUTIVE SUMMARY

Overview

Cboe Global Markets, Inc., a leading provider of market infrastructure and tradable products, delivers cutting-edge trading, clearing and investment solutions to market participants around the world. The Company is committed to operating a trusted, inclusive global marketplace, and to providing leading products, technology and data solutions that enable participants to define a sustainable financial future. Cboe provides trading solutions and products in multiple asset classes, including equities, derivatives, FX, and digital assets, across North America, Europe, and Asia Pacific.

Cboe’s subsidiaries include the largest options exchange and the third largest stock exchange operator in the U.S. In addition, the Company operates one of the largest stock exchanges by value traded in Europe, and owns Cboe Clear Europe (rebranded from EuroCCP in November of 2022), a leading pan-European equities and derivatives clearinghouse, BIDS Trading, a leading block-trading ATS by volume in the U.S., MATCHNow (operating as TriAct Canada Marketplace LP), a leading equities ATS in Canada, Cboe Australia, an operator of trading venues in Australia, and Cboe Japan, an operator of trading venues in Japan. Cboe also is a leading market globally for exchange-traded products (“ETPs”) listings and trading. On May 2, 2022, Cboe completed its acquisition of ErisX, subsequently rebranded to Cboe Digital, an operator of a U.S. based digital asset spot market, a regulated futures exchange, and a regulated clearinghouse. On June 1, 2022, Cboe completed its acquisition of NEO Exchange Inc. (“NEO”), which is a recognized Canadian securities exchange.

The Company is headquartered in Chicago with offices in Amsterdam, Belfast, Hong Kong, Kansas City, London, Manila, New York, San Francisco, Sarasota Springs, Singapore, Sydney, Tokyo and Toronto.

Recent Developments

Acquisition of Cboe Digital

On October 20, 2021, the Company announced it entered into a definitive agreement to acquire ErisX, which was subsequently rebranded Cboe Digital. Cboe Digital operates a U.S. based digital asset spot market, a regulated futures exchange, and a regulated clearinghouse. Ownership of Cboe Digital allows the Company to enter the digital asset spot and derivatives marketplaces through a digital-first platform developed with industry partners to focus on robust regulatory compliance, data and transparency. The transaction closed on May 2, 2022.

Acquisition of NEO

On November 15, 2021, the Company announced it entered into a definitive agreement to acquire NEO. NEO is a fintech organization that is comprised of a fully registered Canadian securities exchange with a diverse product and services set ranging from corporate listings to cash equities trading and a non-listed securities distribution platform. With ownership of NEO, the Company expects to further grow Canada as a hub for global equities trading and listings. The transaction closed on June 1, 2022.

Business Segments

The Company previously operated five reportable business segments prior to the quarter ended June 30, 2022. As a result of the Cboe Digital acquisition during the quarter ended June 30, 2022, the Company operates six reportable segments: Options, North American Equities, Europe and Asia Pacific, Futures, Global FX, and Digital, which is reflective of how the Company's chief operating decision-maker reviews and operates the business, as discussed in Note 1 ("Nature of Operations"). Segment performance is primarily evaluated based on operating income (loss). The Company's chief operating decision-maker does not use segment-level assets or income and expenses below operating income (loss) as key performance metrics; therefore, such information is not presented below. The Company has aggregated all of its corporate costs, as well as other business ventures, within the Corporate Items and Eliminations totals based on the decision that those activities should not be used to evaluate the operating performance of the segments; however, operating expenses that relate to activities of a specific segment have been allocated to that segment.

Options. The Options segment includes options on market indices ("index options"), as well as on the stocks of individual corporations ("equity options"), and options on ETPs, such as exchange-traded funds ("ETFs") and exchange-traded notes ("ETNs"), which are "multi-listed" options and listed on a non-exclusive basis. These options are eligible to trade, as applicable, on Cboe Options, C2, BZX, EDGX, and/or other U.S. national security exchanges. Cboe Options is the Company's primary options market and offers trading in listed options through a single system that integrates electronic trading and traditional open outcry trading on the Cboe Options trading floor in Chicago. C2 Options, BZX Options, and EDGX Options are all-electronic options exchanges, and typically operate with different market models and fee structures than Cboe Options. The Options segment also includes applicable market data fees generated from the consolidated tape plans, the licensing of proprietary options market data, index licensing, and access and capacity services.

North American Equities. The North American Equities segment includes listed U.S. equities and ETP transaction services that occur on fully electronic exchanges owned and operated by BZX, BYX, EDGX, and EDGA, equities transactions that occur on the BIDS Trading platform, and Canadian equities and other transaction services that occur on or through the MATCHNow ATS, and NEO, as of the June 1, 2022 acquisition. The North American Equities segment also includes listing services on NEO Exchange, ETP listings on BZX, the Cboe Global Markets, Inc. common stock listing, applicable market data fees generated from the consolidated tape plans, the licensing of proprietary equities market data, routing services, and access and capacity services.

Europe and Asia Pacific. The Europe and Asia Pacific segment includes the pan-European listed equities and derivatives transaction services, ETPs, exchange-traded commodities, and international depository receipts that are hosted on MTFs operated by Cboe Europe Equities (Cboe Europe and Cboe NL equities exchanges) and Cboe Europe Derivatives ("CEDX"). It also includes the ETP listings business on RMs and clearing activities of Cboe Clear Europe, as well as the equities transaction services of Cboe Australia and Cboe Japan, operators of trading venues in Australia and Japan, respectively. This segment was previously referred to as the European Equities segment but was updated to the Europe segment in the first quarter of 2021 as a result of the launch of Cboe Europe Derivatives, a pan-European derivatives platform in September 2021. The segment was subsequently updated to Europe and Asia Pacific to reflect the acquisition of Chi-X in July 2021. Cboe Europe operates lit and dark books, a periodic auctions book, and Cboe BIDS

Europe, a Large-in-Scale (“LIS”) trading negotiation facility for UK symbols. Cboe NL, launched in October 2019 and based in Amsterdam, operates similar business functionality to that offered by Cboe Europe, and provides for trading only in European Economic Area (“EEA”) symbols. The new Cboe Europe Derivatives venue offers futures and options based on Cboe Europe equity indices. This segment also includes Cboe Europe, Cboe NL, CEDX, Cboe Australia, and Cboe Japan revenue generated from the licensing of proprietary market data and from access and capacity services.

Futures. The Futures segment includes transaction services provided by CFE, a fully electronic futures exchange, which includes offerings for trading of VIX futures and other futures products, the licensing of proprietary market data, as well as access and capacity services.

Global FX. The Global FX segment includes institutional FX trading services that occur on the Cboe FX fully electronic trading platform, non-deliverable forward FX transactions (“NDFs”) offered for execution on Cboe SEF and Cboe Swiss, transaction services that occur on the electronic trading system for U.S government securities executed by Cboe Fixed Income, as well as revenue generated from the licensing of proprietary market data and from access and capacity services.

Digital. The Digital segment includes Cboe Digital, an operator of a U.S. based digital asset spot market and a regulated futures exchange, and Cboe Clear Digital, a regulated clearinghouse, as well as revenue generated from the licensing of proprietary market data and from access and capacity services.

General Factors Affecting Results of Operations

In broad terms, our business performance is impacted by a number of drivers, including macroeconomic events affecting the risk and return of financial assets, investor sentiment, the regulatory environment for capital markets, geopolitical events, tax policies, central bank policies and changing technology, particularly in the financial services industry. We believe our future revenues and net income will continue to be influenced by a number of domestic and international economic trends, including:

- trading volumes on our proprietary products such as VIX options and futures and SPX options;
- trading volumes in listed equity securities, options, futures, and ETPs in North America, Europe, and Asia Pacific, clearing volumes in listed equity securities and ETPs in Europe, volumes in listed equity options, volumes in digital assets, and volumes in institutional FX trading;
- the demand for and pricing structure of the U.S. tape plan market data distributed by the SIPs, which determines the pool size of the industry market data fees we receive based on our market share;
- consolidation and expansion of our customers and competitors in the industry;
- the demand for information about, or access to, our markets and products, which is dependent on the products we trade, our importance as a liquidity center, quality and integrity of our proprietary indices, and the quality and pricing of our data and access and capacity services;
- continuing pressure in transaction fee pricing due to intense competition in the North American, European, and Asia Pacific markets;
- significant fluctuations in foreign currency translation rates or weakened value of currencies; and
- regulatory changes and obligations relating to market structure, digital assets and increased capital requirements, and those which affect certain types of instruments, transactions, products, pricing structures, capital market participants or reporting or compliance requirements.

A number of significant structural, political and monetary issues, global conflicts and global pandemics continue to confront the global economy, and instability could continue, resulting in an increased or subdued level of inflation, market volatility, supply chain constraints, changes in trading volumes and greater uncertainty. Inflationary increases in our expenses, such as compensation inflation, and increased costs related to CAT may have an adverse effect on our financial results.

Components of Revenues

Beginning in the first quarter of 2022, the Company updated the financial statement captions within its consolidated statements of income to better reflect the Company’s diversified products, expansive geographical reach, and overall business strategy. The changes do not have a financial impact on the Company’s reported revenue, revenues less cost of revenues, reported net income, or cash flows from operations.

The components of revenues which include the above changes are described below:

Cash and Spot Markets

Revenue aggregated into cash and spot markets includes associated transaction and clearing fees, the portion of market data fees relating to associated U.S. tape plan market data fees, associated regulatory fees, and associated other revenue from the Company's North American Equities, Europe and Asia Pacific, Global FX, and Digital segments.

Data and Access Solutions

Revenue aggregated into data and access solutions includes access and capacity fees, proprietary market data fees, and associated other revenue across the Company's six segments.

Derivatives Markets

Includes associated transaction and clearing fees, the portion of market data fees relating to associated U.S. tape plan market data fees, associated regulatory fees, and associated other fees from the Company's Options, Futures, Europe and Asia Pacific, and Digital segments.

Components of Cost of Revenues

Liquidity Payments

Liquidity payments are directly correlated to the volume of securities traded on our markets. As stated above, we record the liquidity rebates paid to market participants providing liquidity, in the case of C2, BZX, EDGX, and Cboe Europe Equities and Derivatives, and Cboe Digital, as cost of revenue. BYX and EDGA offer a pricing model where we rebate liquidity takers for executing against an order resting on our book, which is also recorded as a cost of revenues.

Routing and Clearing

Various rules require that U.S. options and equities trade executions occur at the NBBO displayed by any exchange. Linkage order routing consists of the cost incurred to provide a service whereby Cboe equities and options exchanges deliver orders to other execution venues when there is a potential for obtaining a better execution price or when instructed to directly route an order to another venue by the order provider. The service affords exchange order flow providers an opportunity to obtain the best available execution price and may also result in cost benefits to those clients. Such an offering improves our competitive position and provides an opportunity to attract orders which would otherwise bypass our exchanges. We utilize third-party brokers or our broker-dealer, Cboe Trading, to facilitate such delivery. Also included within routing and clearing are the Order Management System and Execution Management System ("OMS" and "EMS", respectively) fees incurred for U.S. Equities Off-Exchange order execution, as well as settlement costs incurred for the settlement process executed by Cboe Clear Europe and Cboe Clear Digital.

Section 31 Fees

Exchanges under the authority of the SEC (Cboe Options, C2, BZX, BYX, EDGX, and EDGA as well as CFE to the extent that CFE offers trading in security futures products) are assessed fees pursuant to the Exchange Act designed to recover the costs to the U.S. government of supervision and regulation of securities markets and securities professionals. We treat these fees as a pass-through charge to customers executing eligible listed equities and listed equity options trades. Accordingly, we recognize the amount that we are charged under Section 31 as a cost of revenues and the corresponding amount that we charge our customers as regulatory transaction fees revenue. Since the regulatory transaction fees recorded in revenues are equal to the Section 31 fees recorded in cost of revenues, there is no impact on our operating income. Cboe Trading, Cboe Europe, Cboe NL, BIDS, MATCHNow, Cboe FX, Cboe Australia, Cboe Japan, Cboe Digital, and NEO are not U.S. national securities exchanges, and accordingly are not charged Section 31 fees.

Royalty Fees and Other Cost of Revenues

Royalty fees primarily consist of license fees paid by us for the use of underlying indices in our proprietary products usually based on contracts traded. The Company has licenses with the owners of the S&P 500 Index, S&P 100 Index and certain other S&P indices, FTSE Russell indices, the DJIA, MSCI, and certain other index products. This category also

includes fees related to the dissemination of market data related to S&P indices and other products through Cboe Streaming Market Indices (“CSMI”).

Other cost of revenues primarily consists of interest expense from clearing operations, electronic access permit fees and other miscellaneous costs associated with other revenue.

Components of Operating Expenses

Compensation and Benefits

Compensation and benefits represent our largest expense category and tend to be driven by our staffing requirements, financial performance, and the general dynamics of the employment market. Stock-based compensation is a non-cash expense related to equity awards. Stock-based compensation can vary depending on the quantity and fair value of the award on the date of grant and the related service period.

Depreciation and Amortization

Depreciation and amortization expense results from the depreciation of long-lived assets purchased, the amortization of purchased and internally developed software, and the amortization of intangible assets.

Technology Support Services

Technology support services consists primarily of costs related to the maintenance of computer equipment supporting our system architecture, circuits supporting our wide area network, support for production software, operating system license and support fees, fees paid to information vendors for displaying data and off-site system hosting fees.

Professional Fees and Outside Services

Professional fees and outside services consist primarily of consulting services, which include supplemental staff activities primarily related to systems development and maintenance, legal, regulatory and audit, and tax advisory services.

Travel and Promotional Expenses

Travel and promotional expenses primarily consist of advertising, costs for special events, sponsorship of industry conferences, options education seminars and travel-related expenses.

Facilities Costs

Facilities costs primarily consist of expenses related to owned and leased properties including rent, maintenance, utilities, real estate taxes and telecommunications costs.

Acquisition-Related Costs

Acquisition-related costs relate to acquisitions and other strategic opportunities. The acquisition-related costs include fees for investment banking advisors, lawyers, accountants, tax advisors, public relations firms, severance and retention costs, capitalized software and facilities, and other external costs directly related to the mergers and acquisitions.

Goodwill Impairment

Goodwill impairment consists of charges to impair goodwill of our reporting units if the carrying value exceeds the implied fair value.

Other Expenses

Other expenses represent costs necessary to support our operations that are not already included in the above categories, including, but not limited to the impairment of digital assets held presented in intangible assets, net as part of the ordinary operations of the Digital segment and changes in contingent consideration.

Non-Operating (Expenses) Income

Income and expenses incurred through activities outside of our core operations are considered non-operating and are classified as other (expense) income. These activities primarily include interest earned on the investing of excess cash, interest expense related to outstanding debt facilities, dividend income, income and unrealized gains and losses related to investments held in a trust for the Company's non-qualified retirement and benefit plans, realized gains and losses related to the Company's previously held minority investments, equity earnings or losses from our investments in other business ventures, impairment of the Company's investments, investment establishment costs associated with new business ventures, and loan forgiveness provided under the SBA's Paycheck Protection Program ("PPP"). See Note 12 ("Debt") for additional information regarding the PPP.

RESULTS OF OPERATIONS

The following are summaries of changes in financial performance and include certain non-GAAP financial measures. Management uses these non-GAAP measures internally in conjunction with GAAP measures to help evaluate our performance and to help make financial and operational decisions. These non-GAAP financial measures assist management in comparing our performance on a consistent basis for purposes of business decision making by removing the impact of certain items management believes do not reflect our underlying operations.

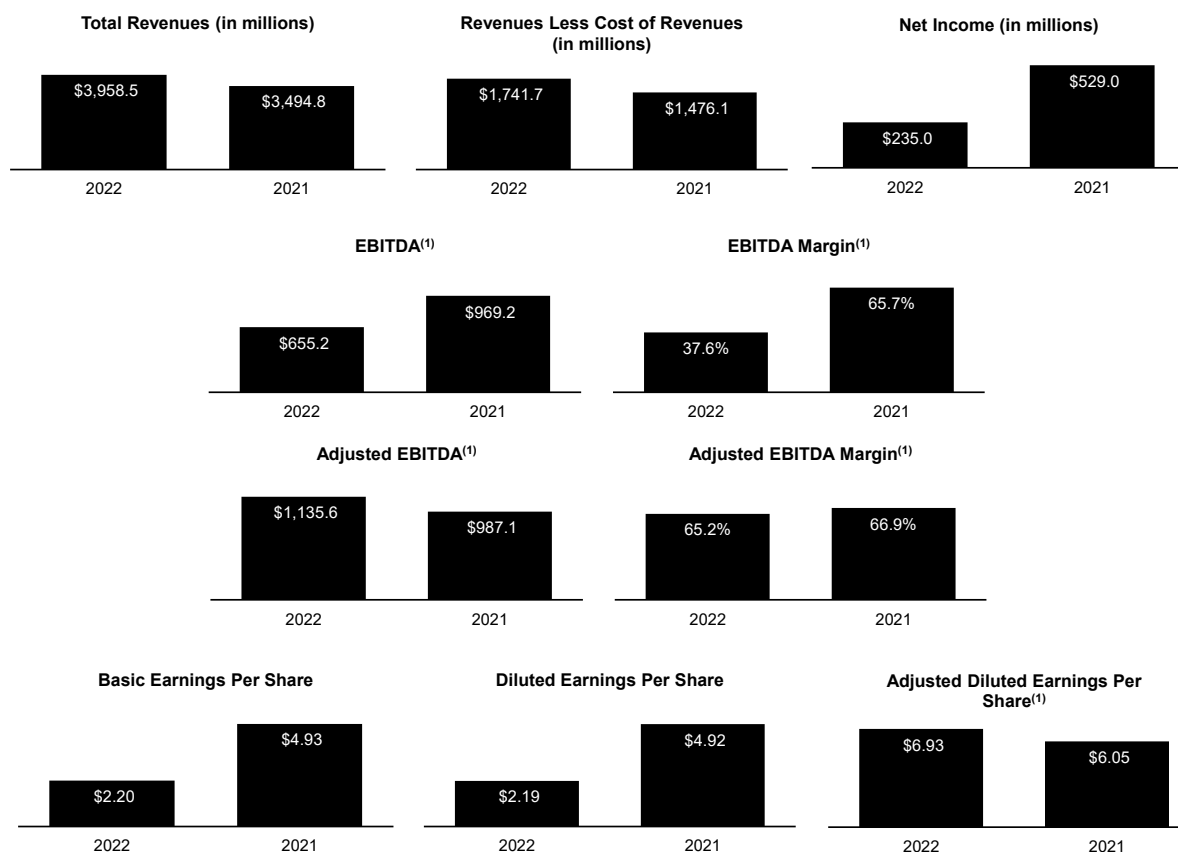
We believe our presentation of these measures provides investors with greater transparency into financial measures used by management and is useful to investors for period-to-period comparisons of our ongoing operating performance.

These non-GAAP financial measures are not presented in accordance with, or as an alternative to, GAAP financial measures and may be calculated differently from non-GAAP measures used by other companies, which reduces their usefulness as comparative measures. We encourage analysts, investors and other interested parties to use these non-GAAP measures as supplemental information to the GAAP financial measures included herein, including our consolidated financial statements, to enhance their analysis and understanding of our performance and in making comparisons. Please see the footnotes below for definitions, additional information, and reconciliations from the closest GAAP measure.

Comparison of Years Ended December 31, 2022 and 2021

Overview

The following summarizes changes in financial performance for the year ended December 31, 2022, compared to the year ended December 31, 2021:



(1) These are Non-GAAP figures for which reconciliations are provided below (in millions, except percentages, earnings per share, and as noted below).

	Year Ended December 31,		Increase/ (Decrease)	Percent Change
	2022	2021		
Total revenues	\$ 3,958.5	\$ 3,494.8	\$ 463.7	13 %
Total cost of revenues	2,216.8	2,018.7	198.1	10 %
Revenues less cost of revenues	1,741.7	1,476.1	265.6	18 %
Total operating expenses	1,252.1	670.2	581.9	87 %
Operating income	489.6	805.9	(316.3)	(39)%
Income before income tax provision	432.9	756.1	(323.2)	(43)%
Income tax provision	197.9	227.1	(29.2)	(13)%
Net income	\$ 235.0	\$ 529.0	\$ (294.0)	(56)%
Basic earnings per share	\$ 2.20	\$ 4.93	\$ (2.73)	(55)%
Diluted earnings per share	2.19	4.92	(2.73)	(55)%
Organic net revenue (1)	\$ 1,713.0	\$ 1,476.1	\$ 236.9	16 %
EBITDA (2)	\$ 655.2	\$ 969.2	\$ (314.0)	(32)%
EBITDA margin (3)	37.6 %	65.7 %	(28.1)%	*
Adjusted EBITDA (2)	\$ 1,135.6	\$ 987.1	\$ 148.5	15 %
Adjusted EBITDA margin (4)	65.2 %	66.9 %	(1.7)%	*
Adjusted earnings (5)	\$ 739.8	\$ 648.8	\$ 91.0	14 %
Adjusted earnings margin (5)	42.5 %	44.0 %	(1.5)%	*
Diluted weighted average shares outstanding	106.7	107.2	(0.5)	(0)%
Adjusted Diluted earnings per share (6)	\$ 6.93	\$ 6.05	\$ 0.88	15 %

* Not meaningful

- (1) Organic net revenue is defined as revenues less cost of revenues excluding revenues less cost of revenues of any acquisition that has been owned for less than one year. Revenues from acquisitions that have been owned at least one year are considered organic and are no longer excluded from organic net revenue from either period for comparative purposes. Organic net revenue does not represent, and should not be considered as, an alternative to revenues less cost of revenues, or net revenue, as determined in accordance with GAAP. We have presented organic net revenue because we consider it an important supplemental measure of our performance and we use it as the basis for monitoring our operating financial performance before the effects of acquisitions. We also believe that it is frequently used by analysts, investors and other interested parties in the evaluation of companies. We believe that investors may find this non-GAAP measure useful in evaluating our performance compared to that of peer companies in our industry. Other companies may calculate organic net revenue differently than we do. Organic net revenue has limitations as an analytical tool, and you should not consider it in isolation or as a substitute for analysis of our results as reported under GAAP.

	Year Ended December 31,	
	2022	2021
Revenues less cost of revenues	\$ 1,741.7	\$ 1,476.1
Recent acquisitions:		
Acquisition revenues less cost of revenues	\$ (28.7)	\$ —
Organic net revenue	<u>\$ 1,713.0</u>	<u>\$ 1,476.1</u>

- (2) EBITDA is defined as income before interest, income taxes, depreciation and amortization. Adjusted EBITDA is defined as EBITDA before acquisition-related costs, impairment of investment, gain on investment, investment establishment costs, impairment of goodwill, loan forgiveness, and change in contingent consideration. EBITDA and adjusted EBITDA do not represent, and should not be considered as, alternatives to net income as determined in accordance with GAAP. We have presented EBITDA and adjusted EBITDA because we consider them important supplemental measures of our performance and believe that they are frequently used by analysts, investors and other interested parties in the evaluation of companies. In addition, we use adjusted EBITDA as a measure of operating performance for preparation of our forecasts and evaluating our leverage ratio for the debt to earnings covenant included in our outstanding credit facility. Other companies may calculate EBITDA and adjusted EBITDA differently than we do. EBITDA and adjusted EBITDA have limitations as analytical tools, and you should not consider them in isolation or as substitutes for analysis of our results as reported under GAAP.
- (3) EBITDA margin represents EBITDA divided by revenues less cost of revenues.
- (4) Adjusted EBITDA margin represents adjusted EBITDA divided by revenues less cost of revenues.
- (5) Adjusted earnings is defined as net income adjusted for amortization of purchased intangibles, acquisition-related costs, impairment of investment, gain on investment, investment establishment costs, impairment of goodwill, loan forgiveness, certain tax reserve changes, deferred tax re-measurements, change in contingent consideration, and net income or loss allocated to participating securities, net of the income tax effects of these adjustments. Adjusted earnings does not represent, and should not be considered as, an alternative to net income, as determined in accordance with GAAP. We have presented adjusted earnings because we consider it an important supplemental measure of our performance and we use it as the basis for monitoring our own core operating financial performance relative to other operators of exchanges. We also believe that it is frequently used by analysts, investors and other interested parties in the evaluation of companies. We believe that investors may find this non-GAAP measure useful in evaluating our performance compared to that of peer companies in our industry. Other companies may calculate adjusted earnings differently than we do. Adjusted earnings has limitations as an analytical tool, and you should not consider it in isolation or as a substitute for analysis of our results as reported under GAAP.
- (6) Adjusted diluted earnings per share represents adjusted earnings divided by diluted weighted average shares outstanding.

The following is a reconciliation of net income (loss) allocated to common stockholders to EBITDA and adjusted EBITDA (in millions):

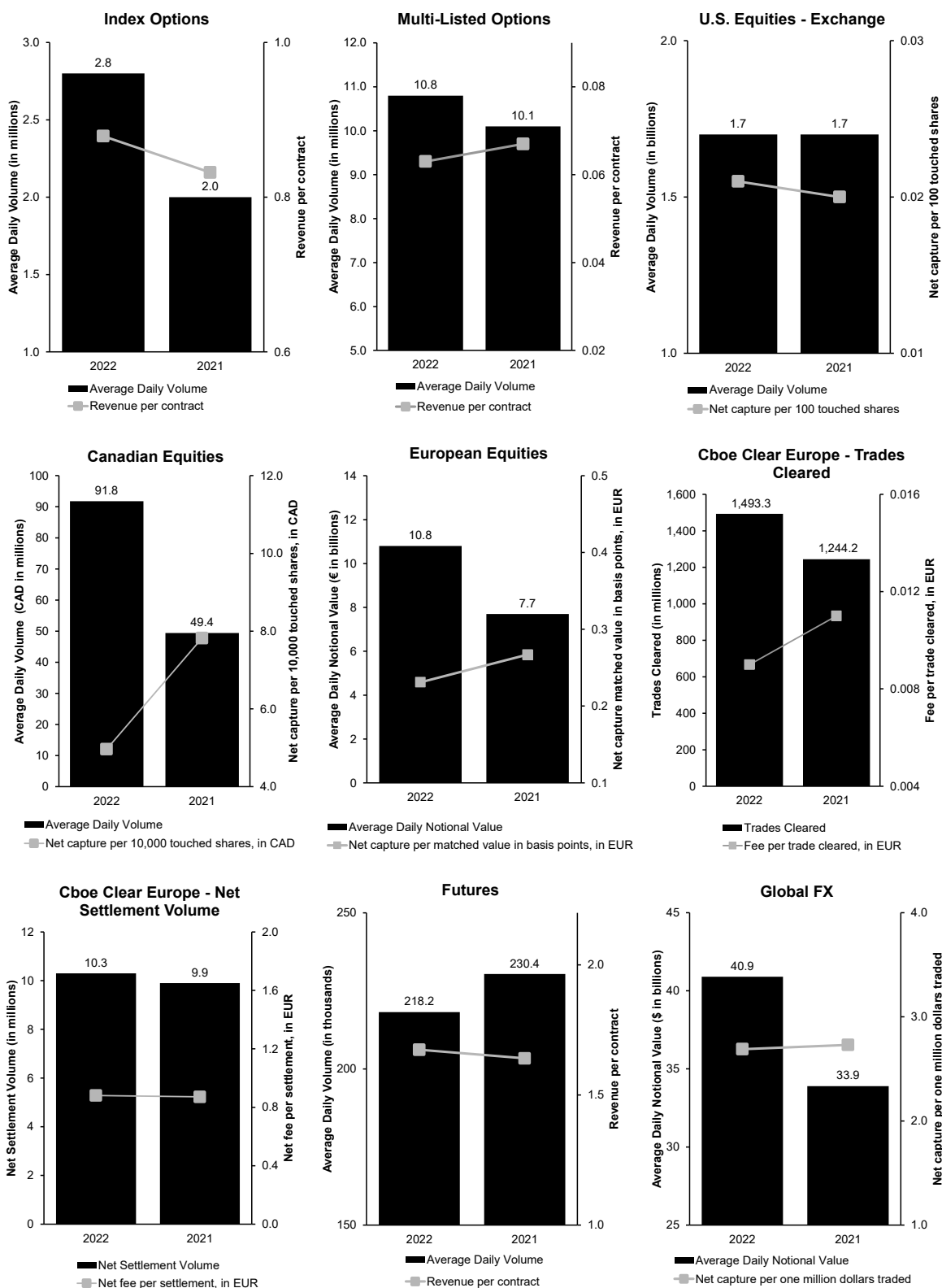
	Year Ended December 31,							Total
	2022							
	Options	North American Equities	Europe and Asia Pacific	Futures	Global FX	Digital	Corporate	
Net income (loss) allocated to common stockholders	\$ 478.1	\$ 125.9	\$ 22.8	\$ 12.8	\$ 9.1	\$ (369.7)	\$ (44.9)	\$ 234.1
Interest expense (income), net	—	(0.4)	8.0	—	(0.4)	—	49.2	56.4
Income tax provision (benefit)	260.7	20.5	6.8	42.4	0.1	(119.0)	(13.6)	197.9
Depreciation and amortization	26.5	74.1	37.0	2.6	21.9	4.7	—	166.8
EBITDA	765.3	220.1	74.6	57.8	30.7	(484.0)	(9.3)	655.2
Acquisition-related costs	—	3.9	3.6	—	—	9.5	2.9	19.9
Impairment of investment	—	—	—	—	—	—	10.6	10.6
Loan forgiveness	—	—	—	—	—	(1.3)	—	(1.3)
Gain on investment	—	—	—	—	—	—	(7.5)	(7.5)
Goodwill impairment	—	—	—	—	—	460.9	—	460.9
Investment establishment costs	—	—	—	—	—	—	3.0	3.0
Change in contingent consideration	—	(5.2)	—	—	—	—	—	(5.2)
Adjusted EBITDA	\$ 765.3	\$ 218.8	\$ 78.2	\$ 57.8	\$ 30.7	\$ (14.9)	\$ (0.3)	\$ 1,135.6

	Year Ended December 31,							Total
	2021							
	Options	North American Equities	Europe and Asia Pacific	Futures	Global FX	Digital	Corporate	
Net income (loss) allocated to common stockholders	\$ 364.7	\$ 133.5	\$ 18.6	\$ 34.9	\$ 2.6	\$ —	\$ (27.0)	\$ 527.3
Interest expense, net	—	—	12.4	—	—	—	35.0	47.4
Income tax provision (benefit)	171.3	22.1	26.5	30.9	—	—	(23.7)	227.1
Depreciation and amortization	29.4	75.7	35.1	2.9	24.3	—	—	167.4
EBITDA	565.4	231.3	92.6	68.7	26.9	—	(15.7)	969.2
Acquisition-related costs	0.3	2.8	1.4	—	—	—	11.1	15.6
Impairment of investment	—	—	—	—	—	—	5.0	5.0
Change in contingent consideration	—	(2.7)	—	—	—	—	—	(2.7)
Adjusted EBITDA	\$ 565.7	\$ 231.4	\$ 94.0	\$ 68.7	\$ 26.9	\$ —	\$ 0.4	\$ 987.1

The following is a reconciliation of net income allocated to common stockholders to adjusted earnings (in millions):

	Year Ended December 31,	
	2022	2021
Net income allocated to common stockholders	\$ 234.1	\$ 527.3
Amortization	124.3	126.6
Acquisition-related costs	19.9	15.6
Impairment of investment	10.6	5.0
Loan forgiveness	(1.3)	—
Gain on investment	(7.5)	—
Goodwill impairment	460.9	—
Investment establishment costs	3.0	—
Change in contingent consideration	(5.2)	(2.7)
Increase (release) of tax reserves	48.5	(5.4)
Tax effect of adjustments	(143.7)	(31.8)
Deferred tax re-measurements	(2.0)	14.6
Net income allocated to participating securities	(1.8)	(0.4)
Adjusted earnings	\$ 739.8	\$ 648.8

The following summarizes changes in certain operational and financial metrics for the year ended December 31, 2022 compared to the year ended December 31, 2021:



The following table includes operational and financial metrics for our Options, North American Equities, Europe and Asia Pacific, Futures, and Global FX segments. The metrics listed for Canadian Equities in the table below include NEO as a result of the acquisition completed during 2022. Therefore, the metrics shown in the table below in Canadian Equities do not include NEO for the periods preceding the acquisition. The following summarizes changes in certain operational and financial metrics for the year ended December 31, 2022 compared to the year ended December 31, 2021:

	Year Ended		Increase/ (Decrease)	Percent Change
	2022	2021		
(in millions, except percentages, trading days, and as noted below)				
Options:				
Average daily volume (ADV) (in millions of contracts):				
Market ADV	41.1	39.2	1.9	5 %
Total touched contracts (1)	13.6	12.1	1.5	13 %
Multi-listed contract ADV	10.8	10.1	0.7	7 %
Index contract ADV	2.8	2.0	0.8	44 %
Number of trading days	251	252	(1)	(0)%
Total Options revenue per contract (RPC) (2)	\$ 0.234	\$ 0.192	\$ 0.042	22 %
Multi-listed options RPC (2)	0.063	0.067	(0.004)	(6)%
Index options RPC (2)	0.879	0.832	0.047	6 %
Total Options market share	33.2 %	30.8 %	2.4 %	*
Multi-listed options market share	28.2 %	27.1 %	1.1 %	*
North American Equities:				
U.S. Equities:				
U.S. Equities - Exchange:				
ADV:				
Total touched shares (in billions) (1)	1.7	1.7	—	(1)%
Market ADV (in billions)	11.9	11.4	0.5	4 %
Market share	13.6 %	14.2 %	(0.6)%	*
U.S. Equities - Exchange (net capture per one hundred touched shares) (3)	\$ 0.021	\$ 0.020	\$ 0.001	7 %
U.S. ETPs: launches (number of launches)	80	117	(37)	(32)%
U.S. ETPs: listings (number of listings)	592	539	53	10 %
U.S. Equities - Off-Exchange:				
ADV:				
Total touched shares (in millions) (1)	90.4	83.0	7.4	9 %
U.S. Equities - Off-Exchange (net capture per one hundred touched shares) (4)	\$ 0.113	\$ 0.120	\$ (0.007)	(6)%
Trading days	251	252	(1)	(0)%
Canadian Equities:				
ADV (matched shares, in millions) (5)	91.8	49.4	42.4	86 %
Trading days	250	251	(1)	(0)%
Net capture (per 10,000 touched shares, in Canadian dollars) (6)	4.966	7.822	(2.856)	(37)%
Europe and Asia Pacific:				
European Equities:				
ADNV:				
Matched ADNV (in billions) (7)	€ 10.8	€ 7.7	€ 3.1	41 %
Market ADNV (in billions)	46.2	42.6	3.6	8 %
Trading days	257	258	(1)	(0)%
Market share	23.5 %	18.1 %	5.4 %	*
Net capture (per matched notional value in basis points) (8)	0.231	0.267	(0.036)	(14)%
Cboe Clear Europe:				
Trades cleared (9)	1,493.3	1,244.2	249.1	20 %
Fee per trade cleared (10)	€ 0.009	€ 0.011	€ (0.002)	(17)%
European equities market share cleared (11)	32.7 %	29.6 %	3.1	*
Net settlement volume (12)	10.3	9.9	0.4	4 %
Net fee per settlement (13)	€ 0.881	€ 0.871	€ 0.010	1 %
Australian Equities:				
ADNV (AUD billions)	\$ 0.8	\$ 0.8	—	2 %
Trading days	253	130	123	95 %
Market share - Continuous	16.6 %	15.9 %	0.7 %	*
Net capture (per matched notional value in basis points) (14)	0.164	0.172	(0.008)	(5)%
Japanese Equities:				
ADNV (JPY billions)	¥ 142.9	¥ 100.1	¥ 42.8	43 %
Trading days	244	123	121	98 %
Market share - Lit Continuous	3.6 %	2.7 %	0.9 %	*
Net capture (per matched notional value in basis points) (15)	0.252	0.361	(0.109)	(30)%
Futures:				
ADV (in thousands)	218.2	230.4	(12.2)	(5)%
Trading days	251	252	(1)	(0)%
Revenue per contract	\$ 1.674	\$ 1.641	\$ 0.033	2 %
Global FX:				
ADNV (in billions)	\$ 40.9	\$ 33.9	\$ 7.0	21 %
Market share	17.6 %	16.6 %	1.0	*
Trading days	260	260	—	— %
Net capture (per one million dollars traded) (16)	2.69	2.73	(0.04)	(1)%
Average British pound/U.S. dollar exchange rate	\$ 1.237	\$ 1.375	\$ (0.138)	(10)%
Average Canadian dollar/U.S. dollar exchange rate	\$ 0.769	\$ 0.798	\$ (0.029)	(4)%
Average Euro/U.S. dollar exchange rate	\$ 1.054	\$ 1.183	\$ (0.129)	(11)%
Average Euro/British pound exchange rate	£ 0.852	£ 0.860	£ (0.008)	(1)%
Average Australian dollar/U.S. dollar exchange rate	\$ 0.694	\$ 0.726	\$ (0.032)	(4)%
Average Japanese Yen/U.S. dollar exchange rate	\$ 0.008	\$ 0.009	\$ (0.001)	(14)%

* Not meaningful

Note, the percent change listed represents the change in the unrounded metrics figures.

- (1) Touched volume represents the total number of shares of equity securities and ETFs internally matched on our exchanges or routed to and executed on an external market center.
- (2) Average revenue per contract, for options and futures represents total net transaction fees recognized for the period divided by total contracts traded during the period.
- (3) Net capture per one hundred touched shares refers to transaction fees less liquidity payments and routing and clearing costs divided by the product of one-hundredth ADV of touched shares on BZX, BYX, EDGX, and EDGA and the number of trading days.
- (4) Net capture per 100 touched shares refers to transaction fees less order and execution management system (OMS/EMS) fees and clearing costs divided by the product of one-hundredth ADV of touched shares on BIDS Trading and the number of trading days for the period.
- (5) Matched volume represents the total number of shares of equity securities and ETFs activity executed on our exchanges.
- (6) Net capture per 10,000 touched shares refers to transaction fees divided by the product of one-ten thousandth ADV of shares for NEO and MATCHNow and the number of trading days.
- (7) Matched ADVN represents the average daily notional value of shares or contracts executed on our exchanges.
- (8) Net capture per matched notional value refers to transaction fees less liquidity payments in British pounds divided by the product of ADVN in British pounds of shares matched on Cboe Europe Equities and the number of trading days.
- (9) Trades cleared refers to the total number of non-interoperable trades cleared.
- (10) Fee per trade cleared refers to clearing fees divided by number of non-interoperable trades cleared.
- (11) European Equities market share cleared represents Cboe Clear Europe's client volume cleared divided by the total volume of the publicly reported European venues.
- (12) Net settlement volume refers to the total number of settlements executed after netting.
- (13) Net fee per settlement refers to settlement fees less direct costs incurred to settle divided by the number of settlements executed after netting.
- (14) Net capture per matched notional value refers to transaction fees less liquidity payments in Australian dollars divided by the product of ADVN in Australian dollars of shares matched on Cboe Australia and the number of Australian Equities trading days.
- (15) Net capture per matched notional value refers to transaction fees less liquidity payments in Japanese Yen divided by the product of ADVN in Japanese Yen of shares matched on Cboe Japan and the number of Japanese Equities trading days.
- (16) Net capture per one million dollars traded refers to net transaction fees less liquidity payments, if any, divided by the Spot and SEF products of one-thousandth of ADVN traded on the Cboe FX Markets and the number of trading days, divided by two, which represents the buyer and seller that are both charged on the transaction.

Revenue

Total revenues for the year ended December 31, 2022 increased \$463.7 million, or 13%, compared to the prior period primarily due to higher revenue across all revenue captions as a result of increased volumes traded on the Options and European Equities exchanges, an increase in the Section 31 fee rate following a rate increase that was effective on May 14, 2022, an increase in data and access solutions revenue primarily related to an increase in access and capacity fees in the Options and North American Equities segments, and additional revenues attributable to acquisitions made in 2022 and the later half of 2021. The following summarizes changes in revenues for the year ended December 31, 2022 compared to the year ended December 31, 2021 (in millions, except percentages):

	Year Ended December 31,		Increase/ (Decrease)	Percent Change
	2022	2021		
Cash and spot markets	\$ 1,777.6	\$ 1,660.5	\$ 117.1	7 %
Data and access solutions	497.0	427.7	69.3	16 %
Derivatives markets	1,683.9	1,406.6	277.3	20 %
Total revenues	\$ 3,958.5	\$ 3,494.8	\$ 463.7	13 %

Cash and Spot Markets

Cash and spot markets revenue increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to increases in regulatory fees and transaction and clearing fees, partially offset by a decrease in industry market data fees. Regulatory fees increased primarily due to an 109% increase in the Section 31 fee rate, from an average rate of \$7.80 per million dollars of covered sales for the year ended December 31, 2021 to an average rate of \$16.30 per million dollars of covered sales for the year ended December 31, 2022. Transaction and clearing fees increased primarily due to a 41% increase in European Equities matched ADNV, additional transaction and clearing fees attributable to NEO, which was acquired in second quarter of 2022, and a 21% increase in Global FX ADNV, partially offset by a 1% decrease in total touched shares on the U.S. Equities exchanges, a 17% decrease in the fee per trade cleared by Cboe Clear Europe, and adverse changes in foreign currency rates, most notably Euro and British Pounds, for the year ended December 31, 2022 compared to the prior period. Industry market data fees decreased primarily due to a decrease in U.S. tape plan revenue as a result of a 1% decline in market share on the U.S. Equities exchanges.

Data and Access Solutions

Data and access solutions revenue increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to increases in access and capacity fees and proprietary market data fees. Access and capacity fees increased primarily due to increased logical and physical port fees in the Options and North American Equities segments driven by an increase in subscribers, coupled with an increase in access and membership fees across the Europe and Asia Pacific and Options segments driven by an increase in subscribers. Proprietary market data fees increased primarily due to proprietary market data attributable to Cboe Asia Pacific, which was acquired in the third quarter of 2021, and NEO.

Derivatives Markets

Derivatives markets revenue increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to increases in transaction and clearing fees and regulatory fees. Transaction and clearing fees increased primarily due to a 44% increase in index options ADV and a 7% increase in multi-listed options ADV, partially offset by a 5% decrease in Futures ADV. Regulatory fees increased primarily due to a 109% increase in the Section 31 fee rate, from an average rate of \$7.80 per million dollars of covered sales for the year ended December 31, 2021 to an average rate of \$16.30 per million dollars of covered sales for the year ended December 31, 2022.

Cost of Revenues

The following tables reconcile the cost of revenues captions presented on the consolidated statements of income to the updated net revenue captions discussed in Note 1 ("Nature of Operations") for the year ended December 31, 2022 and 2021, respectively (in millions):

	Year Ended December 31, 2022			
	Cash and Spot Markets	Data and Access Solutions	Derivatives Markets	Total
Liquidity payments	\$ 1,024.0	\$ —	\$ 646.2	\$ 1,670.2
Routing and clearing fees	56.0	—	27.2	83.2
Section 31 fees	276.8	—	53.0	329.8
Royalty fees and other cost of revenues	14.1	9.2	110.3	133.6
Total cost of revenues	<u>\$ 1,370.9</u>	<u>\$ 9.2</u>	<u>\$ 836.7</u>	<u>\$ 2,216.8</u>

	Year Ended December 31, 2021			
	Cash and Spot Markets	Data and Access Solutions	Derivatives Markets	Total
Liquidity payments	\$ 1,025.4	\$ —	\$ 625.3	\$ 1,650.7
Routing and clearing fees	65.2	—	22.6	87.8
Section 31 fees	159.7	—	19.9	179.6
Royalty fees and other cost of revenues	14.3	8.4	77.9	100.6
Total cost of revenues	<u>\$ 1,264.6</u>	<u>\$ 8.4</u>	<u>\$ 745.7</u>	<u>\$ 2,018.7</u>

Cost of revenues increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to increased cash and spot markets and derivatives markets costs of revenues driven by an increase in Section 31 fees as a result of an increase in the Section 31 fee rate, coupled with an increase in royalty fees and an increase in liquidity payments driven by an increase in volumes traded on the Options and European Equities exchanges.

The following summarizes changes in the disaggregated cost of revenues for the year ended December 31, 2022 compared to the year ended December 31, 2021 (in millions, except percentages):

	Year Ended December 31,		Increase/ (Decrease)	Percent Change
	2022	2021		
Liquidity payments	\$ 1,670.2	\$ 1,650.7	\$ 19.5	1 %
Routing and clearing	83.2	87.8	(4.6)	(5)%
Section 31 fees	329.8	179.6	150.2	84 %
Royalty fees and other cost of revenues	133.6	100.6	33.0	33 %
Total	<u>\$ 2,216.8</u>	<u>\$ 2,018.7</u>	<u>\$ 198.1</u>	10 %

Liquidity Payments

Liquidity payments increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to an increase in volumes traded on the Options and European Equities exchanges, partially offset by a decrease in volumes traded on the U.S Equities exchanges.

Routing and Clearing

Routing and clearing fees decreased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to a decrease in routed shares on the U.S. Equities exchanges and adverse changes in foreign currency rates, most notably Euro and British Pounds, for the year ended December 31, 2022 compared to the prior period, partially offset by an increase in routed trades on the Options exchanges.

Section 31 Fees

Section 31 fees increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to a 109% increase in the Section 31 fee rate, from an average rate of \$7.80 per million dollars of covered sales in 2021 to an average rate of \$16.30 per million dollars of covered sales in 2022.

Royalty Fees and Other Cost of Revenues

Royalty fees increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to an increase in trading volumes of licensed products in the Options segment.

Revenues Less Cost of Revenues

Revenues less cost of revenues increased \$265.6 million, or 18%, for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to an increase in derivatives markets revenue less cost of revenues attributable to an increase in volumes traded on the Options exchanges, an increase in access and capacity fees in the Options and North American Equities segments, and additional revenues less cost of revenues attributable to acquisitions made in 2022 and the latter half of 2021.

The following summarizes the components of revenues less cost of revenues for the year ended December 31, 2022, presented as a percentage of revenues less cost of revenues and compared to the year ended December 31, 2021 (in millions, except percentages):

	Year Ended		Percent Change	Percentage of Revenues Less Cost of Revenues	
	December 31,			Year Ended	
	2022	2021		2022	2021
Cash and spot markets	\$ 406.7	\$ 395.9	3 %	23 %	27 %
Data and access solutions	487.8	419.3	16 %	28 %	28 %
Derivatives markets	847.2	660.9	28 %	49 %	45 %
Revenues less cost of revenues	<u>\$ 1,741.7</u>	<u>\$ 1,476.1</u>	18 %	<u>100 %</u>	<u>100 %</u>

Cash and Spot Markets

Cash and spot markets revenues less cost of revenues increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to increases in transaction and clearing fees less liquidity payments and routing and clearing costs (“net transaction and clearing fees”) in the Global FX and Europe and Asia Pacific segments, partially offset by a decrease in industry market data fees. Net transaction and clearing fees increased primarily due to a 21% increase in Global FX ADNV, 41% increase in European Equities matched ADNV, and net transaction and clearing fees attributable to Cboe Asia Pacific and NEO, partially offset by a 1% decrease in total touched shares on the U.S. Equities exchanges and adverse changes in foreign currency rates, most notably Euro and British Pounds, for the year ended December 31, 2022 compared to the prior period. Industry market data fees decreased primarily due to a decrease in U.S. tape plan revenue driven by a 1% decline in market share on the U.S. Equities exchanges.

Data and Access Solutions

Data and access solutions revenues less cost of revenues increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to increases in access and capacity fees and proprietary market data fees. Access and capacity fees increased primarily due to increased logical and physical port fees in the Options and North American Equities segments driven by an increase in subscribers, coupled with an increase in access and membership fees across the Europe and Asia Pacific and Options segments, also driven by an increase in subscribers. Proprietary market data fees increased primarily due to proprietary market data attributable to Cboe Asia Pacific and NEO.

Derivatives Markets

Derivatives markets revenues less cost of revenues increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to increases in transaction and clearing fees primarily due to a 44% increase in index options ADV, partially offset by a 5% decrease in Futures ADV and an increase in royalty fees due to an increase in trading volumes of licensed products in the Options segment.

Operating Expenses

For the year ended December 31, 2022 compared to the year ended December 31, 2021, total operating expenses increased primarily due to goodwill impairment recorded in 2022 and an increase in compensation and benefits compared to the prior period. The following summarizes changes in operating expenses for the year ended December 31, 2022 compared to the year ended December 31, 2021 (in millions, except percentages):

	Year Ended		Increase/ (Decrease)	Percent Change
	December 31, 2022	2021		
Compensation and benefits	\$ 363.0	\$ 288.5	\$ 74.5	26 %
Depreciation and amortization	166.8	167.4	(0.6)	(0)%
Technology support services	77.7	66.7	11.0	16 %
Professional fees and outside services	89.0	83.7	5.3	6 %
Travel and promotional expenses.....	23.7	9.7	14.0	144 %
Facilities costs	25.1	22.2	2.9	13 %
Acquisition-related costs	19.9	15.6	4.3	28 %
Goodwill impairment	460.9	—	460.9	* %
Other expenses	26.0	16.4	9.6	59 %
Total operating expenses	<u>\$ 1,252.1</u>	<u>\$ 670.2</u>	<u>\$ 581.9</u>	87 %

* Not meaningful

Compensation and Benefits

Compensation and benefits increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to a \$66.1 million increase in salaries, wages, and bonuses, driven by a \$24.3 million increase in salaries and wages as a result of merit, cost-of-labor increases, and increased headcount excluding acquisitions, as well as a \$23.0 million increase in bonuses from strong Company performance year to date, resulting in higher short-term incentive bonus expense, coupled with an \$18.8 million increase related to the acquisitions of Cboe Digital, Cboe Asia Pacific, and NEO.

Depreciation and Amortization

Depreciation and amortization was relatively flat for the year ended December 31, 2022 compared to the year ended December 31, 2021, due to an increase in depreciation expense related to the acquisitions of Cboe Asia Pacific, Cboe Digital, and NEO, as well as an increase in depreciation expense related to the former headquarters location, which was not subject to depreciation during four months in 2021, as it was classified as held for sale from May 1, 2019 until May 1, 2021, offset by a decline in amortization under the discounted cash flow method for the intangibles acquired in the Bats acquisition.

Technology Support Services

Technology support services costs increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to increases in technology support services, including software maintenance support service fees, software licenses and subscriptions, cloud services, and hardware maintenance, partially offset by a decrease in purchased hardware and equipment and purchased software.

Professional Fees and Outside Services

Professional and outside services fees increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to increases in regulatory costs driven by an increase in CAT expense, as well as

increases in consulting fees, recruiting fees, contract services, and external audit fees, partially offset by a decrease in legal fees.

Travel and Promotional Expenses

Travel and promotional expenses increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to an increase in marketing expenses driven by product promotions and an increase in travel expenses due to changes in travel guidelines following the COVID-19 pandemic.

Facilities Costs

Facilities costs increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to an increase in rent expense related to the new Amsterdam lease that commenced in February 2022 and additional office space in London that commenced in March 2022, along with additional office locations following acquisitions in 2021 and 2022.

Acquisition-Related Costs

Acquisition-related costs increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due an increase in general and administrative costs associated with the acquisitions of Cboe Digital and NEO.

Goodwill Impairment

Goodwill impairment increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, due to impairment recognized in the Digital segment in the second quarter of 2022.

Other Expenses

Other expenses increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to increased charitable contributions, an increase in VAT taxes, and expenses associated with hosting the Cboe Risk Management Conference.

Operating Income

As a result of the items above, operating income for the year ended December 31, 2022 was \$489.6 million, compared to operating income of \$805.9 million for the year ended December 31, 2021, a decrease of \$316.3 million.

Interest Expense, Net

Net interest expense increased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to additional interest expense incurred in connection with the 3.000% Senior Notes issued at the end of the first quarter of 2022, coupled with additional interest expense incurred in connection with the additional borrowings on the Term Loan in the second quarter of 2022, as well as an increase in the SOFR rate, partially offset by principal repayments on the Term Loan and a decrease in interest expense related to the Cboe Clear Europe Credit Facility, which was amended and restated in June 2022.

Other (Expense) Income, Net

Net other expense decreased for the year ended December 31, 2022 compared to the year ended December 31, 2021, primarily due to a \$7.5 million gain on the Company's previous minority ownership of ErisX, which increased in fair value as a result of the Company's acquisition of Cboe Digital, recorded in the second quarter of 2022, coupled with a \$5.0 million impairment adjustment recorded in 2021 related to the Company's previously held investment in Curve Global, which did not recur in 2022, and a \$4.2 million unrealized gain on the Company's investment in 7Ridge Fund (which owns Trading Technologies) as part of a semi-annual valuation update recorded in 2022, partially offset by a \$10.6 million impairment adjustment on the Company's investment in American Financial Exchange, LLC recorded in 2022.

Income Before Income Tax Provision

As a result of the above, income before income tax provision for the year ended December 31, 2022 was \$432.9 million compared to income before income tax provision of \$756.1 million for the year ended December 31, 2021, a decrease of \$323.2 million.

Income Tax Provision

For the year ended December 31, 2022, the income tax provision was \$197.9 million compared to \$227.1 million for the year ended December 31, 2021, a decrease of \$29.2 million, primarily due to a decrease in income before income tax provision, partially offset by a higher effective tax rate for the year ended December 31, 2022. The effective tax rate for the year ended December 31, 2022 was 45.7%, compared to a rate of 30.0% for the year ended December 31, 2021. The higher effective tax rate in the year ended December 31, 2022 compared to the year ended December 31, 2021, is primarily due to the derecognition of the Company's Section 199 tax benefits for the tax years 2008 through 2016 upon the unfavorable decision by the United States Tax Court in the matter of Bats Global Markets Holdings, Inc. and Subsidiaries v. Commissioner of Internal Revenue, on March 31, 2022.

The following table summarizes the non-GAAP calculation of the effective tax rate for the year ended December 31, 2022:

	Year Ended
	<u>December 31, 2022</u>
GAAP effective tax rate	45.7 %
Tax effect of goodwill impairment	(8.5)%
Tax effect of Section 199 related matters	<u>(5.5)%</u>
Effective tax rate excluding goodwill impairment and Section 199 matters	<u>31.7 %</u>

Net Income

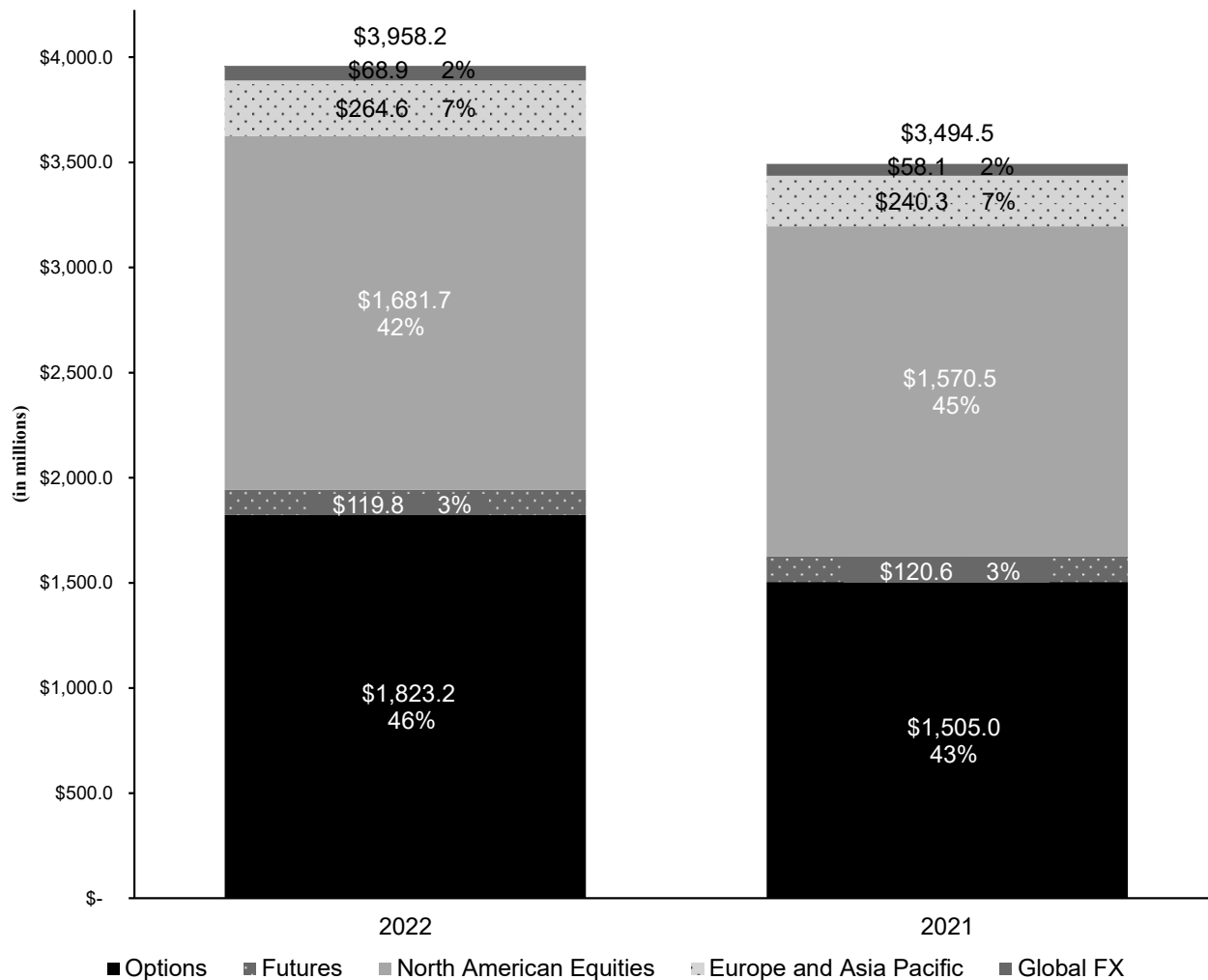
As a result of the items above, net income for the year ended December 31, 2022 was \$235.0 million, or 14% of revenues less cost of revenues, compared to \$529.0 million, or 36% of revenues less cost of revenues, for the year ended December 31, 2021, a decrease of \$294.0 million, or 56%.

Segment Operating Results

We report results from our six segments: Options, North American Equities, Europe and Asia Pacific, Futures, Global FX, and Digital. Segment performance is primarily based on operating income (loss). We have aggregated all corporate costs, as well as other business ventures, within Corporate Items and Eliminations as those activities should not be used to evaluate a segment's operating performance. All operating expenses that relate to activities of a specific segment have been allocated to that segment.

The following summarizes our total revenues by segment (in millions, except percentages):

Total revenues by segment



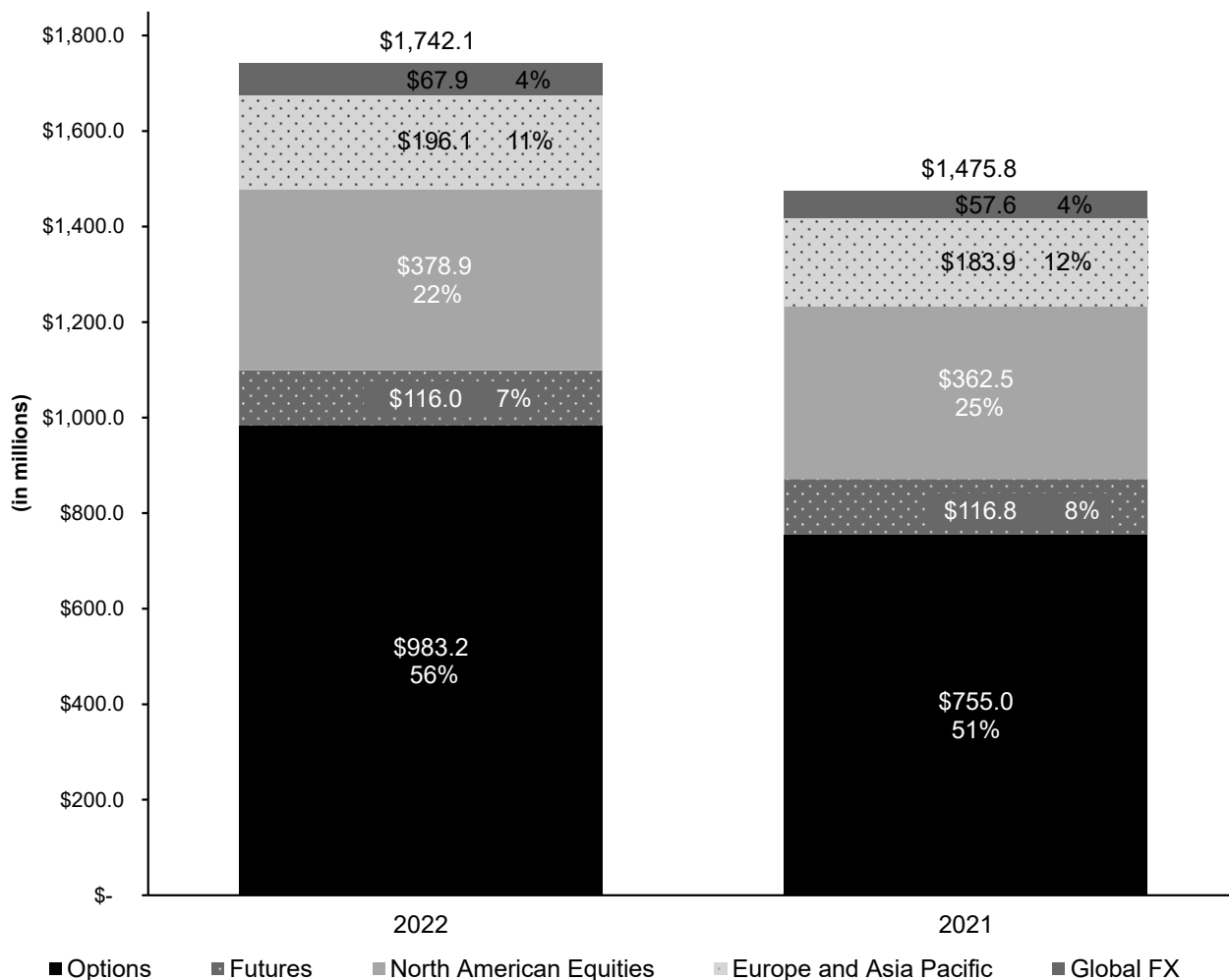
Note, the chart excludes Digital revenues of \$0.3 million for the year ended December 31, 2022 and Corporate revenues of \$0.3 million for the year ended December 31, 2021.

	Year Ended December 31,		Percent Change	Percentage of Total Revenues Year Ended December 31,	
	2022	2021		2022	2021
Options	\$ 1,823.2	\$ 1,505.0	21 %	46 %	43 %
North American Equities	1,681.7	1,570.5	7 %	42 %	45 %
Europe and Asia Pacific	264.6	240.3	10 %	7 %	7 %
Futures	119.8	120.6	(1)%	3 %	3 %
Global FX	68.9	58.1	19 %	2 %	2 %
Digital	0.3	—	*	— %	— %
Corporate	—	0.3	(100)%	— %	— %
Total revenues	\$ 3,958.5	\$ 3,494.8	13 %	100 %	100 %

* Not meaningful

The following summarizes our revenues less cost of revenues by segment (in millions, except percentages):

Total revenues less cost of revenues by segment



Note, the chart excludes Digital revenues less cost of revenues of \$(0.4) million for the year ended December 31, 2022 and Corporate revenues less cost of revenues of \$0.3 million for the year ended December 31, 2021.

	Year Ended December 31,		Percent Change	Percentage of Total Revenues less Cost of Revenues Year Ended December 31,	
	2022	2021		2022	2021
Options	\$ 983.2	\$ 755.0	30 %	56 %	51 %
North American Equities	378.9	362.5	5 %	22 %	25 %
Europe and Asia Pacific	196.1	183.9	7 %	11 %	12 %
Futures	116.0	116.8	(1)%	7 %	8 %
Global FX	67.9	57.6	18 %	4 %	4 %
Digital	(0.4)	—	*	— %	— %
Corporate	—	0.3	(100)%	— %	— %
Total revenues less cost of revenues	\$ 1,741.7	\$ 1,476.1	18 %	100 %	100 %

* Not meaningful

Options

The following summarizes revenues less cost of revenues, operating expenses, operating income, EBITDA and EBITDA margin for our Options segment (in millions, except percentages):

	Year Ended		Percent Change	Percentage of Total Revenues	
	December 31,			Year Ended	
	2022	2021		2022	2021
Revenues less cost of revenues	\$ 983.2	\$ 755.0	30 %	54 %	50 %
Operating expenses	242.7	217.0	12 %	13 %	14 %
Operating income	\$ 740.5	\$ 538.0	38 %	41 %	36 %
EBITDA (1)	\$ 765.3	\$ 565.4	35 %	42 %	38 %
EBITDA margin (2)	77.8 %	74.9 %	*	*	*

* Not meaningful

- (1) See footnote (2) to the table under “Overview” above for a reconciliation of net income to EBITDA, and management’s reasons for using such non-GAAP measures.
- (2) EBITDA margin represents EBITDA divided by revenues less cost of revenues.

Revenues less cost of revenues increased \$228.2 million for the year ended December 31, 2022 compared to the year ended December 31, 2021 primarily due to a 44% increase in index options ADV, coupled with an 6% increase in index options net capture and an increase in logical port fees, partially offset by an increase in royalty fees driven by an increase in trading volumes of licensed products. For the year ended December 31, 2022, operating income for the Options segment increased \$202.5 million compared to the year ended December 31, 2021 primarily due to an increase in revenues less cost of revenues, partially offset by an increase in operating expenses. Operating expenses increased \$25.7 million for the year ended December 31, 2022 compared to the year ended December 31, 2021 primarily due to increases in compensation and benefits and travel and promotional expenses, partially offset by a decrease in depreciation and amortization.

North American Equities

The following summarizes revenues less cost of revenues, operating expenses, operating income, EBITDA and EBITDA margin for our North American Equities segment (in millions, except percentages):

	Year Ended		Percent Change	Percentage of Total Revenues	
	December 31,			Year Ended	
	2022	2021		2022	2021
Revenues less cost of revenues	\$ 378.9	\$ 362.5	5 %	23 %	23 %
Operating expenses	232.3	206.4	13 %	14 %	13 %
Operating income	\$ 146.6	\$ 156.1	(6)%	9 %	10 %
EBITDA (1)	\$ 220.1	\$ 231.3	(5)%	13 %	15 %
EBITDA margin (2)	58.1 %	63.8 %	*	*	*

* Not meaningful

- (1) See footnote (2) to the table under “Overview” above for a reconciliation of net income to EBITDA, and management’s reasons for using such non-GAAP measures.
- (2) EBITDA margin represents EBITDA divided by revenues less cost of revenues.

Revenues less cost of revenues increased \$16.4 million for the year ended December 31, 2022 compared to the year ended December 31, 2021 primarily due to additional revenue attributable to NEO, coupled with an increase in access and capacity fees driven by an increase in physical and logical port fees and a 7% increase in U.S. Equities net capture, partially offset by a 1% decrease in total touched shares on U.S. Equities exchanges and a decrease in industry market data fees as a result of a decrease in U.S. tape plan revenue due to a 1% decline in market share on the U.S. Equities exchanges. For the year ended December 31, 2022, operating income for the North American Equities segment

decreased \$9.5 million compared to the year ended December 31, 2021 primarily due to an increase in operating expenses, partially offset by an increase in revenues less cost of revenues. Operating expenses increased \$25.9 million for the year ended December 31, 2022 compared to the year ended December 31, 2021 primarily due to increases in compensation and benefits, travel and promotional expenses, professional fees and outside services, and technology support services, partially offset by a decrease in depreciation and amortization.

Europe and Asia Pacific

The following summarizes revenues less cost of revenues, operating expenses, operating income, EBITDA and EBITDA margin for our Europe and Asia Pacific segment (in millions, except percentages):

	Year Ended		Percent Change	Percentage of Total Revenues	
	December 31,			Year Ended	
	2022	2021		2022	2021
Revenues less cost of revenues	\$ 196.1	\$ 183.9	7 %	74 %	77 %
Operating expenses	158.0	127.9	24 %	60 %	53 %
Operating income	\$ 38.1	\$ 56.0	(32)%	14 %	23 %
EBITDA (1)	\$ 74.6	\$ 92.6	(19)%	28 %	39 %
EBITDA margin (2)	38.0 %	50.4 %	*	*	*

* Not meaningful

- (1) See footnote (2) to the table under "Overview" above for a reconciliation of net income to EBITDA, and management's reasons for using such non-GAAP measures.
- (2) EBITDA margin represents EBITDA divided by revenues less cost of revenues.

Revenues less cost of revenues increased \$12.2 million for the year ended December 31, 2022 compared to the year ended December 31, 2021 primarily due to additional revenue attributed to Cboe Asia Pacific, coupled with an increase in transaction and clearing fees as a result of a 41% increase in European Equities matched ADNV, driven by a 5% increase in European Equities market share, partially offset by a 17% decrease in the fee per trade cleared by Cboe Clear Europe. For the year ended December 31, 2022, operating income for the Europe and Asia Pacific segment decreased \$17.9 million compared to the year ended December 31, 2021 primarily due to an increase in operating expenses, partially offset by an increase revenues less cost of revenues. Operating expenses increased \$30.1 million for the year ended December 31, 2022 compared to the year ended December 31, 2021 primarily due to increases in compensation and benefits, other expenses, technology support services, facilities costs, depreciation and amortization, and travel and promotional expenses. Operating income was adversely impacted for the year ended December 31, 2022 compared to the prior period by changes in foreign currency rates, most notably Euros and British Pounds.

Futures

The following summarizes revenues less cost of revenues, operating expenses, operating income, EBITDA, and EBITDA margin for our Futures segment (in millions, except percentages):

	Year Ended		Percent Change	Percentage of Total Revenues	
	December 31,			Year Ended	
	2022	2021		2022	2021
Revenues less cost of revenues	\$ 116.0	\$ 116.8	(1)%	97 %	97 %
Operating expenses	60.8	50.8	20 %	51 %	42 %
Operating income	\$ 55.2	\$ 66.0	(16)%	46 %	55 %
EBITDA (1)	\$ 57.8	\$ 68.7	(16)%	48 %	57 %
EBITDA margin (2)	49.8 %	58.8 %	*	*	*

* Not meaningful

- (1) See footnote (2) to the table under “Overview” above for a reconciliation of net income to EBITDA, and management’s reasons for using such non-GAAP measures.
- (2) EBITDA margin represents EBITDA divided by revenues less cost of revenues.

Revenues less cost of revenues decreased \$0.8 million for the year ended December 31, 2022 compared to the year ended December 31, 2021 primarily due a decline in transaction and clearing fees as a result of a 5% decrease in ADV, coupled with a decrease in membership fees and logical port fees, partially offset by an increase in physical port fees, an increase in proprietary market data revenue, and a 2% increase in net capture. For the year ended December 31, 2022, operating income for the Futures segment decreased \$10.8 million compared to the year ended December 31, 2021 primarily due to an increase in operating expenses. Operating expenses increased \$10.0 million for the year ended December 31, 2022 compared to the year ended December 31, 2021 primarily due to increases in compensation and benefits, travel and promotional expenses, and other expenses, partially offset by a decrease in professional fees and outside services.

Global FX

The following summarizes revenues less cost of revenues, operating expenses, operating income, EBITDA and EBITDA margin for our Global FX segment (in millions, except percentages):

	Year Ended		Percent Change	Percentage of Total Revenues	
	December 31,			Year Ended	
	2022	2021		2022	2021
Revenues less cost of revenues	\$ 67.9	\$ 57.6	18 %	99 %	99 %
Operating expenses	59.1	54.9	8 %	86 %	94 %
Operating income	\$ 8.8	\$ 2.7	226 %	13 %	5 %
EBITDA (1)	\$ 30.7	\$ 26.9	14 %	45 %	46 %
EBITDA margin (2)	45.2 %	46.7 %	*	*	*

* Not meaningful

- (1) See footnote (2) to the table under “Overview” above for a reconciliation of net income to EBITDA, and management’s reasons for using such non-GAAP measures.
- (2) EBITDA margin represents EBITDA divided by revenues less cost of revenues.

Revenues less cost of revenues increased \$10.3 million for the year ended December 31, 2022 compared to the year ended December 31, 2021 primarily due to a 21% increase in ADNV, partially offset by a 1% decrease in net capture. For the year ended December 31, 2022, operating income for the Global FX segment increased \$6.1 million compared to the year ended December 31, 2021 primarily due to an increase in revenues less cost of revenues, partially offset by an increase in operating expenses. Operating expenses increased \$4.2 million for the year ended December 31, 2022

compared to the year ended December 31, 2021 primarily due to increases in compensation and benefits, facilities costs, technology support services, and professional fees and outside services, partially offset by a decrease in depreciation and amortization.

Digital

The following summarizes revenues less cost of revenues, operating expenses, operating loss, EBITDA, and EBITDA margin for our Digital segment (in millions, except percentages):

	<u>Year Ended December 31,</u> <u>2022</u>	<u>Percentage of Total Revenues</u> <u>Year Ended December 31,</u> <u>2022</u>
Revenues less cost of revenues	\$ (0.4)	* %
Operating expenses	491.0	* %
Operating income (loss)	<u>\$ (491.4)</u>	<u>* %</u>
EBITDA (1)	\$ (484.0)	* %
EBITDA margin (2)	* %	*

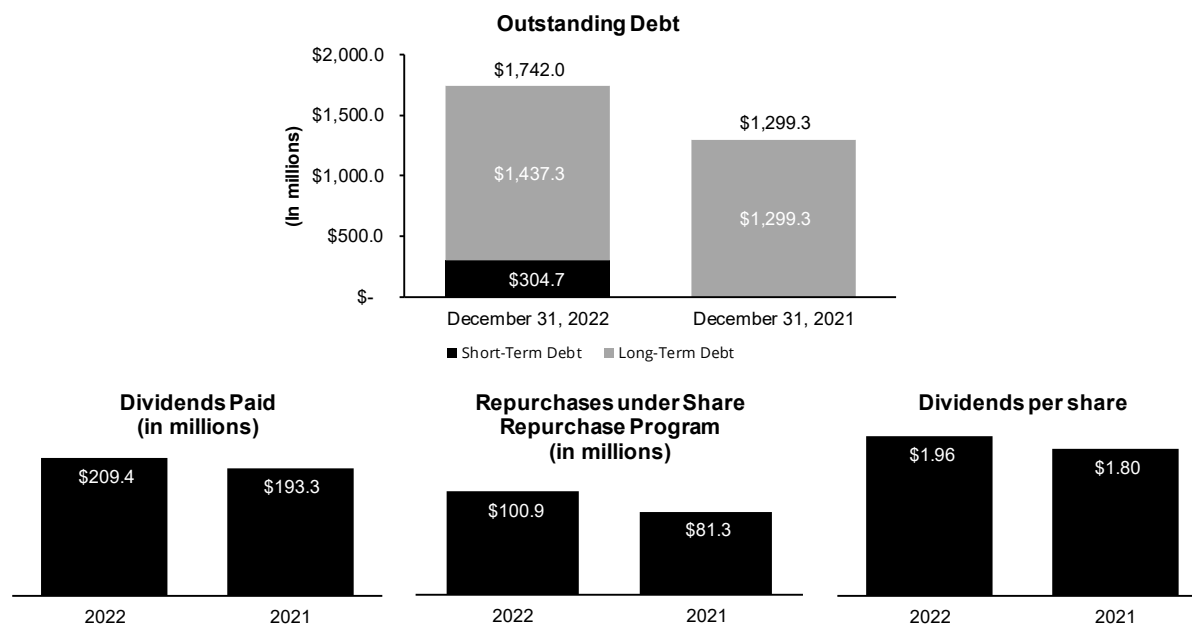
* Not meaningful

- (1) See footnote (2) to the table under “Overview” above for a reconciliation of net income to EBITDA, and management’s reasons for using such non-GAAP measures.
- (2) EBITDA margin represents EBITDA divided by revenues less cost of revenues.

The Digital segment was established in the second quarter of 2022 following the acquisition of ErisX, which was subsequently rebranded to Cboe Digital. Cost of revenues exceeded revenues for the year ended December 31, 2022 primarily due to liquidity payments on spot and futures transactions, partially offset by transaction and clearing fees attributable to spot transactions. For the year ended December 31, 2022, the Digital segment had an operating loss of \$491.4 million, primarily due to \$460.9 million impairment of goodwill.

LIQUIDITY AND CAPITAL RESOURCES

Below are charts that reflect elements of our capital allocation:



We expect our cash on hand at December 31, 2022 and other available resources, including cash generated from operations, to be sufficient to continue to meet our cash requirements for the foreseeable future. In the near term, we expect that our cash from operations and availability under the Revolving Credit Facility, and potentially participating in future financing transactions to obtain additional capital will meet our cash needs to fund our operations, capital expenditures, interest payments on debt, debt repayments, such as under the Term Loan Agreement, which matures on December 15, 2023, any dividends, potential strategic acquisitions, opportunities for common stock repurchases under the previously announced program, and payouts related to the unfavorable decision in the Section 199 litigation. See Note 12 (“Debt”) to the consolidated financial statements for further information.

Cboe Clear Europe also has a €1.25 billion committed syndicated multicurrency revolving and swingline credit facility agreement with Cboe Clear Europe as borrower and the Company as guarantor of scheduled interest and fees on borrowings (but not the principal amount of any borrowings) (the “Facility”). The Facility is available to be drawn by Cboe Clear Europe towards (a) financing unsettled amounts in connection with the settlement of transactions in securities and other items processed through Cboe Clear Europe’s clearing system and (b) financing any other liability or liquidity requirement of Cboe Clear Europe incurred in the operation of its clearing system. Borrowings under the Facility are secured by cash, eligible bonds and eligible equity assets deposited by Cboe Clear Europe into secured accounts. As a result, should the Facility be drawn by Cboe Clear Europe it could potentially impact Cboe Clear Europe’s liquidity, and we can give no assurance that this Facility will be sufficient to meet all of such obligations or sufficiently mitigate Cboe Clear Europe’s liquidity risk to meet its payment obligations when due. Additionally, a default of the Facility may allow lenders, under certain circumstances, to accelerate any related drawn amounts and may result in the acceleration of the Company’s other outstanding debt to which a cross-acceleration or cross-default provision applies, which may limit the Company’s liquidity, business and financing activities. The Facility was amended on June 30, 2022, which extended the term of the facility through June 29, 2023. Please refer to Note 12 (“Debt”) for further information on the amendment.

Our long-term cash needs will depend on many factors, including an introduction of new products, enhancements of current products, the geographic mix of our business and any potential acquisitions. We believe our cash from operations and the availability under our Revolving Credit Facility will meet any long-term needs unless a significant acquisition or acquisitions are identified, in which case we expect that we would be able to borrow the necessary funds and/or issue additional shares of our common stock to complete such acquisition(s).

Cash and cash equivalents includes cash in banks and all non-restricted, highly liquid investments with original maturities of three months or less at the time of purchase. Cash and cash equivalents as of December 31, 2022 increased \$90.8 million from December 31, 2021 primarily due to additional borrowings on the Term Loan Agreement, issuance of the 3.000% Senior Notes in the first quarter of 2022, and results of operations, partially offset by acquisitions, net of cash acquired and repayments on the Term Loan Agreement. See “Cash Flow” below for further discussion.

Our cash and cash equivalents held outside of the United States in various foreign subsidiaries totaled \$226.1 million and \$185.9 million as of December 31, 2022 and 2021, respectively. The remaining balance was held in the United States and totaled \$206.6 million and \$156.0 million as of December 31, 2022 and 2021, respectively. The majority of cash held outside the United States is available for repatriation, but under current law, could subject us to additional United States income taxes, less applicable foreign tax credits. See Note 18 (“Regulatory Capital”) for information regarding cash held for purposes of regulatory capital requirements.

Our financial investments include deferred compensation plan assets as well as investments with original or acquired maturities longer than three months but that mature in less than one year from the balance sheet date and are recorded at fair value. As of December 31, 2022, financial investments primarily consisted of U.S. Treasury securities and deferred compensation plan assets.

Cash Flow

The following table summarizes our cash flow data for the years ended December 31, 2022, 2021 and 2020 (in millions):

	For the Year Ended		
	December 31,		
	2022	2021	2020
Net cash provided by operating activities	\$ 651.1	\$ 596.8	\$ 1,458.8
Net cash used in investing activities	(835.1)	(352.7)	(430.5)
Net cash provided by (used in) financing activities	81.7	(200.3)	(201.7)
Effect of foreign currency exchange rate changes on cash, cash equivalents, and restricted cash and cash equivalents	(10.0)	(9.1)	1.6
(Decrease) increase in cash, cash equivalents, and restricted cash and cash equivalents	<u>\$ (112.3)</u>	<u>\$ 34.7</u>	<u>\$ 828.2</u>
	As of December 31,		
	2022	2021	2020
Reconciliation of cash, cash equivalents, and restricted cash and cash equivalents:			
Cash and cash equivalents	\$ 432.7	\$ 341.9	\$ 245.4
Restricted cash and cash equivalents (margin deposits and clearing funds)	530.3	745.9	812.1
Restricted cash and cash equivalents (included in other current assets)	4.2	4.4	—
Customer bank deposits (included in margin deposits and clearing funds)	12.7	—	—
Total	<u>\$ 979.9</u>	<u>\$ 1,092.2</u>	<u>\$ 1,057.5</u>

Net Cash Flows Provided by Operating Activities

During the year ended December 31, 2022, net cash provided by operating activities was \$416.1 million higher than net income. The variance is primarily attributable to the adjustment for goodwill impairment of \$460.9 million, the adjustment for depreciation and amortization expense of \$166.8 million, and the change in Section 31 fees payable of \$106.3 million, partially offset by the change in restricted cash and cash equivalents of \$217.5 million, driven by the change in margin and clearing funds related to Cboe Clear Europe for the year ended December 31, 2022, and the benefit for deferred income taxes of \$155.7 million.

Net cash flows provided by operating activities were \$651.1 million and \$596.8 million for the years ended December 31, 2022 and 2021, respectively. The change in net cash flows provided by operating activities was primarily due to the adjustment for goodwill impairment and the change in Section 31 fees payable, partially offset by the change in net income, the change in restricted cash and cash equivalents, driven by margin deposits and clearing funds related to Cboe Clear Europe, the change in benefit for deferred income taxes, and the change in accounts receivable.

Net cash provided by operating activities was \$67.8 million higher than net income for the fiscal year ended December 31, 2021. The variance is primarily attributable to the adjustment for depreciation and amortization expense of \$167.4 million, the change in accounts payable and accrued liabilities of \$45.0 million, and the change in unrecognized tax benefits of \$33.2 million, partially offset by the change in Section 31 fees payable of \$112.1 million and the change in restricted cash and cash equivalents, driven by a \$66.2 million decrease in margin deposits and clearing funds related to Cboe Clear Europe for the year ended December 31, 2021.

Net cash provided by operating activities was \$596.8 million and \$1,458.8 million for the years ended December 31, 2021 and 2020, respectively. The change in net cash flows provided by operating activities was primarily due to the change in restricted cash and cash equivalents, driven by margin deposits and clearing funds related to Cboe Clear Europe, as well as the change in Section 31 fees payable, partially offset by the change in accounts receivable, the change in net income, the change in the bargain purchase gain, and the change in provision for deferred income taxes for the year ended December 31, 2021 compared to the year ended December 31, 2020.

Net Cash Flows Used in Investing Activities

During the year ended December 31, 2022, net cash used in investing activities primarily consisted of acquisitions, net of cash acquired of \$708.3 million, purchases of available-for-sale financial investments of \$104.7 million, and purchases of property and equipment and leasehold improvements of \$59.8 million, partially offset by proceeds from maturities of available-for-sale financial investments of \$51.2 million.

Net cash flows used in investing activities were \$835.1 million and \$352.7 million for the years ended December 31, 2022 and 2021, respectively. The variance is primarily due to the change in acquisitions, net of cash acquired, and the change in proceeds from maturities of available-for-sale financial investments, partially offset by the change in contributions to investments for the year ended December 31, 2022 compared to the year ended December 31, 2021.

During the year ended December 31, 2021, net cash used in investing activities primarily consisted of contributions to investments of \$209.8 million, acquisitions, net of cash acquired of \$151.5 million, and purchases of available-for-sale financial investments of \$101.2 million, partially offset by proceeds from maturities of available-for-sale financial investments of \$160.2 million.

Capital expenditures are expected to be in the range of \$60.0 million to \$66.0 million, reflecting expenditures associated with the Company's ongoing capacity and technology-related investments, as well as continued integration of Cboe Asia Pacific and global expansion of data and access solutions.

Net Cash Flows Provided by (Used in) Financing Activities

During the year ended December 31, 2022, net cash provided by financing activities primarily consisted of proceeds from the long-term debt issuance of \$663.6 million, partially offset by principal repayments of long-term debt of \$220.0 million, cash dividends on common stock, share repurchases, and payments of contingent consideration related to acquisitions.

Net cash flows provided by (used in) financing activities were \$81.7 million and (\$200.3) million for the years ended December 31, 2022 and 2021, respectively. The variance is primarily due to proceeds from the long-term debt issuance, partially offset by principal repayments of long-term debt, the change in payments of contingent consideration related to acquisitions, the change in share repurchases, and the change in cash dividends on common stock.

Net cash flows used in financing activities totaled \$200.3 million for the year ended December 31, 2021. During the year ended December 31, 2021, net cash used in financing activities primarily consisted of cash dividends paid on common stock of \$193.3 million and share repurchases of \$81.3 million, partially offset by proceeds from long-term debt of \$110.0 million.

For the year ended December 31, 2020, the Company received proceeds from long-term debt of \$493.7 million, of which \$70.0 million was used to pay down the revolving credit facility draw taken in the third quarter of 2020, repurchased \$349.1 million of common stock, paid dividends totaling \$170.6 million, and paid down \$155.0 million of long-term debt.

Financial Assets

The following summarizes our financial assets excluding margin deposits and clearing funds as of December 31, 2022, 2021 and 2020 (in millions):

	As of December 31,		
	2022	2021	2020
Cash and cash equivalents	\$ 432.7	\$ 341.9	\$ 245.4
Financial investments	91.7	37.1	92.4
Less deferred compensation plan assets	(27.5)	(28.0)	(24.5)
Less cash collected for Section 31 fees	(93.7)	(25.9)	(103.0)
Adjusted cash (1)	<u>\$ 403.2</u>	<u>\$ 325.1</u>	<u>\$ 210.3</u>

(1) Adjusted cash is a non-GAAP measure and represents cash and cash equivalents plus financial investments, minus deferred compensation plan assets and cash collected for Section 31 fees. We have presented adjusted cash because we consider it an important supplemental measure of our liquidity and believe that it is frequently used by analysts, investors and other interested parties in the evaluation of companies.

Debt

The following summarizes our debt obligations as of December 31, 2022, 2021 and 2020 (in millions):

	As of December 31,		
	2022	2021	2020
Term Loan Agreement	\$ 305.0	\$ 160.0	\$ 70.0
3.650% Senior Notes	650.0	650.0	650.0
1.625% Senior Notes	500.0	500.0	500.0
3.000% Senior Notes	300.0	—	—
Revolving Credit Agreement	—	—	—
Cboe Clear Europe Credit Facility	—	—	—
Less unamortized discount and debt issuance costs	(13.0)	(10.7)	(16.1)
Total debt	<u>\$ 1,742.0</u>	<u>\$ 1,299.3</u>	<u>\$ 1,203.9</u>

At December 31, 2022, we were in compliance with the covenants of our debt agreements.

In addition to the debt outstanding, as of December 31, 2022, we had an additional \$400.0 million available through our revolving credit facility, with the ability to borrow another \$200.0 million by increasing the commitments under the facility. Together with adjusted cash, we had \$1.0 billion available to fund our operations, capital expenditures, potential acquisitions, debt repayments and any dividends, net of regulatory capital requirements, as of December 31, 2022.

Dividends

The Company's expectation is to continue to pay dividends. The decision to pay a dividend, however, remains within the discretion of the Company's Board of Directors and may be affected by various factors, including our earnings, financial condition, capital requirements, level of indebtedness and other considerations our Board of Directors deems relevant. Future debt obligations and statutory provisions, among other things, may limit, or in some cases prohibit, our ability to pay dividends.

Share Repurchase Program

In 2011, the Board of Directors approved an initial authorization for the Company to repurchase shares of its outstanding common stock of \$100 million and subsequently approved additional authorizations, for a total authorization of \$1.6 billion. The program permits the Company to purchase shares through a variety of methods, including in the open market or through privately negotiated transactions, in accordance with applicable securities laws. It does not obligate the Company to make any repurchases at any specific time or situation. Share repurchases are repurchased to the Company's Treasury stock and ultimately retired or they are available to be redistributed.

Under the program, for the year ended December 31, 2022, the Company repurchased 876,238 shares of common stock at an average cost per share of \$115.20, totaling \$100.9 million. Since inception of the program through December

31, 2022, the Company has repurchased 18,948,367 shares of common stock at an average cost per share of \$70.30, totaling \$1.3 billion. The Company retired 744,127 and 18,072,129 shares of treasury stock in the years ended December 31, 2022 and 2021, respectively.

On August 16, 2022, President Biden signed into law H.R. 5376 (commonly known as the “Inflation Reduction Act of 2022” or simply the “IRA”). Tax measures contained in the new law include, among other items, an excise tax of 1% on corporate stock buy-backs. The IRA imposes a new 1% excise tax on repurchases of stock by domestic corporations with stock traded on established securities markets. The amount on which the tax is imposed is reduced by the value of any stock issued by such corporation during the tax year and the tax generally applies to stock buy-back transactions occurring after December 31, 2022. This new tax is not expected to result in a material impact to the Company.

As of December 31, 2022, the Company had \$217.9 million of availability remaining under its existing share repurchase authorizations.

Lease and Obligations

The Company currently leases additional office space, data centers and remote network operations center, with lease terms remaining from 5 months to 174 months as of December 31, 2022. Additionally, in October 2021, the Company signed a new lease that commenced in February 2022 for a new principal office space in Amsterdam. See Note 24 (“Leases”) to the consolidated financial statements for additional information.

Total rent expense related to current and former lease obligations for the years ended December 31, 2022, 2021 and 2020 totaled \$30.0 million, \$25.6 million and \$20.2 million, respectively. In addition to our lease obligations, we have contractual obligations related to certain operating leases, data and telecommunications agreements, and our long-term debt outstanding.

Purchase obligations include our estimate of the minimum outstanding obligations under agreements to purchase goods or services that we believe are enforceable and legally binding and that specify all significant terms, including fixed or minimum quantities to be purchased; fixed or minimum and maximum amounts to be paid; and the approximate timing of the transaction. Purchase obligations include certain licensing agreements with various licensors which contain annual minimum fee requirements as well as payments calculated using agreed upon contract rates and reported cleared volumes. Purchase obligations exclude agreements that are cancellable at any time without penalty.

We have excluded from the contractual obligations listed below \$543.0 million in cash margin deposits and clearing funds related to Cboe Clear Europe and Cboe Clear Digital. Clearing participants of Cboe Clear Europe are required to make deposits to a clearing fund. The cash deposits made by clearing participants are recorded in the consolidated balance sheet as current assets with equal and offsetting current liabilities. See Note 14 (“Clearing Operations”) to the consolidated financial statements for additional information on Cboe Clear Europe and Cboe Clear Digital and the margin deposits and clearing funds.

Future minimum payments under these leases and agreements were as follows as of December 31, 2022:

	Payments Due by Period		
	Total	Less than 1 year	More than 1 year
Contractual Obligations			
Operating leases	\$ 156.7	\$ 22.4	\$ 134.3
Purchase obligations	883.8	71.3	812.5
Principal payments of debt	1,755.0	305.0	1,450.0
Interest payments on debt	257.3	54.9	202.4
Total	\$ 3,052.8	\$ 453.6	\$ 2,599.2

Commercial Commitments and Contractual Obligations

As of December 31, 2022, our commercial commitments and contractual obligations included operating leases, data and telecommunications agreements, equipment leases, our long-term debt outstanding, contingent considerations, software development activities and other obligations. See Note 23 (“Commitments, Contingencies, and Guarantees”) to the consolidated financial statements for a discussion of commitments and contingencies, Note 12 (“Debt”) for a

discussion of the outstanding debt, Note 14 (“Clearing Operations”) for information on Cboe Clear Europe and Cboe Digital’s clearinghouse exposure guarantees, and Note 24 (“Leases”) for discussion on operating leases and equipment leases.

Guarantees

We use Wedbush and Morgan Stanley to clear our routed equities transactions for our U.S. Equities exchanges. Wedbush and Morgan Stanley guarantee the trade until one day after the trade date, after which time the National Securities Clearing Corporation (“NSCC”) provides a guarantee. The BIDS Trading ATS platform delivers matched trades to BofA Securities, Inc. (“BOA”), which delivers the matched trades to the NSCC. BOA guarantees the trade until one day after the trade date, after which time the NSCC provides a guarantee. In the case of failure to perform on the part of Wedbush or Morgan Stanley on routed transactions for our U.S. Equities exchanges, we provide the guarantee to the counterparty to the trader. In the case of failure to perform on the part of BOA on transactions for the BIDS Trading ATS platform, BIDS has obligations to the counterparties to satisfy the trades. OCC acts as a central counterparty on all transactions in listed equity options in our Options segment, and as such, guarantees clearance and settlement of all of our options transactions. We believe that any potential requirement for us to make payments under these guarantees is remote and accordingly, have not recorded any liability in the consolidated financial statements for these guarantees. Similarly, with respect to trades in U.S. listed equity options and futures occurring on Cboe Options, C2, BZX, EDGX, and CFE, we deliver matched trades of our customers to the OCC, which acts as a central counterparty on all transactions occurring on these exchanges and, as such, guarantees clearance and settlement of all of those matched options and futures trades. With respect to Canadian equities, we deliver matched trades of our customers to The Canadian Depository for Securities, which acts as a central counterparty on all transactions occurring on MATCHNow and NEO and, as such, guarantees clearance and settlement of all of our matched Canadian equities trades. With respect to Australian equities and derivatives, we deliver matched trades of our customers to ASX Clear Pty Ltd and ASX Settlement Pty Ltd. ASX Clear Pty Ltd acts as a central counterparty on all transactions occurring on Cboe Australia and, as such, guarantees clearance and settlement on all of our matched trades in Australia. With respect to Japanese equities, we deliver matched trades of our customers to the Japanese Securities Clearing Corporation, which acts as a central counterparty on all transactions occurring on Cboe Japan and, as such, guarantees clearance and settlement on all of our matched trades in Japan.

CRITICAL ACCOUNTING ESTIMATES

The preparation of consolidated financial statements in conformity with U.S. GAAP requires our management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of the amounts of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from those estimates. On an ongoing basis, the Company evaluates its estimates, including those related to areas that require a significant level of judgment or are otherwise subject to an inherent degree of uncertainty. The Company bases its estimates on historical experience, observance of trends in particular areas, information available from outside sources and various other assumptions that are believed to be reasonable under the circumstances. Information from these sources form the basis for making judgments about the carrying values of assets and liabilities that may not be readily apparent from other sources.

We have identified the estimates below as critical to our business operations and the understanding of our results of operations. The impact of, and any associated risks related to, these estimates on our business operations is discussed throughout “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” For a detailed discussion on these estimates and other accounting policies, see Note 2 (“Summary of Significant Accounting Policies”) to the consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K.

Goodwill and Other Intangible Assets

Description

Our acquisitions of Bats, Silexx Financial Systems, LLC (“Silexx”), Livevol, Inc. (“LiveVol”), Hanweck, FT Options, Trade Alert, MATCHNow, BIDS Holdings, Cboe Asia Pacific, Cboe Digital, and NEO resulted in the recording of goodwill and other intangible assets, while our acquisition of Cboe Clear Europe, resulted in a bargain purchase gain and other intangible assets. In accordance with FASB Accounting Standards Codification (“ASC”) 350 – Intangibles – Goodwill and

Other, we test the carrying values of goodwill and indefinite-lived intangible assets for impairment at least annually, or more frequently when events or changes in circumstances signal indicators of impairment are present.

Judgments and Uncertainties

The estimated fair values of our reporting units are based on the market approach and the income approach (using discounted estimated future cash flows). The estimated fair values of indefinite-lived intangibles are based on the cost method and income approach. The discounted estimated future cash flow analysis requires judgments about the discount rate, forecasted revenue growth rate, and operating expenses, that are inherent in these fair value estimates over the estimated remaining operating period. Additionally, the analysis contains uncertainty surrounding future events. As such, actual results may differ from these estimates and lead to a revaluation of our goodwill and indefinite-lived intangible assets.

Effect if Actual Results Differ from Assumptions

If updated estimates indicate that the fair value of goodwill or any indefinite-lived intangibles is less than the carrying value of the asset, an impairment charge is expected to be recorded in the consolidated statements of income in the period of the change in estimate, which could result in a material change to the consolidated financial statements.

Following the acquisition of Cboe Digital in the quarter ended June 30, 2022, negative events and trends in the broader digital asset environment emerged, such as deleveraging and bankruptcies, and certain negative trends in the broader digital asset environment that started in late 2021 intensified, such as the decline in digital asset prices, overall market activity, and market capitalization. Additionally, following the acquisition of Cboe Digital, the efforts to syndicate minority ownership interests in Cboe Digital to potential investors during the quarter ended June 30, 2022 became more challenging, and the outlook for the Digital segment's future market growth was negatively impacted. The Company considered these developments, in particular the syndication efforts during the quarter ended June 30, 2022, to be potential indications of impairment and performed an interim impairment test for the goodwill recognized in the Digital reporting unit during the quarter ended June 30, 2022. The Company concluded that the carrying value of the reporting unit exceeded its estimated fair value, which was based on the income approach and corroborated with the market approach, and recorded a goodwill impairment charge of \$460.1 million in the consolidated statements of income during the quarter ended June 30, 2022, and also recognized a deferred tax asset of \$116.2 million. This deferred tax asset, resulting from the excess of tax-deductible goodwill over book goodwill, relates to future tax deductions the Company expects to realize to reduce potential tax payments on future income. As a result, the carrying value of Cboe Digital decreased by \$343.9 million, to \$220.0 million as of June 30, 2022. The Company also performed testing over the intangible assets recognized as a result of the Cboe Digital acquisition during the quarter ended June 30, 2022, and based on the results of the assessments, determined there was no impairment required as the fair value approximated the carrying value. No other long lived assets were recognized as a result of the acquisition and subject to further assessment.

As a result of the finalization of the net working capital calculation associated with the acquisition of Cboe Digital during the quarter ended September 30, 2022, the Company recorded additional goodwill of \$0.8 million. Subsequently, the Company concluded that the indicators of impairment outlined in the previous paragraph continued to be relevant and recorded an additional goodwill impairment charge of \$0.8 million in the consolidated statements of income for the three months ended September 30, 2022, resulting in the write-down of the carrying value of the goodwill associated with the acquisition of Cboe Digital to zero.

As a result of the Company's annual impairment analysis, completed in the fourth quarter of 2022, in which all reporting units estimated fair value exceeded their carrying value, we do not consider our goodwill and indefinite-lived intangibles to have a significant risk of additional impairment.

Income Taxes

Description

The Company's consolidated global income tax provision, deferred tax assets and liabilities, valuation allowances, and liabilities for unrecognized tax benefits are determined through the interpretation of tax laws and assumptions of future events to calculate an expectation of future tax consequences.

Judgments and Uncertainties

On an ongoing basis, the Company evaluates its tax estimates and judgments. This evaluation is based on factors including historical experience, such as the conclusions of examinations by tax authorities, changes in tax laws or rates, new examination activity, and results of any related legal processes. We use judgment in the evaluation of uncertain tax positions and the estimation of unrecognized tax benefits when determining the largest amount greater than 50% likely to be realized upon ultimate settlement with the taxing authority, assessing the likelihood of the benefit being realized upon settlement, and the calculating expected ultimate settlement amount.

Effect if Actual Results Differ from Assumptions

Significant changes in these estimates or judgments may result in an increase or decrease to our tax provision in a future period. Additionally, it is possible that the ultimate settlement may differ from the liabilities for unrecognized tax benefits currently reported if tax authorities ultimately reach a conclusion that differs from the Company's expectation. We believe assumptions made regarding income taxes to be reasonable and do not believe any change in the judgments made by management would result in a material change to the consolidated financial statements.

RECENT ACCOUNTING PRONOUNCEMENTS

See Note 3 ("Recent Accounting Pronouncements") to the consolidated financial statements for further discussion of recently adopted and recently issued accounting pronouncements that are applicable to the Company.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

As a result of our operating activities, we are exposed to market risks such as foreign currency exchange rate risk, equity risk, credit risk, interest rate risk, and liquidity risk. We have implemented policies and procedures to measure, manage and monitor and report risk exposures, which are reviewed regularly by management and our Board of Directors.

Foreign Currency Exchange Rate Risk

Our operations in Europe, Canada and Asia are subject to increased currency translation risk as revenues and expenses are denominated in foreign currencies, primarily the British pound, Canadian dollar, Euro, Australian dollar, and Japanese Yen. We also have de minimis exposure to other foreign currencies, including the Swiss Franc, Norwegian Kroner, Swedish Krona, Danish Kroner, Singapore dollar, Hong Kong dollar, and Philippine Peso.

For the year ended December 31, 2022, our exposure to foreign-denominated revenues less cost of revenues and expenses is presented by primary foreign currency in the following table (in millions, except percentages):

	Year Ended December 31, 2022		
	British Pounds (1)	Euros (1)	Australian Dollars (1)
Foreign denominated % of:			
Revenues less cost of revenues	3.4 %	3.7 %	1.6 %
Operating expenses	2.5 %	4.3 %	2.6 %
Impact of 10% adverse currency fluctuation on:			
Revenues less cost of revenues	\$ 6.2	\$ 6.3	\$ 2.4
Operating expenses	3.2	4.9	2.8

(1) An average foreign exchange rate to the U.S. dollar for the period was used. See Item 7 ("Management's Discussion and Analysis of Financial Condition and Results of Operations") for the table summarizing the changes in certain operational and financial metrics for more information.

Equity Risk

Our investment in European, Canadian, and Asia Pacific operations is exposed to volatility in currency exchange rates through translation of our net assets or equity to U.S. dollars. The assets and liabilities of our European businesses are denominated in British pounds or Euros. The assets and liabilities of our Canadian businesses are denominated in Canadian dollars. The assets and liabilities of our Asia Pacific businesses are denominated in Hong Kong dollars, Australian dollars, Japanese Yen, or Philippine Pesos. Fluctuations in currency exchange rates may create volatility in our

reported results as we are required to translate foreign currency reported statements of financial condition and operational results into U.S. dollars for consolidated reporting. The translation of these non-U.S. dollar statements of financial condition into U.S. dollars for consolidated reporting results in a cumulative translation adjustment, which is recorded in accumulated other comprehensive income, net within stockholders' equity on our consolidated balance sheet.

Our primary exposure to this equity risk as of December 31, 2022 is presented by foreign currency in the following table (in millions):

	<u>British Pounds (1)</u>	<u>Euros (1)</u>	<u>Canadian Dollars (1)</u>
Net equity investment in Cboe Europe Equities and Derivatives, Cboe Clear Europe, MATCHNow, and NEO	\$ 579.5	\$ 145.8	\$ 402.3
Impact on consolidated equity of a 10% adverse currency fluctuation.	58.0	14.6	40.2

(1) Converted to U.S. dollars using the foreign exchange rate of British pounds per U.S. dollar, Euros per U.S. dollar, and Canadian dollars per U.S. dollar, respectively, as of December 31, 2022.

Credit Risk

We are exposed to credit risk from third parties, including customers, counterparties and clearing agents. These parties may default on their obligations due to bankruptcy, lack of liquidity, operational failure or other reasons. We limit our exposure to credit risk by considering such risk when selecting the counterparties with which we make investments and execute agreements.

We do not have counterparty credit risk with respect to trades matched on our exchanges in the U.S., Canada, and Europe. With respect to listed equities, we deliver matched trades of our customers to the NSCC without taking on counterparty risk for those trades. NSCC acts as a central counterparty on all equity transactions occurring on BZX, BYX, EDGX and EDGA and, as such, guarantees clearance and settlement of all of our matched equity trades. Similarly, with respect to U.S. listed equity options and futures, we deliver matched trades of our customers to the OCC, which acts as a central counterparty on all transactions occurring on Cboe Options, C2, BZX, EDGX and CFE and, as such, guarantees clearance and settlement of all of our matched options and futures trades. With respect to Canadian equities, we deliver matched trades of our customers to The Canadian Depository for Securities, which acts as a central counterparty on all transactions occurring on MATCHNow and, as such, guarantees clearance and settlement of all of our matched Canadian equities trades. The BIDS Trading ATS platform delivers matched trades to BOA, which delivers the matched trades to the NSCC. BOA guarantees the trade until one day after the trade date, after which time the NSCC provides a guarantee. Thus, BIDS Trading is potentially exposed to credit risk to the counterparty between the trade date and one day after the trade date in the event BOA fails. With respect to Australian equities and derivatives, we deliver matched trades of our customers to ASX Clear Pty Ltd and ASX Settlement Pty Ltd. ASX Clear Pty Ltd acts as a central counterparty on all transactions occurring on Cboe Australia and, as such, guarantees clearance and settlement on all of our matched trades in Australia. With respect to Japanese equities, we deliver matched trades of our customers to the Japanese Securities Clearing Corporation, which acts as a central counterparty on all transactions occurring on Cboe Japan and, as such, guarantees clearance and settlement on all of our matched trades in Japan.

With respect to orders Cboe Trading routes to other markets for execution on behalf of our customers, Cboe Trading is exposed to some counterparty credit risk in the case of failure to perform on the part of our clearing firms, Morgan Stanley or Wedbush. Morgan Stanley and Wedbush guarantee trades until one day after the trade date, after which time NSCC provides a guarantee. The BIDS Trading ATS platform delivers matched trades to BOA, which delivers the matched trades to the NSCC. Thus, Cboe Trading is potentially exposed to credit risk to the counterparty to a trade routed to another market center between the trade date and one day after the trade date in the event that Morgan Stanley or Wedbush fails. The BIDS Trading ATS platform is potentially exposed to counterparty credit risk on equities trades between the trade date and one day after the trade date in the event that BOA fails. We believe that any potential requirement for us to make payments under these guarantees is remote and accordingly, have not recorded any liability in the consolidated financial statements for these guarantees.

Historically, we have not incurred any liability due to a customer's failure to satisfy its contractual obligations as counterparty to a system trade. Credit difficulties or insolvency, or the perceived possibility of credit difficulties or insolvency, of one or more larger or more visible market participants could also result in market-wide credit difficulties or other market disruptions.

We do not have counterparty credit risk with respect to institutional spot FX trades occurring on our platform because Cboe FX is not a counterparty to any FX transactions. All transactions occurring on our platform occur bilaterally between

two banks or prime brokers as counterparties to the trade. While Cboe FX does not have direct counterparty risk, Cboe FX may suffer a decrease in transaction volume if a bank or prime broker experiences an event that causes other prime brokers to decrease or revoke the credit available to the prime broker experiencing the event. Therefore, Cboe FX may have risk that is related to the credit of the banks and prime brokers that trade FX on the Cboe FX platform.

We also have credit risk related to transaction fees that are billed in arrears to customers on a monthly basis. Our potential exposure to credit losses on these transactions is represented by the receivable balances in our balance sheet. Our customers are financial institutions whose ability to satisfy their contractual obligations may be impacted by volatile securities markets.

The Company is exposed to further credit risk through our clearing operations. Cboe Clear Europe holds material amounts of clearing participant collateral, both cash and non-cash deposits, which are held or invested primarily to provide security of capital while minimizing credit risk as well as liquidity and market risks. Cboe Digital holds amounts of clearing participant collateral including cash and digital assets, which are held primarily to provide security of capital while minimizing credit risk as well as custody, valuation and market risks. The following is a summary of the risks associated with these deposits and how these risks are mitigated:

- **Credit Risk** - The credit risk is predominantly in the event a clearing participant fails to meet a financial or contractual obligation and related to custodians and settlement banks. Cboe Clear Europe attempts to mitigate this risk through minimum participant requirements for clearing participants and monitoring their financial health. To cover potential loss to Cboe Clear Europe in the event of a clearing participant default, collateral is required from clearing participants. Besides potential defaults of clearing participants, the main credit risk faced by the clearinghouse is exposure to clearing participants when a trade fails to settle. To help mitigate this risk, a fail fee is charged to discourage late settlements. This fee covers Cboe Clear Europe's costs but also acts as a deterrent as required by Regulation (EU) No 236/2012 on short selling, together with certain aspects of credit default swaps. Cboe Clear Digital sets minimum financial requirements on custodian institutions and any clearing member that may expose the clearinghouse to credit risk. The financial strength of custodians and such clearing members are monitored routinely. Furthermore, Cboe Digital requires clearing members to post collateral or other forms of financial guarantee and their trading activities are subject to pre-trade checks enforced by Cboe Digital Exchange and administered by Cboe Clear Digital. As of December 31, 2022, Cboe Digital does not expect a material loss concerning credit risk on any member participant, custodian, or settlement bank.
- **Liquidity Risk** - Liquidity risk is the risk Cboe Clear Europe may not be able to meet its payment obligations in the right currency, in the right place and at the right time. To help mitigate this risk, Cboe Clear Europe monitors its liquidity requirements closely and maintains funds and assets in a manner which attempt to minimize the risk of loss or delay in the access by the clearinghouse to such funds and assets. For example, holding funds with a central bank where possible or making only short-term investments serves to help reduce liquidity risks. Liquidity is mainly required for securities settlement. The payment and settlement obligations generally stem from the function of Cboe Clear Europe as a cash equity clearinghouse: shares are bought and sold by clearing participants on a trading platform or OTC, and netted to settle two days later. During the settlement the actual payment for and delivery of the shares take place, this process requires intraday liquidity. If counterparties, which receive shares against payment, are unable to settle, an overnight liquidity need arises. The overnight liquidity is typically very short term, and is usually limited to a few days.
- **Custody Risk** - Cboe Digital holds customer's digital clearing assets custodially through self-custody and its accounts with custodians. Cboe Digital's custody strategy is designed to maximize liquidity and efficient access to assets by making those assets readily available. Cboe Digital monitors its cash and the digital asset balances it maintains with custodians. Digital assets require control of one or more unique public and private keys relating to the local or online digital wallet in which the digital assets are held. The networks require one or more private keys relating to a digital wallet to authorize a spending transaction. If private keys are lost or destroyed, this could prevent the ability to transfer the corresponding digital asset. Security breaches, computer malware, and computer hacking attacks have been a prevalent concern in digital asset markets. Cboe Digital has committed to securely store digital assets it holds on behalf of users. As such, Cboe Digital may be liable to its users for losses arising from theft or loss of user private keys. Cboe Digital has no reason to believe it will incur any expense associated with such potential liability because (i) it has no known or historical experience of claims to use as a basis of measurement, (ii) it accounts for and continually verifies the amount of digital assets within its control, and (iii) it has established security around custodial private keys to minimize the risk of theft or loss.
- **Valuation Risk** - Cboe Digital is exposed to risk with respect to digital asset prices and valuations which are largely based on the supply and demand for those digital assets in financial markets. Cboe Digital's valuation

governance framework includes numerous controls and other procedural safeguards that are intended to maximize the quality of fair value measurements. New products and valuation techniques are reviewed and approved by senior management. Cboe Digital's valuation process for digital assets are fair value estimates that are also validated by the finance control function independently. Independent price verification is performed by finance control through benchmarking fair value estimates with observable market prices or other independent sources. Reasonably designed controls and governance framework are in place and are intended to help ensure quality third-party pricing sources were used.

- **Market Risk** - Cboe Clear Europe is also exposed to market risk in the event that a clearing participant defaults and the market prices of the securities in its open positions have moved adversely so the clearinghouse can only close out the participant's obligations at a loss. To help mitigate market risk, Cboe Clear Europe collects collateral from clearing participants to cover for the probable loss during normal market conditions, together with contributions to the clearing fund to cover losses if a default occurred during extreme but plausible market conditions. Adverse movements in exchange rates affecting the value of obligations and collateral are factored into the calculation of the amount of collateral to be collected. To help ensure an orderly market, Cboe Digital maintains digital assets to support its clearing operations which may be subject to significant changes in value and therefore exposed to market risk with the fluctuation in market prices. Cboe Digital monitors this risk on a daily, weekly and monthly basis. The business model is such that Cboe Digital earns digital assets and at times may accumulate positions that are subject to market risk. Customer positions do have market risk based on daily activity and settlement prices.

On a regular basis, we review and evaluate changes in the status of our counterparties' creditworthiness. Credit losses such as those described above could adversely affect our consolidated financial position and results of operations. Any such effects to date have been minimal.

Interest Rate Risk

We have exposure to market risk for changes in interest rates relating to our cash and cash equivalents, financial investments, and indebtedness. As of December 31, 2022 and 2021, our cash and cash equivalents and financial investments were \$524.4 million and \$379.0 million, respectively, of which \$226.1 million and \$185.9 million is held outside of the United States in various foreign subsidiaries in 2022 and 2021, respectively. The remaining cash and cash equivalents and financial investments are denominated in U.S. dollars. We do not use our investment portfolio for trading or other speculative purposes. Due to the nature of these investments, we have not been exposed to, nor do we anticipate being exposed to, material risks due to changes in interest rates, assuming no change in the amount or composition of our cash and cash equivalents and financial investments.

As of December 31, 2022, we had \$1,742.0 million in outstanding debt, of which \$1,437.3 million relates to our Senior Notes, which bear interest at fixed interest rates. Changes in interest rates will have no impact on the interest we pay on fixed-rate obligations. \$304.7 million of the outstanding debt relates to the Term Loan Agreement, which bears interest at fluctuating rates and, therefore, subjects us to interest rate risk. The overnight Treasury repurchase market underlying SOFR has experienced and may experience disruptions from time to time, which may result in unexpected fluctuations, including potentially higher rates, in SOFR. A hypothetical 100 basis point increase in interest rates relating to the amounts outstanding under the Term Loan Agreement as of December 31, 2022 would decrease annual pre-tax earnings by \$3.0 million, assuming no change in the composition of our outstanding indebtedness. We are also exposed to changes in interest rates as a result of borrowings under our Revolving Credit Agreement and the Cboe Clear Europe Credit Facility, as these facilities bear interest at fluctuating rates. As of December 31, 2022, there were no outstanding borrowings under our Revolving Credit Agreement or Cboe Clear Europe Credit Facility, respectively. See Note 12 ("Debt") to the consolidated financial statements for a discussion of debt agreements.

Liquidity Risk

We are exposed to liquidity risk under certain circumstances in relation to the cross-acceleration and cross-default provisions within the Term Loan Agreement and the Revolving Credit Agreement as a result of the Company, as guarantor, entering into the Cboe Clear Europe Credit Facility. A default of the Facility may allow lenders to accelerate any related drawn amounts and may result in the acceleration of the Company's other outstanding debt to which a cross-acceleration or cross-default provision applies, which may limit the Company's liquidity, business and financing activities. See Note 12 ("Debt") to the consolidated financial statements for a discussion of debt agreements.

Item 8. Financial Statements and Supplementary Data

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Cboe Global Markets, Inc. and Subsidiaries

Reports of Independent Registered Public Accounting Firm (PCAOB ID 185)	100
Consolidated Financial Statements:	
Consolidated Balance Sheets	104
Consolidated Statements of Income	105
Consolidated Statements of Comprehensive Income	106
Consolidated Statements of Changes in Stockholders' Equity	107
Consolidated Statements of Cash Flows	108
Notes to Consolidated Financial Statements	109

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Cboe Global Markets, Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Cboe Global Markets, Inc. and subsidiaries (the Company) as of December 31, 2022 and 2021, the related consolidated statements of income, comprehensive income, changes in stockholders' equity, and cash flows for each of the years in the three-year period December 31, 2022, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2022, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 17, 2023 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Evaluation of unrecognized tax benefits

As discussed in Notes 2 and 21 to the consolidated financial statements, the Company recognizes the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based upon the technical merits of the position. The tax benefit recognized in the consolidated financial statements from such a position is measured based upon the largest benefit that has greater than 50% likelihood of being realized upon ultimate settlement.

We identified the evaluation of unrecognized tax benefits in certain jurisdictions as a critical audit matter. A higher degree of auditor judgment and the involvement of professionals with specialized skills and knowledge was required to evaluate the Company's estimate of tax benefits to be realized upon ultimate settlement of its tax positions.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls over the Company's unrecognized tax benefits process, including controls over the estimate of tax benefits to be realized upon ultimate settlement of tax positions. We evaluated the Company's ability to estimate its unrecognized tax benefits by comparing historical unrecognized tax benefits to actual results upon the conclusion of examinations by applicable taxing authorities. In addition, we involved tax professionals with specialized skills and knowledge who assisted in:

- analyzing the Company's tax positions, including the measurement of unrecognized tax benefits
- evaluating changes in applicable laws and regulations
- inspecting settlements with applicable taxing authorities.

/s/ KPMG LLP

We have served as the Company's auditor since 2020.

Kansas City, Missouri
February 17, 2023

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Cboe Global Markets, Inc.:

Opinion on Internal Control Over Financial Reporting

We have audited Cboe Global Markets, Inc. and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2022 and 2021, the related consolidated statements of income, comprehensive income, changes in stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2022, and the related notes (collectively, the consolidated financial statements), and our report dated February 17, 2023 expressed an unqualified opinion on those consolidated financial statements.

Management's assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2022, excluded Cboe Digital Intermediate Holdings, LLC (formerly known as Eris Digital Holdings, LLC) and its subsidiaries, as well as Aequitas Innovations, Inc. and its subsidiaries, acquired on May 2, 2022 and June 1, 2022, respectively. The acquired businesses had aggregate total assets and total stockholders' equity of \$336.4 million and \$302.2 million, respectively, and total revenues and revenues less cost of revenues of \$22.8 million and \$12.9 million, respectively, which are included in the Company's consolidated financial statements as of and for the year ended December 31, 2022. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of Cboe Digital Intermediate Holdings, LLC (formerly known as Eris Digital Holdings, LLC) and its subsidiaries, as well as Aequitas Innovations, Inc. and its subsidiaries.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed 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. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG LLP

Kansas City, Missouri
February 17, 2023

Cboe Global Markets, Inc. and Subsidiaries
Consolidated Balance Sheets
December 31, 2022 and 2021
(In millions, except share and per share data)

	<u>December 31,</u> <u>2022</u>	<u>December 31,</u> <u>2021</u>
Assets		
Current assets:		
Cash and cash equivalents	\$ 432.7	\$ 341.9
Financial investments	91.7	37.1
Accounts receivable, net of \$2.2 allowance for credit losses at December 31, 2022 and \$1.0 at December 31, 2021	369.8	326.9
Margin deposits and clearing funds	543.0	745.9
Digital assets - safeguarded assets	22.9	—
Income taxes receivable	48.3	42.7
Other current assets	47.6	36.8
Total current assets	<u>1,556.0</u>	<u>1,531.3</u>
Investments	253.2	245.8
Land	2.3	2.3
Property and equipment, net	108.2	105.2
Operating lease right of use assets	111.7	110.1
Goodwill	3,122.8	3,025.4
Intangible assets, net	1,662.8	1,668.6
Other assets, net	181.9	125.8
Total assets	<u>\$ 6,998.9</u>	<u>\$ 6,814.5</u>
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable and accrued liabilities	\$ 420.2	\$ 295.4
Section 31 fees payable	147.1	40.8
Deferred revenue	11.7	15.2
Margin deposits and clearing funds	543.0	745.9
Digital assets - safeguarded liabilities	22.9	—
Income taxes payable	3.5	8.2
Current portion of long-term debt	304.7	—
Current portion of contingent consideration liabilities	24.1	63.8
Total current liabilities	<u>1,477.2</u>	<u>1,169.3</u>
Long-term debt	1,437.3	1,299.3
Non-current unrecognized tax benefits	196.1	197.9
Deferred income taxes	222.9	372.7
Non-current operating lease liabilities	129.3	129.2
Non-current portion of contingent consideration liabilities	15.0	6.7
Other non-current liabilities	55.8	34.6
Total liabilities	<u>3,533.6</u>	<u>3,209.7</u>
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, \$0.01 par value: 20,000,000 shares authorized, no shares issued and outstanding at December 31, 2022 and December 31, 2021	—	—
Common stock, \$0.01 par value: 325,000,000 shares authorized, 107,670,248 and 105,951,199 shares issued and outstanding, respectively at December 31, 2022 and 108,159,319 and 106,646,498 shares issued and outstanding, respectively at December 31, 2021	1.1	1.1
Common stock in treasury, at cost, 1,719,049 shares at December 31, 2022 and 1,512,821 shares at December 31, 2021	(131.0)	(106.8)
Additional paid-in capital	1,455.1	1,509.4
Retained earnings	2,171.1	2,145.5
Accumulated other comprehensive (loss) income, net	(31.0)	55.6
Total stockholders' equity	<u>3,465.3</u>	<u>3,604.8</u>
Total liabilities and stockholders' equity	<u>\$ 6,998.9</u>	<u>\$ 6,814.5</u>

See accompanying notes to consolidated financial statements.

Cboe Global Markets, Inc. and Subsidiaries
Consolidated Statements of Income
Years ended December 31, 2022, 2021 and 2020
(In millions, except per share data)

	<u>2022</u>	<u>2021</u>	<u>2020</u>
Revenues:			
Cash and spot markets	\$ 1,777.6	\$ 1,660.5	\$ 1,820.1
Data and access solutions	497.0	427.7	360.5
Derivatives markets	1,683.9	1,406.6	1,246.5
Total revenues	<u>3,958.5</u>	<u>3,494.8</u>	<u>3,427.1</u>
Cost of revenues:			
Liquidity payments	1,670.2	1,650.7	1,554.1
Routing and clearing	83.2	87.8	70.4
Section 31 fees	329.8	179.6	465.0
Royalty fees and other cost of revenues	133.6	100.6	83.3
Total cost of revenues	<u>2,216.8</u>	<u>2,018.7</u>	<u>2,172.8</u>
Revenues less cost of revenues	1,741.7	1,476.1	1,254.3
Operating expenses:			
Compensation and benefits	363.0	288.5	224.9
Depreciation and amortization	166.8	167.4	158.5
Technology support services	77.7	66.7	54.5
Professional fees and outside services	89.0	83.7	60.6
Travel and promotional expenses	23.7	9.7	6.6
Facilities costs	25.1	22.2	17.6
Acquisition-related costs	19.9	15.6	45.2
Goodwill impairment	460.9	—	—
Other expenses	26.0	16.4	24.2
Total operating expenses	<u>1,252.1</u>	<u>670.2</u>	<u>592.1</u>
Operating income	489.6	805.9	662.2
Non-operating (expenses) income:			
Interest expense, net	(56.4)	(47.4)	(37.6)
Other (expense) income, net	(0.3)	(2.4)	35.8
Income before income tax provision	432.9	756.1	660.4
Income tax provision	197.9	227.1	192.2
Net income	235.0	529.0	468.2
Net income allocated to participating securities	(0.9)	(1.7)	(1.2)
Net income allocated to common stockholders	<u>\$ 234.1</u>	<u>\$ 527.3</u>	<u>\$ 467.0</u>
Basic earnings per share	\$ 2.20	\$ 4.93	\$ 4.28
Diluted earnings per share	\$ 2.19	\$ 4.92	\$ 4.27
Basic weighted average shares outstanding	106.3	107.0	109.1
Diluted weighted average shares outstanding	106.7	107.2	109.3

See accompanying notes to consolidated financial statements.

Cboe Global Markets, Inc. and Subsidiaries
Consolidated Statements of Comprehensive Income
Years ended December 31, 2022, 2021 and 2020
(In millions)

	<u>2022</u>	<u>2021</u>	<u>2020</u>
Net income	\$ 235.0	\$ 529.0	\$ 468.2
Other comprehensive (loss) income, net of income tax:			
Foreign currency translation adjustments	(85.6)	(19.3)	36.5
Unrealized holding losses on financial investments	(0.8)	—	(0.3)
Post-retirement benefit obligations	<u>(0.2)</u>	<u>(0.1)</u>	<u>1.2</u>
Comprehensive income	148.4	509.6	505.6
Comprehensive income allocated to participating securities	<u>(0.9)</u>	<u>(1.7)</u>	<u>(1.2)</u>
Comprehensive income allocated to common stockholders, net of income tax ...	<u>\$ 147.5</u>	<u>\$ 507.9</u>	<u>\$ 504.4</u>

See accompanying notes to consolidated financial statements.

Cboe Global Markets, Inc. and Subsidiaries
Consolidated Statements of Changes in Stockholders' Equity
Years ended December 31, 2022, 2021 and 2020
(In millions)

	Preferred Stock	Common Stock	Treasury Stock	Additional paid-in capital	Retained earnings	Accumulated other comprehensive income (loss), net	Total stockholders' equity
Balance at December 31, 2019	\$ —	\$ 1.2	\$ (887.1)	\$ 2,691.3	\$ 1,512.6	\$ 37.6	\$ 3,355.6
Transition adjustment for adoption of Current Expected Credit Losses standard at January 1, 2020	—	—	—	—	(0.4)	—	(0.4)
Cash dividends on common stock of \$1.56 per share	—	—	—	—	(170.6)	—	(170.6)
Stock-based compensation	—	—	—	21.7	—	—	21.7
Exercise of common stock options	—	—	—	0.2	—	—	0.2
Repurchases of common stock from employee stock plans	—	—	(14.2)	—	—	—	(14.2)
Purchase of common stock	—	—	(349.1)	—	—	—	(349.1)
Shares issued under employee stock purchase plan	—	—	—	0.1	—	—	0.1
Net income	—	—	—	—	468.2	—	468.2
Other comprehensive income	—	—	—	—	—	37.4	37.4
Balance at December 31, 2020	\$ —	\$ 1.2	\$ (1,250.4)	\$ 2,713.3	\$ 1,809.8	\$ 75.0	\$ 3,348.9
Cash dividends on common stock of \$1.80 per share	—	—	—	—	(193.3)	—	(193.3)
Stock-based compensation	—	0.1	—	26.6	—	—	26.7
Repurchases of common stock from employee stock plans	—	—	(6.2)	—	—	—	(6.2)
Purchase of common stock	—	—	(81.3)	—	—	—	(81.3)
Retirement of treasury stock	—	(0.2)	1,231.1	(1,230.9)	—	—	—
Shares issued under employee stock purchase plan	—	—	—	0.4	—	—	0.4
Net income	—	—	—	—	529.0	—	529.0
Other comprehensive loss	—	—	—	—	—	(19.4)	(19.4)
Balance at December 31, 2021	\$ —	\$ 1.1	\$ (106.8)	\$ 1,509.4	\$ 2,145.5	\$ 55.6	\$ 3,604.8
Cash dividends on common stock of \$1.96 per share	—	—	—	—	(209.4)	—	(209.4)
Stock-based compensation	—	—	—	30.7	—	—	30.7
Repurchases of common stock from employee stock plans	—	—	(8.9)	—	—	—	(8.9)
Purchase of common stock	—	—	(100.9)	—	—	—	(100.9)
Retirement of treasury stock	—	—	85.6	(85.6)	—	—	—
Shares issued under employee stock purchase plan	—	—	—	0.6	—	—	0.6
Net income	—	—	—	—	235.0	—	235.0
Other comprehensive loss	—	—	—	—	—	(86.6)	(86.6)
Balance at December 31, 2022	\$ —	\$ 1.1	\$ (131.0)	\$ 1,455.1	\$ 2,171.1	\$ (31.0)	\$ 3,465.3

See accompanying notes to consolidated financial statements.

Cboe Global Markets, Inc. and Subsidiaries
Consolidated Statements of Cash Flows
Years ended December 31, 2022, 2021 and 2020
(In millions)

	2022	2021	2020
Cash flows from operating activities:			
Net income	\$ 235.0	\$ 529.0	\$ 468.2
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	166.8	167.4	158.5
Amortization of debt issuance cost and debt discount	2.4	2.2	2.0
Change in contingent consideration	(5.2)	(2.7)	—
Realized gain on available-for-sale financial investments	—	—	(0.4)
Provision for accounts receivable credit losses	1.1	0.4	0.1
Benefit for deferred income taxes	(155.7)	(18.9)	(30.9)
Provision for notes receivable credit losses	—	—	6.7
Stock-based compensation expense	30.7	26.6	21.7
Loss on disposal of property and equipment	0.3	0.4	—
Impairment of property held for sale	—	—	8.1
Impairment charge of investment	10.6	—	—
Goodwill impairment	460.9	—	—
Equity (earnings) loss in investments	(4.2)	0.4	(1.1)
Impairment of investments	—	5.6	15.1
Gain on investment	(7.5)	—	—
Bargain purchase gain	—	—	(32.6)
Changes in assets and liabilities:			
Accounts receivable	(49.8)	12.0	(90.0)
Restricted cash and cash equivalents and customer bank deposits (included in margin deposits and clearing funds)	(217.5)	(66.2)	812.1
Restricted cash and cash equivalents (included in other current assets)	—	4.4	—
Income taxes receivable	(5.4)	10.3	5.4
Digital assets - safeguarded assets	(22.9)	—	—
Other current assets	(4.0)	(8.8)	(5.1)
Other assets	(20.8)	(47.4)	(23.4)
Accounts payable and accrued liabilities	38.8	45.0	59.4
Digital assets - safeguarded liabilities	22.9	—	—
Section 31 fees payable	106.3	(112.1)	53.9
Deferred revenue	(4.1)	4.9	4.5
Income taxes payable	(3.8)	3.9	(1.1)
Unrecognized tax benefits	89.1	33.2	28.8
Other liabilities	(12.9)	7.2	(1.1)
Net cash provided by operating activities	651.1	596.8	1,458.8
Cash flows from investing activities:			
Acquisitions, net of cash acquired	(708.3)	(151.5)	(351.5)
Proceeds from acquisition-related escrow	—	0.6	—
Contributions to investments	(14.6)	(209.8)	(12.1)
Purchases of available-for-sale financial investments	(104.7)	(101.2)	(222.5)
Proceeds from maturities of available-for-sale financial investments	51.2	160.2	202.5
Proceeds from investments	1.1	—	—
Proceeds from insurance	—	—	0.5
Purchases of property and equipment and leasehold improvements	(59.8)	(51.0)	(47.4)
Net cash used in investing activities	(835.1)	(352.7)	(430.5)
Cash flows from financing activities:			
Proceeds from long-term debt	663.6	110.0	493.7
Principal payments of long-term debt	(220.0)	(20.0)	(155.0)
Proceeds from credit facility	—	—	70.0
Payments of credit facility	—	—	(70.0)
Debt issuance costs	(4.9)	—	(4.5)
Cash dividends on common stock	(209.4)	(193.3)	(170.6)
Repurchases of common stock from employee stock plans	(8.9)	(6.2)	(14.2)
Exercise of common stock options	—	—	0.2
Shares issued under employee stock purchase plan	(0.6)	(0.4)	—
Payments of contingent consideration related to acquisitions	(38.7)	(9.1)	(2.2)
Proceeds from Cboe Digital syndication	1.5	—	—
Purchase of common stock	(100.9)	(81.3)	(349.1)
Net cash provided by (used in) financing activities	81.7	(200.3)	(201.7)
Effect of foreign currency exchange rates on cash, cash equivalents, and restricted cash and cash equivalents	(10.0)	(9.1)	1.6
(Decrease) increase in cash, cash equivalents, and restricted cash and cash equivalents	(112.3)	34.7	828.2
Cash, cash equivalents, and restricted cash and cash equivalents:			
Beginning of period	1,092.2	1,057.5	229.3
End of period	\$ 979.9	\$ 1,092.2	\$ 1,057.5
Reconciliation of cash, cash equivalents, and restricted cash and cash equivalents:			
Cash and cash equivalents	432.7	341.9	245.4
Restricted cash and cash equivalents (included in margin deposits and clearing funds)	530.3	745.9	812.1
Restricted cash and cash equivalents (included in other current assets)	4.2	4.4	—
Customer bank deposits (included in margin deposits and clearing funds)	12.7	—	—
Total	\$ 979.9	\$ 1,092.2	\$ 1,057.5
Supplemental disclosure of cash transactions:			
Cash paid for income taxes, net of refunds	\$ 271.1	\$ 209.8	\$ 191.5
Cash paid for interest	51.0	42.1	29.2
Supplemental disclosure of noncash investing activities:			
Accounts receivable acquired	\$ 4.4	\$ 3.5	\$ 11.0
Financial investments acquired	1.5	—	—
Income taxes receivable acquired	—	—	1.7
Other current assets acquired	1.6	1.0	5.9
Goodwill acquired	593.5	133.6	201.2
Intangible assets acquired	164.1	73.8	247.7
Property and equipment, net acquired	1.6	3.1	4.4
Data processing software and other assets acquired	2.0	—	—
Operating lease right of use asset acquired	1.2	—	—
Other assets, net acquired	—	0.5	0.9
Accounts payable and accrued liabilities assumed	(6.1)	(1.8)	(16.7)
Income taxes payable acquired	—	(0.1)	(1.3)
Deferred revenue acquired	(0.6)	—	(1.0)
Operating lease liability - non-current acquired	(1.2)	—	—
Contingent consideration related to acquisitions	(10.1)	(49.6)	(32.7)
Deferred income taxes acquired	(22.6)	(15.6)	(6.7)
Other non-current liabilities acquired	(0.4)	—	—
Supplemental disclosure of noncash financing activities:			
Paycheck Protection Program loan forgiveness	\$ 1.3	\$ —	\$ —
Cboe Digital investor member revenue asset	(19.9)	—	—
Cboe Digital option grant liability	21.4	—	—

See accompanying notes to consolidated financial statements.

Cboe Global Markets, Inc. and Subsidiaries
Notes to Consolidated Financial Statements
As of December 31, 2022 and 2021 and for the
Years ended December 31, 2022, 2021 and 2020

1. NATURE OF OPERATIONS

Cboe Global Markets, Inc. (“Cboe” or “the Company”), a leading provider of market infrastructure and tradable products, delivers cutting-edge trading, clearing and investment solutions to market participants around the world. The Company is committed to operating a trusted, inclusive global marketplace, and to providing leading products, technology and data solutions that enable participants to define a sustainable financial future. Cboe provides trading solutions and products in multiple asset classes, including equities, derivatives, FX, and digital assets, across North America, Europe, and Asia Pacific.

Cboe’s subsidiaries include the largest options exchange and the third largest stock exchange operator in the U.S. In addition, the Company operates one of the largest stock exchanges by value traded in Europe, and owns Cboe Clear Europe (rebranded from EuroCCP in November of 2022), a leading pan-European equities and derivatives clearinghouse, BIDS Trading, a leading block-trading ATS by volume in the U.S., MATCHNow (operating as TriAct Canada Marketplace LP), a leading equities ATS in Canada, Cboe Australia, an operator of trading venues in Australia, and Cboe Japan, an operator of trading venues in Japan. Cboe also is a leading market globally for ETPs listings and trading. On May 2, 2022, Cboe completed its acquisition of ErisX, subsequently rebranded to Cboe Digital, an operator of a U.S. based digital asset spot market, a regulated futures exchange, and a regulated clearinghouse. On June 1, 2022, Cboe completed its acquisition of NEO, which is a recognized Canadian securities exchange.

The Company is headquartered in Chicago with offices in Amsterdam, Belfast, Hong Kong, Kansas City, London, Manila, New York, San Francisco, Sarasota Springs, Singapore, Sydney, Tokyo and Toronto.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

(a) Principles of Accounting

These consolidated financial statements are prepared in conformity with accounting principles generally accepted in the United States (“GAAP”) as established by FASB.

(b) Basis of Presentation

The accompanying financial statements are presented on a consolidated basis to include the accounts and transactions of Cboe Global Markets, Inc. and its majority owned subsidiaries and all significant intercompany accounts and transactions have been eliminated.

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosures of contingent assets and liabilities, and reported amounts of revenues and expenses. On an ongoing basis, management evaluates its estimates based upon historical experience, observance of trends, information available from outside sources and various other assumptions that management believes to be reasonable under the circumstances. Actual results may differ from these estimates under different conditions or assumptions.

In the opinion of management, all adjustments (consisting of normal recurring adjustments) considered necessary for a fair presentation of financial position, results of operations and cash flows at the dates and for the periods presented have been included.

Beginning in the first quarter of 2022, the Company updated the financial statement captions within its consolidated statements of income to better reflect the Company’s diversified products, expansive geographical reach, and overall business strategy. Below is a summary of the changes to the financial statement captions. The changes do not have a financial impact on the Company’s reported revenue, revenues less cost of revenues, reported net income, or cash flows from operations.

Revenues

- Cash and spot markets – includes associated transaction and clearing fees, the portion of market data fees relating to associated U.S. tape plan market data fees, associated regulatory fees, and associated other revenue from Cboe's North American Equities, Europe and Asia Pacific, Global FX, and Digital segments.
- Data and access solutions – includes access and capacity fees, proprietary market data fees, and associated other revenue across Cboe's six segments.
- Derivatives markets – includes associated transaction and clearing fees, the portion of market data fees relating to associated U.S. tape plan market data fees, associated regulatory fees, and associated other revenue from Cboe's Options, Futures, Europe and Asia Pacific, and Digital segments.

Cost of Revenues

- Royalty fees and other cost of revenues – includes royalty fees and other cost of revenues across the Company's six segments. In prior periods, royalty fees and other cost of revenues were presented as distinct cost of revenues categories.

Segment information

The Company previously operated five reportable business segments prior to the quarter ended June 30, 2022. As a result of the ErisX acquisition, which was subsequently rebranded to Cboe Digital, as of the quarter ended June 30, 2022, the Company operates six reportable segments: Options, North American Equities, Europe and Asia Pacific, Futures, Global FX, and Digital which is reflective of how the Company's chief operating decision-maker reviews and operates the business. See Note 16 ("Segment Reporting") for more information.

(c) Use of Estimates

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities as well as disclosure of the amounts of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from those estimates. Material estimates that are particularly susceptible to significant change in the near term include the valuation of goodwill, indefinite-lived intangible assets, and unrecognized tax benefits.

(d) Cash and Cash Equivalents

The Company's cash and cash equivalents are exposed to concentrations of credit risk. The Company maintains cash at various regulated financial institutions and brokerage firms which, at times, may be in excess of the federal depository insurance limit. The Company's management regularly monitors these institutions and believes that the potential for future loss is remote. The Company considers liquid investments with original or acquired maturities of three months or less to be cash equivalents.

(e) Financial Investments

Financial investments are classified as trading or available-for-sale.

Trading financial investments represent financial investments held by Cboe Trading that retain the industry-specific accounting classification required for broker-dealers and marketable securities held in a rabbi trust for the Company's non-qualified retirement and benefit plans. The investments held by the broker-dealer subsidiary are recorded at fair value with changes in unrealized gains and losses reflected within interest expense, net in the consolidated statements of income. The investments held in a trust are recorded at fair value with changes in unrealized gains or losses recorded within other income (expense) and the equal and offsetting charges in the related liability are recorded in compensation and benefits expense in the consolidated statements of income.

Available-for-sale financial investments are comprised of the financial investments not held by Cboe Trading, including highly liquid U.S. Treasury securities. Unrealized gains and losses, net of income taxes, are included as a component of accumulated other comprehensive income in the accompanying consolidated balance sheets.

Interest on financial investments, including amortization of premiums and accretion of discounts, is recognized as income when earned. Realized gains and losses on financial investments are calculated using the specific identification method and are included in interest expense, net in the accompanying consolidated statements of income.

A decline in the fair value of any available-for-sale investment below carrying value that is deemed to be other-than-temporary results in an impairment to reduce the carrying value to realizable value. To determine whether an impairment is other-than-temporary, the Company considers all available information relevant to the collectability of the investment, including past events, current conditions, and reasonable and supportable forecasts when developing estimate of cash flows expected to be collected. Evidence considered in this assessment includes the reasons for the impairment, the severity and duration of the impairment, changes in value subsequent to year-end, forecasted performance of the investee, and the general market condition in the geographic area or industry in which the investee operates.

(f) Accounts Receivable, Net

Accounts receivable are concentrated with the Company's member firms and market data distributors and are carried at amortized cost. The Company nets transaction fees and liquidity payments for each member firm on a monthly basis and recognizes the total owed from a member firm as accounts receivable, net and the total owed to a member firm as accounts payable and accrued liabilities in the consolidated balance sheets. On a periodic basis, management evaluates the Company's accounts receivable and records an allowance for expected credit losses using an aging schedule. The aging schedule applies loss rates based on historical loss information and, as deemed necessary, is adjusted for differences in the nature of the receivables that exist at the reporting date from the historical period. Due to the short-term nature of the accounts receivable, changes in future economic conditions are not expected to have a significant impact on the expected credit losses.

The accounts receivable are presented net of allowance for credit losses on the consolidated balance sheets and the associated losses are presented in other operating expenses on the consolidated statements of income.

(g) Property and Equipment, Net

Property and equipment, net is stated at cost less accumulated depreciation. Depreciation is computed using the straight-line method over the estimated lives of the assets, generally ranging from three to seven years. Expenditures for repairs and maintenance are charged to expense as incurred. Depreciation of leasehold improvements is calculated using the straight-line method over the shorter of the related lease term or the estimated useful life of the assets.

Long-lived assets to be held and used are reviewed to determine whether any events or changes in circumstances indicate that the carrying values of the assets may not be recoverable. The Company bases this evaluation on such impairment indicators as the nature of the assets, the future economic benefit of the assets, any historical or future profitability measurements, as well as other external market conditions or factors that may be present. If such impairment indicators are present that would indicate that the carrying value of any asset may not be recoverable, the Company determines whether an impairment has occurred through the use of an undiscounted cash flow analysis of the asset at the lowest level for which identifiable cash flows exist. In the event of impairment, the Company recognizes a loss for the difference between the carrying value and the estimated value of the asset as measured using quoted market prices or, in the absence of quoted market prices, a discounted cash flow analysis.

The Company expenses software development costs as incurred during the preliminary project stage, while capitalizing costs incurred during the application development stage, which includes design, coding, installation and testing activities.

(h) Goodwill and Intangible Assets, Net

Goodwill represents the excess of purchase price over the value assigned to the net tangible and identifiable intangible assets of a business acquired. Goodwill is allocated to the Company's reporting units based on the assignment of the fair values of each reporting unit of the acquired company. The Company tests goodwill for impairment at the reporting unit level annually, or in interim periods if certain events occur indicating that the carrying value may be impaired. Interim impairment testing was performed during the quarter ended June 30, 2022 due to the acquisition of Cboe Digital, resulting in an impairment charge to goodwill. During the quarter ended September 30, 2022 the Company concluded that the factors indicative of impairment were still relevant, resulting in the write-down of the remaining carrying value of goodwill to zero. See Note 10 ("Goodwill, Intangible Assets, Net, and Digital Assets Held") for additional

information. The annual impairment test is performed during the fourth quarter using October 1 carrying values, and if the fair value of the reporting unit is found to be less than the carrying value, an impairment loss is recorded. The Company performed its 2022 annual goodwill impairment test and determined that no additional impairment existed.

Intangible assets, net, primarily include acquired trademarks and trade names, customer relationships, strategic alliance agreements, licenses and registrations and non-compete agreements. Intangible assets with finite lives are amortized based on the discounted cash flow method applied over the estimated useful lives of the intangible assets and are tested for impairment if certain events occur indicating that the carrying value may be impaired.

Intangible assets deemed to have indefinite useful lives are not amortized, but instead are tested for impairment at least annually, usually concurrently with goodwill. Impairment exists if the fair value of the asset is less than the carrying value, and in that case, an impairment loss is recorded. The Company performed its 2022 annual intangible assets impairment test using October 1, 2022 carrying values and determined that no additional impairment existed, apart from the goodwill impairment mentioned above.

(i) Treasury Stock

The Company accounts for the purchase of treasury stock under the cost method with the shares of stock repurchased reflected as a reduction to Cboe stockholders' equity and included in common stock in treasury, at cost in the consolidated balance sheets. Shares repurchased under the Company's share repurchase program are either available to be redistributed or they are retired. The Company accounts for the retirement of treasury stock by deducting its par value from common stock and reflecting any excess of cost over par value as a deduction from additional paid-in-capital on the consolidated balance sheets.

(j) Foreign Currency

The financial statements of foreign subsidiaries where the functional currency is not the U.S. dollar are translated into U.S. dollars using the exchange rate in effect as of each balance sheet date. Statements of income and cash flow amounts are translated using the average exchange rate during the period. The cumulative effects of translating the balance sheet accounts from the functional currency into the U.S. dollar at the applicable exchange rates are included in accumulated other comprehensive income (loss), net in the accompanying consolidated balance sheets. Foreign currency gains and losses are recorded as other (expense) income, net in the consolidated statements of income. The Company's operations in the United Kingdom, Amsterdam, Canada, Singapore, Philippines, Hong Kong, Australia and Japan are recorded in Pounds sterling, Euros, Canadian dollars, Singapore dollars, Philippine pesos, Hong Kong dollars, Australian dollars and Japanese Yen, respectively.

(k) Income Taxes

Deferred taxes are recorded on a liability method whereby deferred tax assets are recognized for deductible temporary differences and operating loss and tax credit carryforwards, and deferred tax liabilities are recognized for taxable temporary differences. Temporary differences are the differences between the reported amounts of assets and liabilities and their tax bases. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized. Deferred tax assets and liabilities are adjusted for the effects of changes in tax laws and rates on the date of enactment.

The Company recognizes the tax benefit from an unrecognized tax benefit only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based upon the technical merits of the position. The tax benefit recognized in the consolidated financial statements from such a position is measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement. Also, interest and penalties expense is recognized on the full amount of deferred benefits for unrecognized tax benefits. The Company's policy is to include interest and penalties related to unrecognized tax benefits in the income tax provision within the consolidated statements of income.

The Company elected to account for global intangible low-taxed income ("GILTI") in the period in which it is incurred, and therefore, has not provided any deferred tax impacts of GILTI in the consolidated financial statements.

(l) Revenue Recognition

For further discussion related to revenue recognition of fees, such as transaction and clearing fees and liquidity payments, access and capacity fees, market data fees, and regulation transaction and Section 31 fees, see Note 4 (“Revenue Recognition”).

Concentrations of Revenue and Liquidity Payments

For the years ended December 31, 2022, 2021, and 2020, no customer accounted for more than 13% of the Company’s total revenue.

No customer is contractually or otherwise obligated to continue to use the Company’s services. The loss of, or a significant reduction of, participation by these customers may have a material adverse effect on the Company’s business, financial position, results of operations and cash flows. The two largest clearing members clear the majority of the market-maker sides of transactions at all of the Company’s U.S. options exchanges. If either of these clearing members were to withdraw from the business of market-maker clearing and market-makers were unable to transfer to another clearing member, this could create significant disruption to the U.S. options markets, including Cboe’s.

(m) Earnings Per Share

The computation of basic earnings per share is calculated by reducing net income for the period by dividends paid or declared and undistributed net income for the period that are allocated to participating securities to arrive at net income allocated to common stockholders. Net income allocated to common stockholders is divided by the weighted average number of common shares outstanding during the period to determine net income per share allocated to common stockholders.

The computation of diluted earnings per share is calculated by dividing net income allocated to common stockholders by the sum of the weighted average number of common shares outstanding plus all additional common shares that would have been outstanding if the potentially dilutive common shares had been issued. The dilutive effect is calculated using the more dilutive of the two-class or treasury stock method.

(n) Stock-Based Compensation

The Company grants stock-based compensation to its employees through restricted stock units and grants restricted stock awards to its board members. The Company records stock-based compensation expense for all stock-based compensation granted based on the grant-date fair value. The Company recognizes stock-based compensation expense related to stock-based compensation awards with graded vesting that have a service condition on a straight-line basis over the requisite service period of the entire award.

The amount of stock-based compensation expense related to awards of restricted stock and restricted stock units is based on the fair value of Cboe Global Markets, Inc. common stock at the date of grant. The fair value is based on a current market-based transaction of the Company’s common stock. If a market-based transaction of the Company’s common stock is not available, then the fair value is based on an independent third-party valuation using equal weighting of two valuation analysis techniques, discounted cash flows and valuation multiples observed from publicly traded companies in a similar industry.

On November 18, 2022, Cboe Digital Holdings Inc. (“Cboe Digital Holdings”) entered into minority interest purchase agreements with certain digital asset industry participants, pursuant to which Cboe Digital Holdings agreed to issue Restricted Common Units in Cboe Digital. Cboe Digital Holdings also entered into a Warrant Agreement to issue Common Units of Cboe Digital in the future. Certain Cboe Digital investor members paid for the Restricted Common Units through the issuance of promissory notes, which are nonrecourse in nature. The issuances of Restricted Common Units are accounted for as in-substance stock options. A certain Cboe Digital investor member paid for the Restricted Common Units in exchange for cash. Expense associated with the Restricted Common Units is recognized as contra-revenue ratably over a five-year period. The Company uses a Black Scholes pricing model to estimate the fair value of the in-substance stock option created by the Restricted Common Units and promissory notes as well as the fair value of the Warrant. Contra-revenue will be recognized while the performance conditions of the Warrant remain probable in conformance with the requirements in ASC 606 – Revenue from Contracts with Customers. Further adjustments will be recognized in each reporting period until performance is complete relating to changes in the fair value of the option and

Warrant liabilities in accordance with ASC 718 – Compensation – Stock Compensation. See Note 19 (“Stock-based Compensation”) for additional information.

(o) Business Combinations

The Company records identifiable assets, liabilities and goodwill acquired in a business combination at fair value at the acquisition date. Additionally, transaction-related costs are expensed in the period incurred.

(p) Debt Issuance Costs

All costs incurred to issue debt are capitalized as a contra-liability and amortized over the life of the debt using the interest method.

(q) Investments

The Company generally accounts for investments using the measurement alternative when it owns less than 20% of the outstanding voting stock of a company, there is an absence of readily determinable fair value for the respective investment, and the Company has an inability to exercise significant influence over the investment based upon the respective ownership interests held. The Company recognizes dividend income when declared.

In general, the equity method of accounting is used when the Company owns 20% to 50% of the outstanding voting stock of a company and when it is able to exercise significant influence over the operating and financial policies of a company. For equity method investments, the Company records the pro-rata share of earnings or losses each period and records any dividends received as a reduction in the investment balance. The equity method investment is inclusive of other-than-temporary declines in value, recognized by the investee, who considers a variety of factors such as the earnings capacity of the investment and the fair value of the investment compared to its carrying value. If the estimated fair value of the investment is less than the carrying value and the decline in value is considered to be other than temporary, the excess of the carrying value over the estimated fair value is recognized in the financial statements as an impairment.

(r) Leases

The Company determines if an arrangement contains a lease at inception. For arrangements where the Company is the lessee, operating leases are included in operating lease right of use (“ROU”) assets, accrued liabilities, and non-current operating lease liabilities on the balance sheet as of December 31, 2022. The Company does not have any finance leases as of December 31, 2022.

ROU assets and operating lease liabilities are recognized based on the present value of the future lease payments over the lease term at commencement date. ROU assets also include any initial direct costs incurred and any lease payments made at or before the lease commencement date, less lease incentives received. The Company uses its incremental borrowing rate based on the information available at the lease commencement date in determining the lease liabilities, as the rate implicit in the Company’s leases are generally not reasonably determinable. Lease terms may include options to extend or terminate when the Company is reasonably certain that the option will be exercised. Lease expense is recognized on a straight-line basis over the lease term.

The Company also has lease arrangements with lease and non-lease components. The Company elected the practical expedient not to separate non-lease components from lease components for the Company’s leases. The Company elected to apply the short-term lease measurement and recognition exemption in which ROU assets and lease liabilities are not recognized for short-term leases. For short-term operating leases, lease expense is recognized on a straight-line basis over the lease term.

Leases with an initial term of 12 months or less are not recorded on the consolidated balance sheet and the Company recognizes lease expense in facilities costs within the consolidated statements of income for these leases on a straight-line basis over the lease term. Certain leases include one or more options to renew, with renewal terms that can extend the lease term from one to five years or more, and some of which include the Company’s option to terminate the leases within one year. When the implicit rate in the Company’s lease is not reasonably determinable, the Company applies an incremental borrowing rate based on the information available at the lease commencement date in determining the present value of lease payments.

(s) Margin Deposits and Clearing Funds

Margin deposits and clearing funds in the form of cash contributions by Cboe Clear Europe's clearing participants where title has transferred to Cboe Clear Europe are included as current assets with equal and offsetting current liabilities in the consolidated balance sheet. These margin deposits and clearing funds are deposited with De Nederlandsche Bank ("DNB"), can only be used for specified Cboe Clear Europe operations, and fluctuate over time due to changes in deposit requirements. Certain non-cash margin deposits and clearing fund deposits, as well as interoperability fund deposits, are not reflected in the accompanying consolidated balance sheet, as Cboe Clear Europe does not take economic ownership of these balances. Cash held as margin deposits and clearing fund deposits may be invested at an approved bank in accordance with Cboe Clear Europe's investment policy, and any interest or gain received, or loss incurred on invested funds is recorded in other revenue in the consolidated statements of income. Cboe Clear Digital clears cryptocurrencies from 51 U.S. jurisdictions authorized by license or not subject to licensing. Cboe Clear Digital performs a guarantee function whereby Cboe Clear Digital helps to ensure that the obligations of the transactions it clears are fulfilled. Cboe Clear Digital attempts to mitigate this risk by performing internal compliance and due diligence procedures as well as implementing internal risk controls. Cboe Clear Digital's due diligence procedures include review of the personal and corporate information, financial position of the member participant, and monitoring of Cboe Clear Digital's risk exposure thresholds.

(t) Digital Assets Held

The Company determined that digital assets held should be accounted for under ASC 350 – Intangibles – Goodwill and Other, and included on the consolidated balance sheets within intangibles, net. As there is no inherent limit imposed on the useful life of the digital assets, they are classified as indefinite lived intangible assets and are not subject to amortization. Instead, they must be tested for impairment annually or more frequently if events or circumstances change that indicate that it's more likely than not that the asset is impaired (i.e., if an impairment indicator exists). Therefore, the value of digital assets is determined at the date of acquisition and will only be remeasured in the event the Company concludes impairment exists. The Company will not record any increases in value during the period the digital assets are held; the only gains that will be recorded will be upon disposition (if the proceeds exceed the carrying value at the time of the disposition).

(u) Digital Assets – Safeguarded Assets and Liabilities

In accordance with the SEC issued Staff Accounting Bulletin 121 ("SAB 121"), the Company recorded a safeguard liability with respect to its obligation to safeguard customers' digital assets along with a corresponding safeguard asset. The safeguard asset and liability are remeasured at fair value on a recurring basis with no impact to the consolidated statement of income. In the event that the Company or its vendors fail to safeguard the customers' digital assets, any resulting loss will reduce the safeguard asset with a corresponding loss recorded in other expenses in the consolidated statement of income.

3. RECENT ACCOUNTING PRONOUNCEMENTS

Recent Accounting Pronouncements – Adopted

On March 31, 2022, SAB 121 was issued, which sets out interpretive guidance from the staff of the SEC regarding the accounting for obligations to safeguard digital assets that an entity holds for its platform users. The guidance requires an entity to recognize a liability for the obligation to safeguard the users' assets and recognize an associated asset for the digital assets held for users. Both the liability and asset will be measured initially and subsequently at the fair value of the digital assets being safeguarded. The guidance also requires additional disclosures related to the nature and amount of digital assets held on behalf of its platform users, with separate disclosure for each significant digital asset, and the vulnerabilities the entity has due to any concentration in such activities. The guidance, effective for interim or annual periods ending after June 15, 2022, was adopted by the Company as of June 30, 2022. As a result of adopting SAB 121, the Company recorded digital assets - safeguarded assets, with corresponding digital assets - safeguarded liabilities of \$22.4 million, respectively, as of June 30, 2022, with no impact to the consolidated statements of income and cash flows.

Recent Accounting Pronouncements – Issued, not yet Adopted

There were no applicable material accounting pronouncements that have been issued, but were not yet adopted as of December 31, 2022.

4. REVENUE RECOGNITION

The Company's main types of revenue contracts consist of the following, which are disaggregated from the consolidated statements of income.

- *Transaction and clearing fees* - Transaction fees represent fees charged by the Company for meeting the point-in-time performance obligation of executing a trade on its markets. These fees can be variable based on trade volume tiered discounts; however, as all tiered discounts are calculated monthly, the actual discount is recorded on a monthly basis. Transaction fees are recognized across all segments. Clearing fees, which include settlement fees, represent fees charged by the Company for meeting the point-in-time performance obligation for transactions cleared and settled by Cboe Clear Europe and Cboe Clear Digital, LLC (formerly Eris Clearing), the derivatives clearing organization for Cboe Digital. Clearing fees can be variable based on trade volume tiered discounts; however, as all tiered discounts are calculated monthly, the actual discount is recorded on a monthly basis. Clearing fees are recognized in the Europe and Asia Pacific and Digital segments. Transaction and clearing fees, as well as any tiered volume discounts, are calculated and billed monthly in accordance with the Company's published fee schedules.
- *Access and capacity fees* - Access and capacity fees represent fees assessed for the opportunity to trade, including fees for trading-related functionality across all segments, terminal and other equipment rights, maintenance services, trading floor space and telecommunications services. Facilities, systems services and other fees are generally monthly fee-based. These fees are billed monthly in accordance with the Company's published fee schedules and recognized on a monthly basis when the performance obligations are met. All access and capacity fees associated with the trading floor are recognized over time in the Options segment, as the performance obligations are met.
- *Market data fees* - Market data fees represent the fees received by the Company from the U.S. tape plans and fees charged to customers for proprietary market data. Fees from the U.S. tape plans are collected monthly based on published fee schedules and distributed quarterly to the Exchanges based on a known formula. A contract for proprietary market data is entered into and charged on a monthly basis in accordance with the Company's published fee schedules as the service is provided. Proprietary market data also includes revenue from various licensing agreements that were previously classified as other revenue prior to January 1, 2022. For the years ended December 31, 2021 and 2020, licensing revenue, which accounted for approximately \$12.4 million and \$13.1 million, respectively, was not retroactively reclassified to market data fees in the statements of income presented in this Form 10-K. Both types of market data are satisfied over time, and revenue is recognized on a monthly basis as the customer receives and consumes the benefit as the Company provides the data to meet its performance obligation. U.S. tape plan market data is recognized in the North American Equities and Options segments. Proprietary market data fees are recognized across all segments.
- *Regulatory fees* - There are two types of regulatory fees that the Company recognizes. The first type represents fees collected by the Company to cover the Section 31 fees charged to the Exchanges by the SEC for meeting the point-in-time performance obligation of executing a trade on its markets. The fees charged to customers are based on the fee set by the SEC per notional value of U.S. Equities exchange transactions and per round turn of Options transactions executed on the Company's U.S. securities markets. These fees are calculated and billed monthly and are recognized in the North American Equities and Options segments. As the Exchanges are responsible for the ultimate payment to the SEC, the Exchanges are considered the principal in these transactions. Regulatory fees also include the options regulatory fee ("ORF") which supports the Company's regulatory oversight function in the Options segment, along with other miscellaneous regulatory fees, and neither can be used for non-regulatory purposes. The ORF and miscellaneous fees are recognized when the performance obligation is fulfilled.
- *Other revenue* - Other revenue primarily includes interest income from clearing operations, all fees related to the trade reporting facility operated in the Europe and Asia Pacific segment, listing fees, and revenue associated with advertisements through the Company's websites.

All revenue recognized in the consolidated statements of income is considered to be revenue from contracts with customers, with the exception of interest income from clearing operations. The following table depicts the disaggregated revenue contract types listed above within each respective financial statement caption in the consolidated statements of income (in millions):

	Cash and Spot Markets	Data and Access Solutions	Derivatives Markets	Total
Year Ended December 31, 2022				
Transaction and clearing fees	\$ 1,375.5	\$ —	\$ 1,563.3	\$ 2,938.8
Access and capacity fees	—	324.2	—	324.2
Market data fees	80.3	168.7	33.2	282.2
Regulatory fees	280.2	—	84.5	364.7
Other revenue	41.6	4.1	2.9	48.6
	<u>\$ 1,777.6</u>	<u>\$ 497.0</u>	<u>\$ 1,683.9</u>	<u>\$ 3,958.5</u>
	Cash and Spot Markets	Data and Access Solutions	Derivatives Markets	Total
Year Ended December 31, 2021				
Transaction and clearing fees	\$ 1,366.5	\$ —	\$ 1,326.6	\$ 2,693.1
Access and capacity fees	—	280.7	—	280.7
Market data fees	91.6	130.0	30.5	252.1
Regulatory fees	161.6	—	46.7	208.3
Other revenue	40.8	17.0	2.8	60.6
	<u>\$ 1,660.5</u>	<u>\$ 427.7</u>	<u>\$ 1,406.6</u>	<u>\$ 3,494.8</u>
	Cash and Spot Markets	Data and Access Solutions	Derivatives Markets	Total
Year Ended December 31, 2020				
Transaction and clearing fees	\$ 1,287.2	\$ —	\$ 1,130.8	\$ 2,418.0
Access and capacity fees	—	236.7	—	236.7
Market data fees	98.6	105.0	28.4	232.0
Regulatory fees	416.9	—	83.3	500.2
Other revenue	17.4	18.8	4.0	40.2
	<u>\$ 1,820.1</u>	<u>\$ 360.5</u>	<u>\$ 1,246.5</u>	<u>\$ 3,427.1</u>

The following table depicts the disaggregation of revenue according to segment (in millions):

	North		Europe and		Global		Corporate		Total
	Options	American Equities	Asia Pacific	Futures	FX	Digital	Items and Eliminations		
Year Ended December 31, 2022									
Transaction and clearing fees	\$ 1,471.7	\$ 1,155.3	\$ 161.9	\$ 91.6	\$ 58.0	\$ 0.3	\$ —	\$ —	\$ 2,938.8
Access and capacity fees	151.7	109.3	34.0	19.9	9.3	—	—	—	324.2
Market data fees	108.7	131.2	33.1	8.0	1.2	—	—	—	282.2
Regulatory fees	84.2	280.2	—	0.3	—	—	—	—	364.7
Other revenue	6.9	5.7	35.6	—	0.4	—	—	—	48.6
	<u>\$ 1,823.2</u>	<u>\$ 1,681.7</u>	<u>\$ 264.6</u>	<u>\$ 119.8</u>	<u>\$ 68.9</u>	<u>\$ 0.3</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 3,958.5</u>
Timing of revenue recognition									
Services transferred at a point in time	\$ 1,562.8	\$ 1,441.2	\$ 197.5	\$ 91.9	\$ 58.4	\$ 0.3	\$ —	\$ —	\$ 3,352.1
Services transferred over time	260.4	240.5	67.1	27.9	10.5	—	—	—	606.4
	<u>\$ 1,823.2</u>	<u>\$ 1,681.7</u>	<u>\$ 264.6</u>	<u>\$ 119.8</u>	<u>\$ 68.9</u>	<u>\$ 0.3</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 3,958.5</u>
Year Ended December 31, 2021									
Transaction and clearing fees	\$ 1,231.2	\$ 1,173.1	\$ 145.3	\$ 95.2	\$ 48.3	\$ —	\$ —	\$ —	\$ 2,693.1
Access and capacity fees	124.0	98.0	31.2	18.7	8.8	—	—	—	280.7
Market data fees	84.3	134.6	25.6	6.6	1.0	—	—	—	252.1
Regulatory fees	46.6	161.6	—	0.1	—	—	—	—	208.3
Other revenue	18.9	3.2	38.2	—	—	—	—	0.3	60.6
	<u>\$ 1,505.0</u>	<u>\$ 1,570.5</u>	<u>\$ 240.3</u>	<u>\$ 120.6</u>	<u>\$ 58.1</u>	<u>\$ —</u>	<u>\$ 0.3</u>	<u>\$ —</u>	<u>\$ 3,494.8</u>
Timing of revenue recognition									
Services transferred at a point in time	\$ 1,296.7	\$ 1,337.9	\$ 183.5	\$ 95.3	\$ 48.3	\$ —	\$ 0.3	\$ —	\$ 2,962.0
Services transferred over time	208.3	232.6	56.8	25.3	9.8	—	—	—	532.8
	<u>\$ 1,505.0</u>	<u>\$ 1,570.5</u>	<u>\$ 240.3</u>	<u>\$ 120.6</u>	<u>\$ 58.1</u>	<u>\$ —</u>	<u>\$ 0.3</u>	<u>\$ —</u>	<u>\$ 3,494.8</u>
Year Ended December 31, 2020									
Transaction and clearing fees	\$ 1,046.3	\$ 1,147.2	\$ 90.9	\$ 84.5	\$ 49.1	\$ —	\$ —	\$ —	\$ 2,418.0
Access and capacity fees	107.0	84.2	20.6	17.0	7.9	—	—	—	236.7
Market data fees	74.2	137.0	13.4	6.6	0.8	—	—	—	232.0
Regulatory fees	83.4	416.8	—	—	—	—	—	—	500.2
Other revenue	19.2	4.3	15.6	1.1	—	—	—	—	40.2
	<u>\$ 1,330.1</u>	<u>\$ 1,789.5</u>	<u>\$ 140.5</u>	<u>\$ 109.2</u>	<u>\$ 57.8</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 3,427.1</u>
Timing of revenue recognition									
Services transferred at a point in time	\$ 1,148.9	\$ 1,568.3	\$ 106.5	\$ 85.6	\$ 49.1	\$ —	\$ —	\$ —	\$ 2,958.4
Services transferred over time	181.2	221.2	34.0	23.6	8.7	—	—	—	468.7
	<u>\$ 1,330.1</u>	<u>\$ 1,789.5</u>	<u>\$ 140.5</u>	<u>\$ 109.2</u>	<u>\$ 57.8</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 3,427.1</u>

Contract liabilities as of December 31, 2022 primarily represent prepayments of transaction fees and certain access and capacity and market data fees to the Exchanges. The revenue recognized from contract liabilities and the remaining balance is shown below (in millions):

	Balance at December 31, 2021	Cash Additions	Revenue Recognized	Balance at December 31, 2022
Liquidity provider sliding scale (1)	\$ —	\$ 7.2	\$ (7.2)	\$ —
Other, net	15.3	16.5	(20.1)	11.7
Total deferred revenue	<u>\$ 15.3</u>	<u>\$ 23.7</u>	<u>\$ (27.3)</u>	<u>\$ 11.7</u>

(1) Liquidity providers are eligible to participate in the sliding scale program, which involves prepayment of transaction fees, and to receive reduced fees based on the achievement of certain volume thresholds within a calendar month. These transaction fees are amortized and recorded ratably as the transactions occur over the period.

5. ACQUISITIONS

On July 1, 2021, the Company purchased Chi-X, whose wholly-owned subsidiary Chi-X Asia Pacific Holdings Limited was subsequently rebranded to Cboe Asia Pacific. Cboe Asia Pacific is a holding company of alternative market operators and providers of market solutions, which is included in the Company's Europe and Asia Pacific segment. The acquisition of Chi-X provided the Company with a single point of entry into two key capital markets, Australia and Japan, to help

enable it to expand its global equities and market data business into Asia Pacific, bring other products and services to the region, and further expand access to its proprietary product suite in the region. Of the acquisition's purchase price, \$137.0 million was allocated to goodwill, \$73.8 million was allocated to intangible assets, \$25.7 million was allocated to working capital, and \$53.0 million in contingent consideration, which is based on developmental milestones of the acquired business. See below for further discussion of intangible assets acquired.

On May 2, 2022, the Company purchased ErisX, which was subsequently rebranded to Cboe Digital. Cboe Digital operates a U.S. based digital asset spot market, a regulated futures exchange and a regulated clearinghouse. Ownership of Cboe Digital allows the Company to enter the digital asset spot and derivatives marketplaces through a digital-first platform developed with industry partners to focus on robust regulatory compliance, data and transparency. Eris Innovations Holdings, LLC (formerly Eris Exchange Holdings, LLC) was not a part of this transaction and the Company retains its minority equity ownership interest in Eris Innovations Holdings, LLC. Of the acquisition's purchase price, \$460.9 million was allocated to goodwill, \$95.0 million was allocated to intangible assets, and \$8.4 million was allocated to working capital. Prior to signing the acquisition agreement, the Company held a minority investment in ErisX. As a result of the acquisition of the remaining portion of ErisX, the Company recognized a \$7.5 million gain, reflecting the change in fair value of the minority investment in ErisX as a result of the acquisition, which is included in other (expense) income, net in the consolidated statement of income. Adjustments to the provisional values may occur before the end of the measurement period, a period not to exceed 12 months from the acquisition date, which may include tax and other estimates which will be recorded in the reporting period that the adjustment amounts are determined. See below for further discussion of intangible assets acquired. Additionally, the Company performed impairment testing during the year ended December 31, 2022, as there were market events that indicated it was more likely than not that these assets were impaired, resulting in the recognition of impairment charges to goodwill. See Note 10 ("Goodwill, Intangible Assets, net, and Digital Assets Held") for more information on the impairments.

On June 1, 2022, the Company purchased NEO. NEO is a fintech organization that is comprised of a fully registered Canadian securities exchange with a diverse product and services set ranging from corporate listings to cash equities trading and a non-listed securities distribution platform. With ownership of NEO, the Company expects to further grow Canada as a hub for global equities trading, in addition to MATCHNow, the ATS acquired by the Company in 2020. As of December 31, 2022, the allocation of purchase price includes adjustments within the measurement period resulting in a decrease to intangible assets, an increase in net working capital and a reduction in contingent consideration. See the table below for more information about the adjustments made to the NEO purchase price allocation. Additional adjustments to the provisional values may occur before the end of the measurement period, a period not to exceed 12 months from the acquisition date, which may include tax and other estimates which will be recorded in the reporting period that the adjustment amounts are determined. See below for further discussion of intangible assets acquired and Note 15 ("Fair Value Measurement") for the impact of the allocation adjustments on the Company's financial liabilities.

The following table presents the details of the adjustments made to the initial purchase price allocation for the NEO acquisition during the year ended December 31, 2022 (in millions):

	<u>Initial purchase price allocation</u>	<u>Total adjustments</u>	<u>Adjusted purchase price allocation</u>
Goodwill	\$ 132.4	\$ 0.2	\$ 132.6
Intangible assets	130.1	(61.0)	69.1
Net working capital	(6.9)	16.6	9.7
Contingent consideration	(54.3)	44.2	(10.1)

The following table presents the details of intangible assets as of the acquisition date, inclusive of purchase price adjustments outlined above (in millions, except as stated). All acquired intangible assets with finite lives are amortized using the straight-line method.

	Cboe Asia Pacific	Useful Life (Years)	Cboe Digital	Useful Life (Years)	NEO	Useful Life (Years)
Trading registrations and licenses	\$ 6.2	Indefinite	\$ 25.0	Indefinite	\$ 15.1	Indefinite
Customer relationships	60.1	30	—		37.4	15
Technology	7.5	2	70.0	10	16.2	7
Trademarks and tradenames	—		—		0.4	5
Total identifiable intangible assets	<u>\$ 73.8</u>		<u>\$ 95.0</u>		<u>\$ 69.1</u>	

Acquisition-related costs relate to acquisitions and other strategic opportunities. The Company expensed \$19.9 million of acquisition-related costs during the year ended December 31, 2022, all of which related to professional fees and other expenses. These acquisition-related expenses are included in acquisition-related costs in the consolidated statements of income.

The Company expensed \$15.6 million of acquisition-related costs during the year ended December 31, 2021, which primarily included \$15.0 million of professional fees, and \$0.6 million of impairment charges related to facilities. These acquisition-related expenses are included in acquisition-related costs in the consolidated statements of income.

The Company expensed \$45.3 million of acquisition-related costs during the year ended December 31, 2020 that included \$22.1 million of professional fees, \$15.1 million of impairment charges related to investments, and other expenses and \$8.1 million of impairment charges related to facilities. These acquisition-related expenses are included in acquisition-related costs in the consolidated statements of income.

6. INVESTMENTS

As of December 31, 2022 and 2021, the Company's investments were comprised of the following (in millions):

	As of December 31,	
	2022	2021
Equity method investments:		
Investment in 7Ridge Investments 3 LP	\$ 215.4	\$ 209.5
Total equity method investments	<u>215.4</u>	<u>209.5</u>
Other equity investments:		
Investment in Eris Innovations Holdings, LLC	20.0	20.0
Investment in CSD Br	5.9	—
Investment in Coin Metrics Inc.	5.0	—
Investment in Cboe Vest Financial Group, Inc.	2.9	2.9
Investment in Effective Investing Limited	1.8	—
Investment in OCC	0.3	0.3
Investment in American Financial Exchange, LLC	—	10.6
Investment in Eris Digital Holdings, LLC	—	1.1
Other equity investments	1.9	1.4
Total other equity investments	<u>37.8</u>	<u>36.3</u>
Total investments	<u>\$ 253.2</u>	<u>\$ 245.8</u>

Equity Method Investments

The Company's investment in the 7Ridge Fund, represents a nonconsolidated variable interest entity ("VIE"). The Company has determined that consolidation of the VIE is not required as the Company is not the primary beneficiary of the 7Ridge Fund, as it does not have controlling financial interest and lacks the ability to unilaterally remove the general partner, 7Ridge Investments 3 GP Limited, direct material strategic decisions, or dissolve the entity (i.e. the Company does not have unilateral substantive "kick-out" or "liquidation" rights).

The Company's interest in the 7Ridge Fund is equal to the carrying value of the investment as of December 31, 2022, or \$215.4 million, which includes periodic capital contributions to the 7Ridge Fund, as well as the Company's share of 7Ridge Fund's profit or loss, including gains or losses arising from the fair value measurement of the investment held by the 7Ridge Fund, booked against the investment account. The carrying value of the investment is included in investments within the consolidated balance sheets. The Company's maximum loss exposure, in the unlikely event that all of the VIE's assets become worthless, is limited to the carrying value of Company's investment.

Other Equity Investments

In May 2020, Eris Innovations Holdings, LLC (formerly Eris Exchange Holdings, LLC) completed a restructuring transaction to spin out Eris Digital Holdings, LLC into a stand-alone entity. The restructuring qualifies as an exchange of ownership interest, though it required no additional consideration exchanged to execute the exchange of units. The restructuring did not result in a change in number of units owned by the Company or a substantial change in the Company's ownership interest percentage. No gain or loss is recognized as a result of the restructuring. On October 19, 2021, the Company entered into an agreement to acquire all of the outstanding equity interests of Eris Digital Holdings, LLC. However, Innovations Holdings, LLC is not a part of this transaction and the Company retains its minority equity ownership interest in Eris Innovations Holdings, LLC.

On September 21, 2021, CurveGlobal Limited ("CurveGlobal"), a minority investment of the Company included within other equity investments, announced plans to wind down the company in January 2022. The Company concluded that the remaining investment in CurveGlobal had no future economic value, and thus, wrote off the investment as of September 30, 2021. CurveGlobal ceased operations on January 28, 2022. The loss related to the write-off was included within other (expense) income, net in the consolidated statements of income.

In the second quarter of 2022, the Company invested \$5.0 million in a funding raise by Coin Metrics, Inc., a digital asset intelligence and crypto data startup, \$5.9 million in a funding raise by CSD Br, a Brazilian bank and financial intermediary, and completed the purchase of ErisX, which was subsequently rebranded to Cboe Digital. Eris Innovations Holdings, LLC was not a part of this transaction and the Company retains its minority equity ownership interest in Eris Innovations Holdings, LLC. See Note 5 ("Acquisitions") for more information. In the third quarter of 2022, the Company invested \$1.8 million in a funding raise by Effective Investing Limited, an emerging global sustainability data provider measuring the social and environmental impact of companies and investment portfolios. In the fourth quarter of 2022 the Company invested an additional \$0.1 million in a funding raise by StratiFi Technologies, Inc, a risk management platform that provides a one-stop-shop solution for portfolio risk analysis. The Company previously held a minority stake in StratiFi and the funding raise allowed the Company to maintain it's current investment percentage.

The carrying value of other equity investments is included in investments in the consolidated balance sheets. The Company accounts for these investments using the measurement alternative given the absence of readily determinable fair values for the respective investments and due to the Company's inability to exercise significant influence over the investments based upon the respective ownership interests held. As of December 31, 2022, other equity investments primarily consist of minority investments in Eris Innovations Holdings, LLC, CSD Br, Coin Metrics Inc., Cboe Vest Financial Group, Inc, Effective Investing Limited, StratiFi Technologies, Inc. and a 20% investment in OCC.

7. PROPERTY AND EQUIPMENT, NET

Property and equipment, net consisted of the following as of December 31, 2022 and 2021 (in millions):

	<u>December 31, 2022</u>	<u>December 31, 2021</u>
Construction in progress	\$ 7.7	\$ 17.3
Building.	68.8	68.8
Furniture and equipment.	<u>291.3</u>	<u>256.5</u>
Total property and equipment	367.8	342.6
Less accumulated depreciation	<u>(259.6)</u>	<u>(237.4)</u>
Property and equipment, net	<u>\$ 108.2</u>	<u>\$ 105.2</u>

Depreciation expense using the straight-line method was \$35.3 million, \$33.5 million and \$26.8 million for the years ended December 31, 2022, 2021 and 2020, respectively.

As a result of the Merger, there was a reduction in employee workspace needed in Chicago, which led to the decision to market for sale the former headquarters location. The Company classified the associated land, building, and certain furniture and equipment of the former headquarters location as held for sale, performed an impairment assessment, and ceased depreciation effective May 1, 2019, as the Company anticipated selling the property held for sale in less than twelve months. However, due to the time elapsed since active marketing for sale of the building commenced, the Company reclassified the property to held and used, effective May 1, 2021, and the building was once again subject to depreciation. On April 28, 2022, the Company signed a non-binding letter of intent with an entity interested in purchasing the property, though in the quarter ended September 30, 2022, negotiations with this entity were terminated. The Company has continued discussions with other potential buyers. At this time, the Company has no indications that the property's classification or carrying value needs to be updated as of December 31, 2022. The property is subject to depreciation as of December 31, 2022. The total value of the property classified as property held and used was \$9.8 million, which includes \$2.3 million of land and \$7.5 million of property and equipment, net on the consolidated balance sheet as of December 31, 2022.

8. CREDIT LOSSES

Current expected credit losses are estimated for accounts receivable and certain notes receivable. The notes receivable included within other assets, net on the consolidated balance sheets primarily relate to the consolidated audit trail ("CAT"), which involves the creation of an audit trail that strives to enhance regulators' ability to monitor trading activity in the U.S. markets through a phased implementation. The funding of the CAT is ultimately expected to be provided by both self-regulatory organizations ("SROs") (which includes the Exchanges) and industry members; however, the funding to date has solely been provided by the SROs in exchange for promissory notes, a portion of which are expected to be repaid once fee filings and plan amendments associated with a funding model are approved by the SEC and such industry member fees are collected by the Consolidated Audit Trail, LLC pursuant to the CAT funding model. Until those fees are collected and remitted, the SROs may continue to incur additional significant costs, including additional promissory notes to fund CAT operations. The allowance for notes receivable credit losses associated with the CAT is calculated using a probability of default methodology that is primarily based on various potential outcomes of the funding model proposals being discussed with the SEC. Accounts receivable represent amounts due from the Company's member firms. The allowance for accounts receivable credit losses is calculated using an aging schedule.

The following represents the changes in allowance for credit losses during the years ended December 31, 2022 and 2021 (in millions):

	Balance at December 31, 2021	Current period provision for expected credit losses	Write-offs charged against the allowance	Recoveries collected	Balance at December 31, 2022
Allowance for notes receivable credit losses	\$ 30.1	\$ —	\$ —	\$ —	\$ 30.1
Allowance for accounts receivable credit losses	1.0	1.6	(0.1)	(0.3)	2.2
Total allowance for credit losses	<u>\$ 31.1</u>	<u>\$ 1.6</u>	<u>\$ (0.1)</u>	<u>\$ (0.3)</u>	<u>\$ 32.3</u>
	Balance at December 31, 2020	Current period provision for expected credit losses	Write-offs charged against the allowance	Recoveries collected	Balance at December 31, 2021
Allowance for notes receivable credit losses	\$ 30.1	\$ —	\$ —	\$ —	\$ 30.1
Allowance for accounts receivable credit losses	0.6	0.7	(0.3)	—	1.0
Total allowance for credit losses	<u>\$ 30.7</u>	<u>\$ 0.7</u>	<u>\$ (0.3)</u>	<u>\$ —</u>	<u>\$ 31.1</u>

9. OTHER ASSETS, NET

Other assets, net consisted of the following as of December 31, 2022 and 2021 (in millions):

	December 31, 2022	December 31, 2021
Software development work in progress	\$ 8.9	\$ 5.6
Data processing software	124.2	103.8
Less accumulated depreciation and amortization	(78.8)	(70.9)
Data processing software, net	54.3	38.5
Other assets (1)	127.6	87.3
Other assets, net	<u>\$ 181.9</u>	<u>\$ 125.8</u>

(1) At December 31, 2022 and December 31, 2021, the majority of the balance included long-term prepaid assets and notes receivable. See Note 8 (“Credit Losses”) for more information on the notes receivable included within other assets, net on the consolidated balance sheets. As of December 31, 2022 and December 31, 2021, the notes receivable, net balance was \$102.9 million and \$79.3 million, respectively. At December 31, 2022, a contra-revenue asset totaling \$19.9 million, which arose from the issuance of Cboe Digital Restricted Common Units and Warrants, is included in other assets, net. The issuance of Cboe Digital Restricted Common Units and Warrants is described in Note 19 (“Stock-based Compensation”).

Amortization expense related to data processing software was \$7.2 million, \$7.3 million, and \$6.9 million for the years ended December 31, 2022, 2021, and 2020, respectively.

10. GOODWILL, INTANGIBLE ASSETS, NET, AND DIGITAL ASSETS HELD

The following table presents the details of goodwill by segment (in millions):

	Options	North American Equities	Europe and Asia Pacific	Global FX	Digital	Total
Balance as of December 31, 2020 ...	\$ 305.8	\$ 1,877.3	\$ 444.8	\$ 267.2	\$ —	\$ 2,895.1
Adjustment	—	(0.5)	(0.4)	—	—	(0.9)
Additions	—	—	134.0	—	—	134.0
Changes in foreign currency exchange rates	—	0.1	(2.9)	—	—	(2.8)
Balance as of December 31, 2021 ...	<u>\$ 305.8</u>	<u>\$ 1,876.9</u>	<u>\$ 575.5</u>	<u>\$ 267.2</u>	<u>\$ —</u>	<u>\$ 3,025.4</u>
Adjustment	—	0.2	3.4	—	0.8	4.4
Additions	—	132.4	—	—	460.1	592.5
Impairment	—	—	—	—	(460.9)	(460.9)
Changes in foreign currency exchange rates	—	(8.7)	(29.9)	—	—	(38.6)
Balance as of December 31, 2022 ...	<u>\$ 305.8</u>	<u>\$ 2,000.8</u>	<u>\$ 549.0</u>	<u>\$ 267.2</u>	<u>\$ —</u>	<u>\$ 3,122.8</u>

Goodwill has been allocated to specific reporting units for purposes of impairment testing - Options, North American Equities, Europe and Asia Pacific, Global FX, and Digital. No goodwill has been allocated to Futures. Goodwill impairment testing is performed annually in the fiscal fourth quarter or more frequently if conditions exist that indicate that the asset may be impaired.

Following the acquisition of Cboe Digital, which closed on May 2, 2022, in the quarter ended June 30, 2022, negative events and trends in the broader digital asset environment emerged, such as deleveraging and bankruptcies, and certain negative trends in the broader digital asset environment that started in late 2021 intensified, such as the decline in digital asset prices, overall market activity, and market capitalization. Additionally, following the acquisition of Cboe Digital, the efforts to syndicate minority ownership interests in Cboe Digital to potential investors during the quarter ended June 30, 2022 became more challenging, and the outlook for the Digital segment’s future market growth was negatively impacted. The Company considered these developments, in particular the syndication efforts during the quarter ended June 30, 2022, to be potential indications of impairment and performed an interim impairment test for the goodwill recognized in the Digital reporting unit during the quarter ended June 30, 2022. The Company concluded that the carrying value of the reporting unit exceeded its estimated fair value, which considered both market and income approaches, and recorded a goodwill impairment charge of \$460.1 million in the consolidated statements of income during the quarter ended June 30, 2022, and

also recognized a deferred tax asset of \$116.2 million. This deferred tax asset, resulting from the excess of tax-deductible goodwill over book goodwill, relates to future tax deductions the Company expects to realize to reduce potential tax payments on future income. As a result, the carrying value of Cboe Digital decreased by \$343.9 million, to \$220.0 million as of June 30, 2022. The Company also performed an impairment assessment over the intangible assets recognized as a result of the Cboe Digital acquisition during the quarter ended June 30, 2022, and based on the results of the assessments, determined there was no impairment required as the fair value approximated the carrying value. No other long lived assets were recognized as a result of the acquisition.

As a result of the finalization of the net working capital calculation associated with the acquisition of Cboe Digital during the quarter ended September 30, 2022, the Company recorded additional goodwill of \$0.8 million. Subsequently, the Company concluded that the indicators of impairment outlined in the previous paragraph continued to be relevant and recorded an additional goodwill impairment charge of \$0.8 million in the consolidated statements of income for the three months ended September 30, 2022. The Company determined there were no further impairment indicators for the year ended December 31, 2022.

The following table presents the details of the intangible assets by segment (in millions):

	<u>Options</u>	<u>North American Equities</u>	<u>Europe and Asia Pacific</u>	<u>Global FX</u>	<u>Digital</u>	<u>Total</u>
Balance as of December 31, 2020 . . .	\$ 173.4	\$ 1,055.5	\$ 386.8	\$ 113.3	\$ —	\$ 1,729.0
Additions	—	—	73.8	—	—	73.8
Amortization	(14.3)	(64.4)	(26.3)	(21.6)	—	(126.6)
Changes in foreign currency exchange rates	—	0.3	(7.9)	—	—	(7.6)
Balance as of December 31, 2021 . . .	\$ 159.1	\$ 991.4	\$ 426.4	\$ 91.7	\$ —	\$ 1,668.6
Adjustments	—	(61.0)	—	—	—	(61.0)
Additions	—	130.1	—	—	95.9	226.0
Amortization	(13.0)	(62.1)	(25.6)	(18.9)	(4.7)	(124.3)
Changes in foreign currency exchange rates	—	(5.6)	(40.9)	—	—	(46.5)
Balance as of December 31, 2022 . . .	<u>\$ 146.1</u>	<u>\$ 992.8</u>	<u>\$ 359.9</u>	<u>\$ 72.8</u>	<u>\$ 91.2</u>	<u>\$ 1,662.8</u>

For the years ended December 31, 2022, 2021 and 2020, amortization expense was \$124.3 million, \$126.6 million and \$124.8 million, respectively. The estimated future amortization expense is \$115.7 million for 2023, \$92.5 million for 2024, \$76.1 million for 2025, \$68.9 million for 2026, and \$62.2 million for 2027.

The following tables present the categories of intangible assets by segment as of December 31, 2022 and 2021 (in millions, except as stated):

	December 31, 2022					Weighted Average Amortization Period (in years)
	Options	North American Equities	Europe and Asia Pacific	Global FX	Digital	
Trading registrations and licenses	\$ 95.5	\$ 605.3	\$ 199.5	\$ —	\$ 25.0	Indefinite
Customer relationships	46.6	412.8	208.9	140.0	—	16
Market data customer relationships . . .	53.6	322.0	58.4	64.4	—	9
Technology	28.1	56.4	32.8	22.5	70.0	8
Trademarks and tradenames	12.9	8.2	2.3	1.2	—	7
Digital assets held	—	—	—	—	0.9	Indefinite
Accumulated amortization	(90.6)	(411.9)	(142.0)	(155.3)	(4.7)	
	<u>\$ 146.1</u>	<u>\$ 992.8</u>	<u>\$ 359.9</u>	<u>\$ 72.8</u>	<u>\$ 91.2</u>	

	December 31, 2021					Weighted Average Amortization Period (in years)
	Options	North American Equities	Europe and Asia Pacific	Global FX	Digital	
Trading registrations and licenses	\$ 95.5	\$ 592.0	\$ 221.1	\$ —	\$ —	Indefinite
Customer relationships	46.6	378.3	232.3	140.0	—	17
Market data customer relationships . . .	53.6	322.0	65.2	64.4	—	10
Technology	28.1	41.1	35.6	22.5	—	5
Trademarks and tradenames	12.9	7.8	2.5	1.2	—	8
Accumulated amortization	(77.6)	(349.8)	(130.3)	(136.4)	—	
	<u>\$ 159.1</u>	<u>\$ 991.4</u>	<u>\$ 426.4</u>	<u>\$ 91.7</u>	<u>\$ —</u>	

Cboe Digital holds customer digital assets in customer accounts, referred to as wallets, either through a third-party custodian, a licensed trust company, or in separate and distinct wallets managed by Cboe Digital. Cboe Digital, together with its third-party custodian, is directly responsible for securing customers' crypto assets and protecting them from loss or theft. Customer digital assets are held in omnibus wallets for the benefit of customers of Cboe Digital and Cboe Digital maintains the records of the amount and type of digital asset owned by each of its customers in omnibus wallets. The amount of customer digital assets held by Cboe Digital is reflected within digital assets – safeguarded assets and digital assets – safeguarded liabilities in the consolidated balance sheets. In addition, Cboe Digital maintains an immaterial amount of its own digital assets to facilitate customer trading.

11. ACCOUNTS PAYABLE AND ACCRUED LIABILITIES

Accounts payable and accrued liabilities consisted of the following as of December 31, 2022 and 2021 (in millions):

	December 31, 2022	December 31, 2021
Compensation and benefit-related liabilities	\$ 90.2	\$ 68.6
Royalties	33.3	23.0
Accrued liabilities	87.7	73.3
Rebates payable	75.2	95.3
Marketing fee payable	15.9	15.7
Tax reserves	90.4	—
Accounts payable	27.5	19.5
Total accounts payable and accrued liabilities	<u>\$ 420.2</u>	<u>\$ 295.4</u>

12. DEBT

The Company's debt consisted of the following as of December 31, 2022 and 2021 (in millions):

	<u>December 31, 2022</u>	<u>December 31, 2021</u>
Term Loan Agreement due December 2023, floating rate . . .	\$ 304.7	\$ 159.5
\$650 million fixed rate Senior Notes due January 2027, stated rate of 3.650%	647.3	646.5
\$500 million fixed rate Senior Notes due December 2030, stated rate of 1.625%	494.0	493.3
\$300 million fixed rate Senior Notes due March 2032, stated rate of 3.000%	296.0	—
Revolving Credit Agreement	—	—
Cboe Clear Europe Credit Facility	—	—
Total debt	<u>\$ 1,742.0</u>	<u>\$ 1,299.3</u>

As described below in further detail, on April 29, 2022 and May 31, 2022, the Company borrowed \$190 million and \$175 million, respectively, under the Term Loan Agreement (as defined below), in order to fund portions of the acquisitions of ErisX, which was subsequently rebranded to Cboe Digital, and NEO. On March 16, 2022, the Company issued \$300 million, in aggregate principal amount, of the Company's fixed rate Senior Notes due March 2032 in order to partially fund its acquisition of Cboe Digital. As described below in further detail the Company repaid outstanding indebtedness under the Term Loan Agreement totaling \$220 million during the year ended December 31, 2022.

Term Loan Agreement

On March 22, 2018, the Company entered into a Term Loan Credit Agreement (the "Term Loan Agreement"). The Term Loan Agreement matures on December 15, 2023 and initially provided for a senior unsecured term loan facility in an aggregate principal amount of \$300 million, which amount was later increased to allow for an additional draw of \$110 million on June 25, 2021 in order to fund a portion of the acquisition of Cboe Asia Pacific (formerly Chi-X Asia Pacific Holdings Limited) and was increased on March 29, 2022 to allow for additional delayed draws of \$190 million on April 29, 2022 to fund a portion of the Cboe Digital (formerly ErisX) acquisition, and \$175 million on May 31, 2022 to fund a portion of the NEO acquisition. On each of August 25, 2022 and September 22, 2022, the Company repaid \$50 million, respectively, of outstanding indebtedness under the Term Loan Agreement, and on each of November 1, 2022, December 1, 2022, and December 27, 2022, the Company repaid \$40 million, \$50 million, and \$30 million, respectively, of outstanding indebtedness under the Term Loan Agreement totaling \$220 million repaid during the year ended December 31, 2022.

Loans under the Term Loan Agreement bear interest, at the Company's option, at either (i) the Secured Overnight Financing Rate ("SOFR") as administered by the Federal Reserve Bank of New York (or a successor administrator) plus a margin of 0.65 percent per annum or (ii) a daily floating rate based on the agent's prime rate (subject to certain minimums based upon the federal funds effective rate or SOFR) plus a margin of 0.50 percent per annum.

The Term Loan Agreement contains customary representations, warranties, and affirmative and negative covenants for facilities of its type, including financial covenants, events of default, including cross-defaults from the Company's other indebtedness, and indemnification provisions in favor of the lenders thereunder. The negative covenants include restrictions regarding the incurrence of liens, the incurrence of indebtedness by the Company's subsidiaries and fundamental changes, subject to certain exceptions in each case. The financial covenants require the Company to meet a quarterly financial test with respect to a minimum consolidated interest coverage ratio of not less than 4.00 to 1.00 and a maximum consolidated leverage ratio of not greater than 3.50 to 1.00; provided that the consolidated leverage ratio may, subject to certain triggering events set forth in the Term Loan Agreement, be increased to 4.25 to 1.00 or 4.00 to 1.00 (from 3.50 to 1.00) for four consecutive fiscal quarters following certain acquisitions, provided this increase may be made only once and at the time it exercises such financial covenant step-up, the Company shall be exercising a like step-up under its revolving credit facility. At December 31, 2022, the Company was in compliance with these covenants and did not exercise financial covenant step-up.

Senior Notes

On January 12, 2017, the Company entered into an indenture (the "Indenture"), by and between the Company and Computershare Trust Company, N.A. (as successor to Wells Fargo Bank, National Association), as trustee, in connection with the issuance of \$650 million aggregate principal amount of the Company's 3.650% Senior Notes due 2027 ("3.650%

Senior Notes"). The form and terms of the 3.650% Senior Notes were established pursuant to an Officer's Certificate, dated as of January 12, 2017, supplementing the Indenture. The Company used a portion of the net proceeds from the 3.650% Senior Notes to fund, in part, the Merger, including the payment of related fees and expenses and the repayment of Bats' existing indebtedness, and the remainder for general corporate purposes. The 3.650% Senior Notes mature on January 12, 2027 and bear interest at the rate of 3.650% per annum, payable semi-annually in arrears on January 12 and July 12 of each year, commencing July 12, 2017.

On December 15, 2020, the Company issued \$500 million aggregate principal amount of 1.625% Senior Notes due 2030 ("1.625% Senior Notes"). The form and terms of the 1.625% Senior Notes were established pursuant to an Officer's Certificate, dated as of December 15, 2020, supplementing the Indenture. The Company used the net proceeds from the 1.625% Senior Notes to finance the acquisition of BIDS Trading, repay a portion of amounts outstanding under the term loan facility and all outstanding indebtedness under the revolving credit facility and the remainder for general corporate purposes, which may include the financing of future acquisitions or the repayment of other outstanding indebtedness. The 1.625% Senior Notes mature on December 15, 2030 and bear interest at the rate of 1.625% per annum, payable semi-annually in arrears on June 15 and December 15 of each year, commencing June 15, 2021.

On March 16, 2022, the Company issued \$300 million aggregate principal amount of 3.000% Senior Notes due 2032 ("3.000% Senior Notes" and, together with the 1.625% Senior Notes and the 3.650% Senior Notes, the "Senior Notes"). The form and terms of the 3.000% Senior Notes were established pursuant to an Officer's Certificate, dated as of March 16, 2022, supplementing the Indenture. The Company used the net proceeds from the 3.000% Senior Notes, together with cash on hand, and the proceeds of additional borrowings, to partially fund its acquisition of ErisX, which was subsequently rebranded to Cboe Digital. The 3.000% Senior Notes mature on March 16, 2032 and bear interest at the rate of 3.000% per annum, payable semi-annually in arrears on March 16 and September 16 of each year, commencing September 16, 2022.

The Senior Notes are unsecured obligations of the Company and rank equally with all of the Company's other existing and future unsecured, senior indebtedness, but are effectively junior to the Company's secured indebtedness, to the extent of the value of the assets securing such indebtedness, and will be structurally subordinated to the secured and unsecured indebtedness of the Company's subsidiaries.

The Company has the option to redeem some or all of the Senior Notes, at any time in whole or from time to time in part, at the redemption prices set forth in the applicable Officer's Certificate. The Company may also be required to offer to repurchase the Senior Notes upon the occurrence of a Change of Control Triggering Event (as such term is defined in the applicable Officer's Certificate) at a repurchase price equal to 101 percent of the aggregate principal amount of Senior Notes to be repurchased.

Indenture

Under the Indenture, the Company may issue debt securities, which includes the Senior Notes, at any time and from time to time, in one or more series without limitation on the aggregate principal amount. The Indenture governing the Senior Notes contains customary restrictions, including a limitation that restricts the Company's ability and the ability of certain of the Company's subsidiaries to create or incur secured debt. Such Indenture also limits certain sale and leaseback transactions and contains customary events of default. At December 31, 2022, the Company was in compliance with these covenants.

Revolving Credit Agreement

On February 25, 2022, the Company entered into a Second Amended and Restated Credit Agreement (the "Revolving Credit Agreement"), which amended and restated the prior revolving credit agreement.

The Revolving Credit Agreement provides for a senior unsecured \$400 million three-year revolving credit facility (the "Revolving Credit Facility") that includes a \$25 million swing line sub-facility. The Company may also, subject to the agreement of the applicable lenders, increase the commitments under the Revolving Credit Facility by up to \$200 million, for a total of \$600 million. Subject to specified conditions, the Company may designate one or more of its subsidiaries as additional borrowers under the Revolving Credit Agreement provided that the Company guarantees all borrowings and

other obligations of any such subsidiaries under the Revolving Credit Agreement. As of December 31, 2022, no subsidiaries were designated as additional borrowers.

Funds borrowed under the Revolving Credit Agreement may be used to fund working capital and for other general corporate purposes, including the making of any acquisitions the Company may pursue in the ordinary course of its business. As of December 31, 2022, no borrowings were outstanding under the Revolving Credit Agreement. Accordingly, at December 31, 2022, \$400 million of borrowing capacity was available for the purposes permitted by the Revolving Credit Agreement.

Loans under the Revolving Credit Agreement will bear interest, at the Company's option, at either (i) the Relevant Date (defined herein) plus a margin (based on the Company's public debt ratings) ranging from 0.75 percent per annum to 1.25 percent per annum or (ii) a daily fluctuating rate based on the administrative agent's prime rate (subject to certain minimums based upon the federal funds effective rate or Term SOFR), which is subject to a 1 percent floor, plus a margin (based on the Company's public debt ratings) ranging from zero percent per annum to 0.25 percent per annum. "Relevant Rate" means with respect to any committed borrowing or swingline borrowing denominated in (a) Dollars, Term SOFR plus a spread adjustment of 0.10 percent per annum, (b) Sterling, SONIA plus a spread adjustment of 0.0326 percent per annum and (c) Euros, EURIBOR, as applicable, provided that each Relevant Rate is subject to a 0 percent floor.

Subject to certain conditions stated in the Revolving Credit Agreement, the Company and any subsidiaries designated as additional borrowers may borrow, prepay and reborrow amounts under the Revolving Credit Facility at any time during the term of the Revolving Credit Agreement. The Revolving Credit Agreement will terminate and all amounts owing thereunder will be due and payable on February 25, 2027, unless the commitments are terminated earlier, either at the request of the Company or, if an event of default occurs, by the lenders (or automatically in the case of certain bankruptcy-related events). The Revolving Credit Agreement contains customary representations, warranties, and affirmative and negative covenants for facilities of its type, including financial covenants, events of default and indemnification provisions in favor of the lenders. The negative covenants include restrictions regarding the incurrence of liens, the incurrence of indebtedness by the Company's subsidiaries and fundamental changes, subject to certain exceptions in each case. The financial covenants require the Company to meet a quarterly financial test with respect to a minimum consolidated interest coverage ratio of not less than 4.00 to 1.00 and a maximum consolidated leverage ratio of not greater than 3.50 to 1.00; provided that the consolidated leverage ratio may, subject to certain triggering events set forth in the Revolving Credit Agreement, be increased to 4.25 to 1.00 for one occasion and 4.00 to 1.00 on another occasion, in each case, for four consecutive fiscal quarters; provided that, prior to the exercise of the second such financial covenant step-up, the maximum consolidated leverage ratio shall have returned to a level of 3.50 to 1.00 for at least two consecutive fiscal quarters. At December 31, 2022, the Company was in compliance with these covenants and did not exercise financial covenant step-up.

Cboe Clear Europe Credit Facility

On July 1, 2020, EuroCCP (subsequently rebranded to Cboe Clear Europe), as borrower, the Company, as guarantor, entered into a Facility Agreement (the "Facility" or "Cboe Clear Europe Credit Facility") with Bank of America Merrill Lynch International Designated Activity Company, as co-ordinator, facility agent, lender, sole lead arranger and sole bookrunner, Citibank N.A., as security agent, and certain other lenders named therein. The Facility was further amended and restated, as described below.

The Facility initially provided for a €1.5 billion committed syndicated multicurrency revolving and swingline credit facility (i) that is available to be drawn by Cboe Clear Europe (formerly EuroCCP) (as borrower) towards (a) financing unsettled amounts in connection with the settlement of transactions in securities and other items processed through Cboe Clear Europe's clearing system and (b) financing any other liability or liquidity requirement of Cboe Clear Europe incurred in the operation of its clearing system and (ii) under which the scheduled interest and fees on borrowings (but not the principal amount of any borrowings) are guaranteed by the Company. Subject to certain conditions, Cboe Clear Europe was initially able to increase the commitments under the Facility by up to €500 million, to a total of €2.0 billion.

Borrowings under the Facility are secured by cash, eligible government bonds and eligible equity assets deposited by Cboe Clear Europe into secured accounts. In addition, Cboe Clear Europe must ensure that at all times the aggregate of (a) each clearing participant's contribution to the relevant clearing fund, (b) each clearing participant's margin amount and (c) any cash equities purchased using the proceeds of the assets described in (a) and (b), less the amount of any such clearing participant contribution, margin amount or cash equities which have been transferred to (or secured in favor of) any provider of settlement or custody services to Cboe Clear Europe, is not less than €500 million.

Initially, borrowings under the Facility's revolving loans and non-U.S. dollar swingline loans bear interest at the relevant floating base rate plus a margin of 1.75 percent per annum and (subject to certain conditions) borrowings under the Facility's U.S. dollar swingline loans bear interest as the higher of the relevant agent's prime commercial lending rate for U.S. dollars and 0.5 percent per annum over the federal funds effective rate. A commitment fee of 0.30 percent per annum is payable on the unused and uncalled amount of the Facility during the availability period.

Subject to certain conditions stated in the Facility, Cboe Clear Europe may borrow, prepay and reborrow amounts under the Facility at any time during the term of the Facility. The Facility will terminate and all amounts owing thereunder will be due and payable on 364 days from the date of the agreement, unless the commitments are terminated earlier, either at the request of Cboe Clear Europe or, if an event of default occurs, by the Lenders (or automatically in the case of certain bankruptcy-related events).

The Facility contains customary representations, warranties and covenants for facilities of its type, including events of default of the Company and Cboe Clear Europe and indemnification provisions in favor of the Lenders. In particular, the covenants include restrictions regarding the incurrence of liens by Cboe Clear Europe and its subsidiaries, and an event of default will be triggered if Cboe Clear Europe ceases its business, subject to certain exceptions in each case. There is also a requirement for the net worth of (a) the Company to be no less than \$1.75 billion on the date of each drawdown and delivery of compliance certificates and (b) Cboe Clear Europe initially to be the higher of €24 million and any such amount required for Cboe Clear Europe to meet minimum liquidity regulations under applicable regulation at all times.

On July 1, 2021, the Facility was amended and restated to, among other items: (i) extend the term of the Facility until June 30, 2022; (ii) update benchmark rates for U.S. dollar swingline loans and alternative term rates for revolving loans; (iii) remove references to LIBOR and clarified procedures to calculate interest rates; (iv) reduce the minimum tangible net worth requirement from €24 million to €20 million; (v) include a new tranche in the revolving and swingline facilities to increase access to certain currencies; (vi) update the borrowing base calculations to more accurately reflect the collateral held by Cboe Clear Europe; and (vii) modify certain other provisions to incorporate updates in applicable laws and regulations.

On June 30, 2022, the Facility was further amended and restated to, among other items: (i) extend the term of the Facility until June 29, 2023; (ii) lower the interest rate margin from 1.75 percent per annum to 1.60 percent per annum; (iii) revise certain of the representations the Company makes pursuant to the Facility; (iv) increase the minimum tangible net worth requirement from €20 million to €30 million; (v) reduce the aggregate commitment under the Facility from €1.5 billion to €1.25 billion; (vi) reduce the aggregate commitment under the Facility, after the accordion increase, from €2.0 billion to €1.75 billion; and (vii) modify certain other provisions to incorporate updates in applicable laws and regulations.

As of December 31, 2022, no borrowings were outstanding under the Facility. Accordingly, at December 31, 2022, €1.25 billion of borrowing capacity was available for the purposes permitted by the Facility. At December 31, 2022, the Company and Cboe Clear Europe were in compliance with applicable covenants.

Small Business Administration's Paycheck Protection Program

On May 1, 2020, prior to Cboe's acquisition of Cboe Digital, Cboe Digital (formerly ErisX) received \$1.3 million of proceeds from a loan issued under either the Small Business Administration ("SBA") Paycheck Protection Program ("PPP") under section 7(a)(36) of the Small Business Act or the SBA's Paycheck Protection Program Second Draw Loans under Section 7(a)(37) of the SBA. On May 26, 2022, the PPP loan was forgiven and no further balance is due.

Loan and Notes Payments and Contractual Interest

The future expected loan repayments related to the Term Loan Agreement and the Senior Notes as of December 31, 2022 are as follows (in millions):

2023	\$ 305.0
2024	—
2025	—
2026	—
Thereafter	<u>1,450.0</u>
Principal amounts repayable	1,755.0
Debt issuance costs	(7.0)
Unamortized discounts on notes	<u>(6.0)</u>
Total debt outstanding	<u>\$ 1,742.0</u>

Interest expense recognized on the Term Loan Agreement, the Senior Notes, and the Revolving Credit Agreement is included in interest expense, net in the consolidated statements of income. The Company is also obligated to pay commitment fees under the terms of the Revolving Credit Agreement, Term Loan Agreement and Facility, which are also included in interest expense, net. Interest expense, net recognized in the consolidated statements of income for the years ended December 31, 2022, 2021 and 2020 are as follows (in millions):

	Year Ended December 31, 2022	Year Ended December 31, 2021	Year Ended December 31, 2020
Components of interest expense:			
Contractual interest	\$ 57.6	\$ 45.7	\$ 35.3
Amortization of debt discount and issuance costs	2.4	2.3	3.4
Interest expense	<u>\$ 60.0</u>	<u>\$ 48.0</u>	<u>\$ 38.7</u>
Interest income	(3.6)	(0.6)	(1.1)
Interest expense, net	<u>\$ 56.4</u>	<u>\$ 47.4</u>	<u>\$ 37.6</u>

13. ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS), NET

The following represents the changes in accumulated other comprehensive income (loss), net by component (in millions):

	Foreign Currency Translation Adjustment	Unrealized Investment Gain/Loss	Post-Retirement Benefits	Total Accumulated Other Comprehensive Income (Loss), Net
Balance at December 31, 2020	\$ 74.7	\$ (0.1)	\$ 0.4	\$ 75.0
Other comprehensive loss	<u>(19.3)</u>	<u>—</u>	<u>(0.1)</u>	<u>(19.4)</u>
Balance at December 31, 2021	\$ 55.4	\$ (0.1)	\$ 0.3	\$ 55.6
Other comprehensive loss	<u>(85.6)</u>	<u>(0.8)</u>	<u>(0.2)</u>	<u>(86.6)</u>
Balance at December 31, 2022	<u>\$ (30.2)</u>	<u>\$ (0.9)</u>	<u>\$ 0.1</u>	<u>\$ (31.0)</u>

14. CLEARING OPERATIONS

Cboe Clear Europe

Cboe Clear Europe (formerly EuroCCP) is a European equities central counterparty that provides post-trade services to stock exchanges, MTFs, over-the-counter (“OTC”) equities trades and an equity index derivatives exchange. Cboe Clear Europe clears equities from eighteen European markets and the United States, as well as Depository Receipts, ETFs, and exchange traded currencies (“ETCs”). In September 2021 Cboe Clear Europe began clearing equity index derivatives for ten European markets. Through a novation process, Cboe Clear Europe becomes the buyer for every seller and the seller for every buyer, thereby protecting clearing participants from counterparty risk and allowing the settlement of trades in the event of a clearing participant default.

Cboe Clear Europe only assumes the guarantor role if it has an equal and offsetting claim against a clearing participant. For the period ended December 31, 2022, there have been no events of default for which a liability is required to be recognized in accordance with GAAP.

Clearing Participant Deposits

Cboe Clear Europe generally requires all clearing participants to deposit collateral to help mitigate Cboe Clear Europe's exposure to credit risk in the event that a clearing participant fails to meet a financial or contractual obligation.

Margin Deposits

Margin deposits, which are predominately in the form of cash and cash equivalents, are deposits made by each clearing participant to Cboe Clear Europe to cover some or all of the credit risk of its failure to fulfill its obligations in the trade. Cboe Clear Europe maintains and manages all cash deposits related to margin deposits. Substantially all risks and rewards of margin deposit ownership, including net interest income, belong to Cboe Clear Europe and are recorded in other revenue on the consolidated statements of income. In the event of a default, Cboe Clear Europe can access the defaulting participant's margin deposits to cover the defaulting participant's losses. For more information, see "Default and Liquidity Waterfalls" below.

Clearing Funds

The clearing fund mutualizes the risk of default among all clearing participants. Depending on their membership, clearing participants contribute to the cash-equity and/or derivatives segment of the clearing fund. Although the entire clearing fund is available to cover potential losses in the event that the margin deposits and the clearing fund deposits of a defaulting clearing participant are inadequate to fulfill that clearing participant's outstanding financial obligations, the clearing fund first uses the product class segment of the Clearing Fund in which the defaulting participants was active (see "Default and Liquidity Waterfalls" below). In the event of a default, Cboe Clear Europe is generally required to liquidate the defaulting clearing participant's open positions. To the extent that the positions remain open, Cboe Clear Europe is required to assume the defaulting clearing participant's obligations related to the open positions. Clearing participants are required to make contributions to the clearing fund that are proportional to their risk exposure in the form of cash or non-cash contributions, which generally consist of highly liquid securities.

Interoperability Fund

For the cash equity business line, Cboe Clear Europe has entered into interoperable arrangements with two other central counterparties ("CCPs"). Under these arrangements, margin is paid to, and received from, the other CCPs. The interoperability fund consists of collateral pledged by Cboe Clear Europe to the other interoperable CCPs, to cover margin calls Cboe Clear Europe received from other interoperable CCPs. For Cboe Clear Europe, the collateral pledged by the clearing participants is maintained in an interoperability fund designated account. Cboe Clear Europe does not have any economic interest or ownership in the collateral; therefore, these balances are not included in the consolidated balance sheets.

The following tables present the Company's total clearing participant deposits as of December 31, 2022 and December 31, 2021 (in millions):

	December 31, 2022		
	Cash Contributions	Non-Cash Contributions (1)	Total Contributions
Margin deposits	\$ 426.9	\$ 338.2	\$ 765.1
Clearing funds	103.4	38.6	142.0
Interoperability funds (1)	376.0	89.3	465.3
Total	<u>\$ 906.3</u>	<u>\$ 466.1</u>	<u>\$ 1,372.4</u>

	December 31, 2021		
	Cash Contributions	Non-Cash Contributions (1)	Total Contributions
Margin deposits	\$ 600.0	\$ 287.0	\$ 887.0
Clearing funds	145.9	41.9	187.8
Interoperability funds (1)	423.3	92.6	515.9
Total	<u>\$ 1,169.2</u>	<u>\$ 421.5</u>	<u>\$ 1,590.7</u>

(1) These amounts are not reflected in the consolidated balance sheets, as Cboe Clear Europe does not take economic ownership of these balances.

Default and Liquidity Waterfalls

The default waterfall is the priority order in which the capital resources are expected to be utilized in the event of a default where the defaulting clearing participant's collateral would not be sufficient to cover the cost to liquidate its portfolio. If a default occurs and the defaulting clearing participant's collateral, including margin deposits and clearing fund deposits, are depleted, then additional capital is utilized in the following order:

- Cboe Clear Europe dedicated own resources: The Cboe Clear Europe default waterfall first utilizes its own dedicated resources ahead of clearing fund contributions of non-defaulting clearing participants, up to 25% of Cboe Clear Europe capital requirements discussed in Note 18 ("Regulatory Capital").
- Clearing fund: Second, the Cboe Clear Europe default waterfall utilizes traditional CCP risk mutualization, in the event that default losses fully exhaust Cboe Clear Europe's dedicated own resources amount, whereby contributions applicable to a particular product class are applied first to any loss attributable to that product class.
- Pro rata contributions: Third, if the default losses caused cannot be covered by the first two layers, the non-defaulting clearing participants shall on demand make additional payments to Cboe Clear Europe on a pro rata basis in proportion to the amount of their clearing fund contributions to cover any such remaining losses, which is limited to an amount equal to twice their clearing fund contribution as established under Cboe Clear Europe's rules and regulations. In this scenario, contributions applicable to a particular product class are first applied to any losses attributable to that product class.

In addition to the default waterfall, the liquidity waterfall is the priority order in which the liquidity resources are expected to be utilized for Cboe Clear Europe's ordinary course business operations and in situations when additional liquidity resources and liquidity measures may be activated in case of a potential liquidity shortfall. Liquidity, intraday or overnight, is mainly required for securities settlement. In ordinary course business circumstances, liquidity resources include the collateral directly deposited with Cboe Clear Europe, FX swap arrangements, and reverse repurchase agreements, as well as the use of the Facility.

Cboe Clear Digital

Cboe Clear Digital is a digital asset clearinghouse and central counterparty that provides clearing and settlement of digital asset trades. Cboe Clear Digital clears cryptocurrencies from 51 U.S. jurisdictions authorized by license or not subject to licensing. Cboe Clear Digital performs a guarantee function whereby Cboe Clear Digital helps to ensure that the obligations of the transactions it clears are fulfilled. Cboe Clear Digital attempts to mitigate this risk by performing internal compliance and due diligence procedures as well as implementing internal risk controls. Cboe Clear Digital's due diligence procedures include review of the personal and corporate information, financial position of the member participant, and monitoring of Cboe Clear Digital's risk exposure thresholds. As of December 31, 2022, Cboe Clear Digital does not expect a material loss concerning credit risk on any member participant. The Company includes customer cash deposits on the consolidated balance sheets in margin deposits and clearing funds and includes customer digital assets on the consolidated balance sheets in digital assets - safeguarded assets, with a corresponding offset in digital assets - safeguarded liabilities. Additional details on safeguarded digital assets held can be found in Note 2 ("Summary of Significant Accounting Policies").

The table below presents the Company's cash deposits and safeguarded digital assets held on behalf of its customers for the purposes of supporting clearing transactions as of December 31, 2022 (in millions):

	<u>December 31, 2022</u>
Customer bank deposits	\$ 12.7
Digital assets - safeguarded assets	22.9
Total	<u>\$ 35.6</u>

The following table depicts the Company's valuation of digital assets – safeguarded assets and safeguarded liabilities as of December 31, 2022:

<u>Digital Asset</u>	<u>Number of Units</u>	<u>Valuation per Unit</u>	<u>Fair value (in millions)</u>
Bitcoin ("BTC")	717	\$ 16,540	\$ 11.8
Ethereum ("ETH")	6,362	1,199	7.6
Litecoin ("LTC")	17,873	70	1.3
Bitcoin Cash ("BCH")	6,883	97	0.7
USD Coin ("USDC")	1,516,479	1	1.5
			<u>\$ 22.9</u>

15. FAIR VALUE MEASUREMENT

Fair value is the price that would be received upon the sale of an asset or paid upon the transfer of a liability in an orderly transaction between market participants at the measurement date and in the principal or most advantageous market for that asset or liability. The fair value should be calculated based on assumptions that market participants would use in pricing the asset or liability, not on assumptions specific to the entity. In addition, the fair value of liabilities should include consideration of non-performance risk, including the Company's own credit risk.

The Company applied ASC 820 – Fair Value Measurement, which provides guidance for using fair value to measure assets and liabilities by defining fair value and establishing the framework for measuring fair value. ASC 820 applies to financial and nonfinancial instruments that are measured and reported on a fair value basis. The three-level hierarchy of fair value measurements is based on whether the inputs to those measurements are observable or unobservable. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect the Company's market assumptions. The fair value hierarchy requires the use of observable market data when available and consists of the following levels:

- Level 1—Unadjusted inputs based on quoted markets for identical assets or liabilities.
- Level 2—Observable inputs, either direct or indirect, not including Level 1 measurements, corroborated by market data or based upon quoted prices in non-active markets.
- Level 3—Unobservable inputs that reflect management's best assumptions of what market participants would use in valuing the asset or liability.

The Company has included a tabular disclosure for financial assets and liabilities that are measured at fair value on a recurring basis in the consolidated balance sheets as of December 31, 2022 and 2021, respectively.

Assets and Liabilities Measured at Fair Value on a Recurring Basis

The following tables present the Company's fair value hierarchy for those assets and liabilities measured at fair value on a recurring basis as of December 31, 2022 and 2021 (in millions):

	December 31, 2022			
	Total	Level 1	Level 2	Level 3
Assets:				
U.S. Treasury securities (1)	\$ 64.2	\$ 64.2	\$ —	\$ —
Marketable securities (1):				
Mutual funds	15.3	15.3	—	—
Money market funds	12.2	12.2	—	—
Digital assets - safeguarded assets	22.9	22.9	—	—
Total Assets	\$ 114.6	\$ 114.6	\$ —	\$ —
Liabilities:				
Contingent consideration liabilities	\$ 39.1	\$ —	\$ —	\$ 39.1
Digital assets - safeguarded liabilities	22.9	22.9	—	—
Cboe Digital restricted common units liability (2)	15.5	—	—	15.5
Cboe Digital warrant liability (2)	5.9	—	—	5.9
Total Liabilities	\$ 83.4	\$ 22.9	\$ —	\$ 60.5
	December 31, 2021			
	Total	Level 1	Level 2	Level 3
Assets:				
U.S. Treasury securities (1)	\$ 9.1	\$ 9.1	\$ —	\$ —
Marketable securities (1):				
Mutual funds	18.4	18.4	—	—
Money market funds	9.6	9.6	—	—
Total Assets	\$ 37.1	\$ 37.1	\$ —	\$ —
Liabilities:				
Contingent consideration liabilities	\$ 70.5	\$ —	\$ —	\$ 70.5
Total Liabilities	\$ 70.5	\$ —	\$ —	\$ 70.5

(1) These amounts are reflected within financial investments in the consolidated balance sheets.

(2) These amounts are reflected within other non-current liabilities in the consolidated balance sheets.

The following is a description of the Company's valuation methodologies used for instruments measured at fair value on a recurring basis:

Financial Investments

Financial investments consist of highly liquid U.S. Treasury securities, and marketable securities held in a trust for the Company's non-qualified retirement and benefit plans, also referred to as deferred compensation plan assets. The deferred compensation plan assets have an equal and offsetting deferred compensation plan liability based on the value of the deferred compensation plan assets. These securities are valued by obtaining feeds from a number of live data sources, including active market makers and inter dealer brokers and therefore categorized as Level 1. No material adjustments were made to the carrying value of financial investments for the period ended December 31, 2022. See Note 17 ("Employee Benefit Plans") for more information.

Digital Assets – Safeguarded Assets and Liabilities

Digital assets – safeguarded assets and liabilities consist of Bitcoin, Ethereum, Litecoin, Bitcoin Cash, and USD Coin. The Company has determined the principal marketplace for digital assets to be the spot market of Cboe Digital Exchange, LLC ("Cboe Digital Exchange"). The Company valued digital assets – safeguarded assets, and digital assets – safeguarded liabilities by using the closing prices at 4:00pm Central Standard Time on Cboe Digital Exchange's spot market ("Cboe Digital spot market") as of December 31, 2022. These inputs are categorized in the fair value hierarchy as Level 1 as the marketplace is considered active. See Note 14 ("Clearing Operations") for additional details regarding digital assets held.

Contingent Consideration Liabilities

In connection with the acquisitions of Hanweck Associates, LLC (“Hanweck”), MATCHNow, Cboe Asia Pacific, and NEO, as well as the acquisition of assets of FT Providers, LLC (“FT Options”) and Trade Alert, LLC (“Trade Alert”), the Company entered into contingent consideration arrangements with the sellers. The total fair value of the liabilities at December 31, 2022 was \$39.1 million. That value is based on the Company’s estimate of the likelihood that certain performance targets in the respective acquisition agreements are expected to be accomplished. See Note 5 (“Acquisitions”) for more information on the adjustment to contingent consideration liabilities during the year ended December 31, 2022. In connection with the contingent consideration arrangements, the Company paid a total of \$38.7 million in contingent consideration to the sellers of Hanweck, FT Options, MATCHNow, TradeAlert, and Cboe Asia Pacific during the year ended December 31, 2022. Additionally, MATCHNow contingent consideration expired in December, 2022, and the remaining balance was not achieved, and thus written off and resulted in an operating gain of \$5.2 million for the Company. Because the fair value measurements relating to the contingent consideration liabilities are subject to management judgment, measurement uncertainty is inherent in the valuation of the contingent consideration liabilities as of the reporting date. Based on the recorded balance of the liabilities, any measurement uncertainty related to this Level 3 measurement is immaterial as of December 31, 2022.

Cboe Digital Syndication Liabilities

On November 18, 2022, Cboe Digital Holdings Inc. (“Cboe Digital Holdings”) entered into minority interest purchase agreements with certain digital asset industry participants, pursuant to which Cboe Digital Holdings agreed to issue Restricted Common Units in Cboe Digital. Cboe Digital Holdings also entered into a Warrant Agreement to issue Common Units of Cboe Digital in the future. Certain Cboe Digital investor members paid for the Restricted Common Units through the issuance of promissory notes, which are nonrecourse in nature and are accounted for as in-substance stock options. Expense associated with the Restricted Common Units is recognized as contra-revenue ratably over a five-year period. The Company uses a Black Scholes option pricing model to estimate the fair value of the in-substance stock option created by the Restricted Common Units and promissory notes as well as the fair value of the Warrant. Contra-revenue will be recognized while the performance conditions of the Warrant remain probable in conformance with the requirements in ASC 606 – Revenue from Contracts with Customers. Further adjustments will be recognized in each reporting period until performance is complete relating to changes in the fair value of the option and Warrant liabilities in accordance with ASC 718 – Compensation – Stock Compensation. Based on the recorded balance of the liabilities, any measurement uncertainty related to this Level 3 measurement is immaterial as of December 31, 2022. See Note 19 (“Stock-based Compensation”) for more information.

Assets and Liabilities Measured at Fair Value on a Nonrecurring Basis

Certain assets, such as goodwill and intangible assets, are measured at fair value on a non-recurring basis. For goodwill, the process involves using a market approach and income approach (using discounted estimated cash flows) to determine the fair value of each reporting unit on a stand-alone basis. That fair value is compared to the carrying value of the reporting unit, including its recorded goodwill. In connection with the annual impairment evaluation of goodwill and indefinite lived intangibles, impairment is considered to have occurred if the fair value of the reporting unit is lower than the carrying value of the reporting unit. See “Digital Assets Held” below and Note 2 (“Summary of Significant Accounting Policies”) for discussion of valuation considerations specific to digital assets held. For the other intangible assets, the process also involves using a discounted cash flow method to determine the fair value of each intangible asset. Impairment is considered to have occurred if the fair value of the intangible asset is lower than its carrying value. These measurements are considered Level 3 and these assets are recognized at fair value if they are deemed to be impaired.

The Company performed impairment testing during the quarter ended June 30, 2022, as there were market events that indicated it was more likely than not that these assets were impaired, resulting in the recognition of an impairment charge to goodwill related to Cboe Digital. Subsequently, the Company concluded that the indicators of impairment observed during the quarter ended June 30, 2022, continued to be relevant and recorded additional goodwill impairment in the consolidated statements of income for the three months ended September 30, 2022. The Company determined there were no further impairment indicators for the period ended December 31, 2022. See Note 10 (“Goodwill, Intangible Assets, net, and Digital Assets Held”) for more information on the impairment.

Equity investments without readily determinable fair values that are valued using the measurement alternative are measured at fair value on a non-recurring basis. See Note 6 (“Investments”) for more information. During the year ended December 31, 2022, the Company recorded an impairment charge on its investments in American Financial Exchange, LLC. No observable transactions or impairments impacted the measurements of the investments accounted for as other equity investments. See Note 6 (“Investments”) for more information.

Fair Value of Assets and Liabilities

The following tables present the Company's fair value hierarchy for certain assets and liabilities held by the Company as of December 31, 2022 and 2021 (in millions):

	December 31, 2022			
	Total	Level 1	Level 2	Level 3
Assets:				
U.S. Treasury securities (1)	\$ 64.2	\$ 64.2	\$ —	\$ —
Deferred compensation plan assets (1)	27.5	27.5	—	—
Digital assets - safeguarded assets	22.9	22.9	—	—
Digital assets held (2)	0.9	0.9	—	—
Total assets	\$ 115.5	\$ 115.5	\$ —	\$ —
Liabilities:				
Contingent consideration liabilities	\$ 39.1	\$ —	\$ —	\$ 39.1
Deferred compensation plan liabilities (3)	27.5	27.5	—	—
Digital assets - safeguarded liabilities	22.9	22.9	—	—
Cboe Digital restricted common units liability (3)	15.5	—	—	15.5
Cboe Digital warrant liability (3)	5.9	—	—	5.9
Debt	1,573.9	—	1,573.9	—
Total liabilities	\$ 1,684.8	\$ 50.4	\$ 1,573.9	\$ 60.5

	December 31, 2021			
	Total	Level 1	Level 2	Level 3
Assets:				
U.S. Treasury securities (1)	\$ 9.1	\$ 9.1	\$ —	\$ —
Deferred compensation plan assets (1)	28.0	28.0	—	—
Total assets	\$ 37.1	\$ 37.1	\$ —	\$ —
Liabilities:				
Contingent consideration liabilities	\$ 70.5	\$ —	\$ —	\$ 70.5
Deferred compensation plan liabilities (3)	28.0	28.0	—	—
Debt	1,333.6	—	1,333.6	—
Total liabilities	\$ 1,432.1	\$ 28.0	\$ 1,333.6	\$ 70.5

- (1) These amounts are reflected within financial investments in the consolidated balance sheets.
(2) These amounts are reflected within intangible assets, net in the consolidated balance sheets.
(3) These amounts are reflected within other non-current liabilities in the consolidated balance sheets.

Certain financial assets and liabilities, including cash and cash equivalents, accounts receivable, income tax receivable, accounts payable and Section 31 fees payable, and notes receivable are not measured at fair value on a recurring basis, but the carrying values approximate fair value due to their liquid or short-term nature.

Debt

The debt balance consists of fixed rate Senior Notes and a floating rate Term Loan Agreement. The fair values of the Senior Notes are classified as Level 2 under the fair value hierarchy and are estimated using prevailing market quotes. The fair value of the Term Loan Agreement was determined by utilizing a discounted cash flow analysis and is considered a Level 2 measurement.

At December 31, 2022 and 2021, the fair values of the Company's debt obligations were as follows (in millions):

	Fair Value	
	December 31, 2022	December 31, 2021
Term Loan Agreement	\$ 306.3	\$ 160.1
3.650% Senior Notes	623.6	702.6
1.625% Senior Notes	390.7	470.9
3.000% Senior Notes	253.3	—

Digital Assets Held

Digital assets held, which are included within intangible assets, net in the consolidated balance sheets, are valued following a review of exchange prices for each specific digital asset throughout the period ended December 31, 2022. The Company will impair to the lowest observable value during the period for each digital asset type in accordance with Cboe Digital's policy, which states that the Company values digital assets held by using the closing prices at 4:00pm Central Standard Time on Cboe Digital Exchange's spot market, which the Company determined is the principal marketplace for digital assets. As part of Cboe Digital's pricing policy, the closing price on Cboe Digital's spot market is compared to three other exchanges (Coinbase, Bitstamp, and Kraken) to assess for reasonableness. These inputs are categorized in the fair value hierarchy as Level 1 as the marketplace is considered active.

Information on Level 3 Financial Liabilities

The following table sets forth a summary of changes in the fair value of the Company's Level 3 financial liabilities during the year ended December 31, 2022 and 2021 (in millions):

	Level 3 Financial Liabilities for the Year Ended December 31, 2022						
	Balance at Beginning of Period	Realized (gains) losses during period	Adjustments	Additions	Settlements	Foreign Currency Translation	Balance at End of Period
Liabilities:							
Contingent consideration liabilities	\$ 70.5	\$ (5.2)	\$ (44.3)	\$ 57.7	\$ (38.7)	\$ (0.9)	\$ 39.1
Cboe Digital restricted common units liability	—	—	—	15.5	—	—	15.5
Cboe Digital warrant liability	—	—	—	5.9	—	—	5.9
Total Liabilities	<u>\$ 70.5</u>	<u>\$ (5.2)</u>	<u>\$ (44.3)</u>	<u>\$ 79.1</u>	<u>\$ (38.7)</u>	<u>\$ (0.9)</u>	<u>\$ 60.5</u>

	Level 3 Financial Liabilities for the Year Ended December 31, 2021						
	Balance at Beginning of Period	Realized (gains) losses during period	Adjustments	Additions	Settlements	Foreign Currency Translation	Balances at End of Period
Liabilities							
Contingent consideration liabilities	\$ 32.7	\$ (2.7)	\$ —	\$ 49.6	\$ (9.1)	\$ —	\$ 70.5
Total Liabilities	<u>\$ 32.7</u>	<u>\$ (2.7)</u>	<u>\$ —</u>	<u>\$ 49.6</u>	<u>\$ (9.1)</u>	<u>\$ —</u>	<u>\$ 70.5</u>

16. SEGMENT REPORTING

The Company previously operated five reportable business segments prior to the quarter ended June 30, 2022. As a result of the acquisition of ErisX, subsequently rebranded to Cboe Digital, as of June 30, 2022, the Company operates six reportable segments: Options, North American Equities, Europe and Asia Pacific, Futures, Global FX, and Digital which is reflective of how the Company's chief operating decision-maker reviews and operates the business, as discussed in Note 1 ("Nature of Operations"). Segment performance is primarily evaluated based on operating income (loss). The Company's chief operating decision-maker does not use segment-level assets or income and expenses below operating income (loss) as key performance metrics; therefore, such information is not presented below. The Company has aggregated all of its corporate costs, as well as other business ventures, within the Corporate Items and Eliminations totals based on the decision that those activities should not be used to evaluate the operating performance of the segments; however, operating expenses that relate to activities of a specific segment have been allocated to that segment.

Options. The Options segment includes options on market indices ("index options"), as well as on the stocks of individual corporations ("equity options"), and options on ETPs, such as exchange-traded funds ("ETFs") and exchange-traded notes ("ETNs"), which are "multi-listed" options and listed on a non-exclusive basis. These options are eligible to trade, as applicable, on Cboe Options, C2, BZX, EDGX, and/or other U.S. national security exchanges. Cboe Options is the Company's primary options market and offers trading in listed options through a single system that integrates electronic trading and traditional open outcry trading on the Cboe Options trading floor in Chicago. C2 Options, BZX Options, and EDGX Options are all-electronic options exchanges, and typically operate with different market models and fee structures than Cboe Options. The Options segment also includes applicable market data fees generated from the

consolidated tape plans, the licensing of proprietary options market data, index licensing, and access and capacity services.

North American Equities. The North American Equities segment includes listed U.S. equities and ETP transaction services that occur on fully electronic exchanges owned and operated by BZX, BYX, EDGX, and EDGA, equities transactions that occur on the BIDS Trading platform, and Canadian equities and other transaction services that occur on or through the MATCHNow ATS, and NEO, as of the June 1, 2022 acquisition. The North American Equities segment also includes listing services on NEO exchange, ETP listings on BZX, the Cboe Global Markets, Inc. common stock listing, applicable market data fees generated from the consolidated tape plans, the licensing of proprietary equities market data, routing services, and access and capacity services.

Europe and Asia Pacific. The Europe and Asia Pacific segment includes the pan-European listed equities and derivatives transaction services, ETPs, exchange-traded commodities, and international depository receipts that are hosted on MTFs operated by Cboe Europe Equities (Cboe Europe and Cboe NL equities exchanges) and Cboe Europe Derivatives (“CEDX”). It also includes the ETP listings business on RMs and clearing activities of Cboe Clear Europe, as well as the equities transaction services of Cboe Australia and Cboe Japan, operators of trading venues in Australia and Japan, respectively. This segment was previously referred to as the European Equities segment but was updated to the Europe segment in the first quarter of 2021 as a result of the launch of Cboe Europe Derivatives, a pan-European derivatives platform in September 2021. The segment was subsequently updated to Europe and Asia Pacific to reflect the acquisition of Chi-X in July 2021. Cboe Europe operates lit and dark books, a periodic auctions book, and Cboe BIDS Europe, a Large-in-Scale (“LIS”) trading negotiation facility for UK symbols. Cboe NL, launched in October 2019 and based in Amsterdam, operates similar business functionality to that offered by Cboe Europe, and provides for trading only in European Economic Area (“EEA”) symbols. The new Cboe Europe Derivatives venue offers futures and options based on Cboe Europe equity indices. This segment also includes Cboe Europe, Cboe NL, CEDX, Cboe Australia and Cboe Japan revenue generated from the licensing of proprietary market data and from access and capacity services.

Futures. The Futures segment includes transaction services provided by CFE, a fully electronic futures exchange, which includes offerings for trading of VIX futures and other futures products, the licensing of proprietary market data, as well as access and capacity services.

Global FX. The Global FX segment includes institutional FX trading services that occur on the Cboe FX fully electronic trading platform, non-deliverable forward FX transactions (“NDFs”) offered for execution on Cboe SEF and Cboe Swiss, transaction services that occur on the electronic trading system for U.S government securities executed by Cboe Fixed Income, as well as revenue generated from the licensing of proprietary market data and from access and capacity services.

Digital. The Digital segment includes Cboe Digital, an operator of a U.S. based digital asset spot market and a regulated futures exchange, and Cboe Clear Digital, a regulated clearinghouse, as well as revenue generated from the licensing of proprietary market data and from access and capacity services.

Summarized financial data of reportable segments was as follows (in millions):

	<u>Options</u>	<u>North American Equities</u>	<u>Europe and Asia Pacific</u>	<u>Futures</u>	<u>Global FX</u>	<u>Digital</u>	<u>Corporate Items and Eliminations</u>	<u>Total</u>
Year ended December 31, 2022								
Revenues.....	\$ 1,823.2	\$ 1,681.7	\$ 264.6	\$ 119.8	\$ 68.9	\$ 0.3	\$ —	\$ 3,958.5
Operating income (loss)...	740.5	146.6	38.1	55.2	8.8	(491.4)	(8.2)	489.6
Year ended December 31, 2021								
Revenues.....	\$ 1,505.0	\$ 1,570.5	\$ 240.3	\$ 120.6	\$ 58.1	\$ —	\$ 0.3	\$ 3,494.8
Operating income (loss)...	538.0	156.1	56.0	66.0	2.7	—	(12.9)	805.9
Year ended December 31, 2020								
Revenues.....	\$ 1,330.1	\$ 1,789.5	\$ 140.5	\$ 109.2	\$ 57.8	\$ —	\$ —	\$ 3,427.1
Operating income (loss)...	430.4	159.5	33.5	53.8	6.0	—	(21.0)	662.2

Geographical Information

The following represents our revenues less cost of revenues based on jurisdiction (in millions):

	<u>United States</u>	<u>Non-U.S.</u>	<u>Total</u>
Revenues less cost of revenues:			
Year ended December 31, 2022	\$ 1,531.3	\$ 210.4	\$ 1,741.7
Year ended December 31, 2021	\$ 1,286.9	\$ 189.2	\$ 1,476.1
Year ended December 31, 2020	\$ 1,139.9	\$ 114.4	\$ 1,254.3

17. EMPLOYEE BENEFIT PLANS

Eligible U.S. employees, which includes employees of Cboe Digital, as of the acquisition date, are eligible to participate in the Cboe Options SMART Plan (“SMART Plan”). The SMART Plan is a defined contribution plan, which is qualified under Internal Revenue Code Section 401(k). In addition, eligible employees may participate in the Supplemental Employee Retirement Plan, Executive Retirement Plan and Deferred Compensation Plan. Effective January 1, 2017, the Executive Retirement Plan is closed to new executive officers and employees. Each plan is a defined contribution plan that is non-qualified under the Internal Revenue Code. The Deferred Compensation Plan assets, held in a trust, are subject to the claims of general creditors of the Company and totaled \$27.5 million at December 31, 2022. Although the value of the plan is recorded in financial investments on the consolidated balance sheets, there is an equal and offsetting liability in other non-current liabilities. The investment results of these plans have no impact on net income as the investment results are recorded in equal amounts to both other expense, net and compensation and benefits expense in the consolidated statements of income. The Company contributed \$14.4 million, \$11.8 million, and \$10.5 million to the defined contribution plans for the years ended December 31, 2022, 2021, and 2020, respectively.

Eligible employees outside of the U.S., which includes employees of Cboe Europe, Cboe NL, Cboe Clear Europe, MATCHNow, BIDS, Cboe Asia Pacific, and NEO, as of the respective acquisition dates, are eligible to participate in various employee-selected stakeholder contribution plans or plans covered by local jurisdictions or by applicable laws. The Company’s contribution amounted to \$3.0 million, \$2.3 million, and \$1.6 million for the years ended December 31, 2022, 2021, and 2020, respectively. This expense is included in compensation and benefits in the consolidated statements of income.

Prior to the end of 2022, the Company’s Board of Directors approved cash and equity deferred compensation plans for Directors, that will be maintained by the Company, in which eligible Directors may, starting January 1, 2023, contribute a percentage of their cash and equity compensation and defer income taxes thereon.

18. REGULATORY CAPITAL

As broker-dealers registered with the SEC, Cboe Trading, BIDS Trading, and Cboe Fixed Income are subject to the SEC’s Uniform Net Capital Rule (“Rule 15c3-1”), which requires the maintenance of minimum net capital, as defined therein. The SEC’s requirement also provides that equity capital may not be withdrawn or a cash dividend paid if certain minimum net capital requirements are not met. Cboe Trading, BIDS Trading, and Cboe Fixed Income compute the net capital requirements under the basic method provided for in Rule 15c3-1. As of December 31, 2022, Cboe Trading and BIDS Trading were required to maintain net capital equal to the greater of 6.67% of aggregate indebtedness items, as defined, or \$0.1 million. As a broker-dealer in its first 12 months of operations, Cboe Fixed Income was required to maintain net capital equal to the greater of 12.5% of aggregate indebtedness items, as defined, or \$5.0 thousand.

As entities regulated by the FCA, Cboe Europe is subject to the Financial Resource Requirement (“FRR”) and Cboe Chi-X Europe is subject to the Capital Resources Requirement (“CRR”). As a RIE, Cboe Europe computes its FRR in accordance with its Financial Risk Assessment, as agreed by the FCA. In accordance with the Markets in Financial Instruments Directive of the FCA requirements, Cboe Chi-X Europe computes its CRR as the greater of the base requirement of \$0.1 million as of December 31, 2022, or the summation of the credit risk, market risk and fixed overheads requirements, as defined.

On March 8, 2019, Cboe NL received approval from the Dutch Ministry of Finance to operate a RM, a MTF, and an approved publication arrangement in the Netherlands. As a RM, Cboe NL is subject to minimum capital requirements, as established by the Dutch Ministry of Finance in the license dated March 8, 2019.

Cboe Clear Europe was granted authorization under European Market Infrastructure Regulation (“EMIR”) by the National Competent Authority, DNB. Cboe Clear Europe is required by the EMIR, to maintain a minimum amount of capital to reflect an estimate of the capital required to wind down or restructure the activities of the clearinghouse, cover operational, legal and business risks and to reserve capital to meet credit, counterparty and market risks not covered by the clearing participants’ collateral and clearing funds.

The self-regulatory organization formerly known as IIROC and now known as the New Self-Regulatory Organization of Canada (the “Canadian SRO”) sets and monitors regulatory capital requirements for MATCHNow to protect its clients and counterparties. MATCHNow is required to maintain a prescribed minimum level of risk adjusted capital in accordance with such requirements as IIROC may from time to time prescribe.

As a designated contract market regulated by the CFTC, CFE is required to meet two capital adequacy tests: (i) its financial resources must be equal to at least twelve months of its projected operating costs and (ii) its unencumbered, liquid financial assets, which may include a line of credit, must be equal to at least six months of its projected operating costs. The amounts presented below represent the greater of the two capital adequacy requirements.

As a swap execution facility regulated by the CFTC, Cboe SEF is required to meet two capital adequacy tests: (i) its financial resources must exceed at least twelve months of its projected operating costs and (ii) its unencumbered, liquid financial assets must be equal to the greater of: (a) three months of projected operating costs or (b) its projected wind-down costs. The amounts presented below represent the greater of the two capital adequacy requirements.

As a designated contract organization regulated by the CFTC, Cboe Digital Exchange, LLC is required to meet two capital adequacy tests: (i) its financial resources must be equal to at least twelve months of its projected operating costs and (ii) its unencumbered, liquid financial assets, which may include a line of credit, must be equal to at least six months of its projected operating costs. The amounts presented below represent the greater of the two capital adequacy requirements.

As a derivatives clearing organization regulated by the CFTC, Cboe Clear Digital, LLC is required to meet two capital adequacy tests: (i) its financial resources must be equal to at least twelve months of its projected operating costs and (ii) its unencumbered, liquid financial assets, which may include a line of credit, must be equal to at least six months of its projected operating costs. The amounts presented below represent the greater of the two capital adequacy requirements.

NEO is regulated by the Ontario Securities Commission (“OSC”). NEO is required to maintain sufficient financial resources for the proper performance of its functions and to meet its responsibilities. NEO must calculate the following financial ratios monthly: (i) current ratio, (ii) a debt to cash flow ratio, and (iii) a financial leverage ratio. NEO must report the monthly calculations to the OSC on a quarterly basis.

Cboe Australia is regulated by the Australian Securities and Investments Commission (“ASIC”). Cboe Australia is required to maintain sufficient financial resources to operate the market properly in accordance with Section 794A(d) of the Corporations Act, which Cboe Australia satisfies by maintaining a prudent cash reserve, which must be equal to at least six months of its projected operating expenses.

Cboe Japan is regulated by the Japanese Financial Services Agency (“JFSA”) and the Japan Securities Dealers Association (“JSDA”). Cboe Japan is required to maintain a minimum level of regulatory capital ratio of 120% in accordance with such requirements prescribed by the JFSA and JSDA.

The following table presents the Company's subsidiaries with regulatory capital requirements discussed above, as well as the actual and minimum regulatory capital requirements of the subsidiary as of December 31, 2022 (in millions):

Subsidiary	Regulatory Authority	Actual	Minimum Requirement
Cboe Trading	FINRA/SEC	\$ 17.3	\$ 1.2
BIDS Trading	FINRA/SEC	8.0	0.5
Cboe Fixed Income Markets . .	FINRA/SEC	3.9	0.5
Cboe Europe	FCA	50.8	27.7
Cboe Chi-X Europe	FCA	0.3	0.1
Cboe NL	Dutch Authority for Financial Markets	13.1	6.4
Cboe Clear Europe	DNB	63.7	39.3
MATCHNow	IIROC	4.7	0.2
CFE	CFTC	58.7	44.1
Cboe SEF	CFTC	2.4	1.3
Cboe Digital Exchange	CFTC	10.6	4.1
Cboe Clear Digital	CFTC	21.2	5.4
Cboe Australia	ASIC	8.3	4.2
Cboe Japan	JFSA	12.9	3.2

19. STOCK-BASED COMPENSATION

Stock-based compensation is based on the fair value of the award on the date of grant, which is recognized over the related service period, net of actual forfeitures. The service period is the period over which the related service is performed, which is generally the same as the vesting period. Vesting may be accelerated for certain officers and employees as a result of attaining certain age and service based requirements in the Company's long-term incentive plan and award agreements.

The Company recognized stock-based compensation expense of \$30.7 million, \$26.6 million, and \$21.7 million for the years ended December 31, 2022, 2021, and 2020, respectively. Stock-based compensation expense relating to employee and director awards is included in compensation and benefits and acquisition-related costs in the consolidated statements of income. Stock-based compensation expense relating to awards granted to customers of Cboe Digital are recorded as contra-revenue.

The activity in the Company's stock options and restricted stock, consisting of restricted stock awards ("RSAs"), restricted stock units ("RSUs"), and performance-based restricted stock units ("PSUs"), was as follows:

Stock Options

Summary stock option activity is presented below:

	Number of Shares	Weighted average exercise price
Outstanding, January 1, 2020	\$ 10,834	\$ 18.59
Exercised	10,834	18.59
Outstanding, December 31, 2020	\$ —	\$ —
Exercised	—	—
Outstanding, December 31, 2021	\$ —	\$ —
Exercised	—	—
Outstanding and exercisable December 31, 2022	\$ —	\$ —

All outstanding stock options were exercised during the year ended December 31, 2020. The total intrinsic value of stock options exercised in the year ended December 31, 2020 was \$0.9 million.

RSAs and RSUs

The following table summarizes RSA and RSU activity during the year ended December 31, 2022:

	Number of shares	Weighted average grant date fair value
Nonvested stock at January 1, 2020	436,013	\$ 91.58
Granted	193,912	115.89
Vested	(272,258)	88.32
Forfeited	(15,585)	106.70
Nonvested stock at December 31, 2020	342,082	\$ 108.40
Granted	298,084	92.32
Vested	(166,598)	106.13
Forfeited	(30,249)	97.01
Nonvested stock at December 31, 2021	443,319	\$ 99.22
Granted	369,037	119.97
Vested	(201,457)	99.87
Forfeited	(54,837)	106.07
Nonvested stock at December 31, 2022	<u>556,062</u>	<u>\$ 112.07</u>

RSAs granted to non-employee members of the Board of Directors have a one-year vesting period and vesting accelerates upon the occurrence of a change in control of the Company. Unvested portions of the RSAs will be forfeited if the director leaves the Board of Directors prior to the applicable vesting date. The RSAs have voting rights and entitle the holder to receive dividends.

RSUs entitle the holder to one share of common stock upon vesting, typically vest over a three year period, and vesting accelerates upon the occurrence of a change in control or a termination of employment following a change in control or in the event of a participant's earlier death or disability. Vesting will also accelerate upon a qualified retirement where applicable and permitted. Where applicable and permitted, qualified retirement eligibility occurs once achieving 55 years of age and 10 years of service for grants awarded in and after 2017. Unvested RSUs will be forfeited if the officer, or employee leaves the Company prior to the applicable vesting date, except in limited circumstances. The RSUs have no voting rights but entitle the holder to receive dividend equivalents.

In the year ended December 31, 2022, to satisfy employees' tax obligations upon the vesting of restricted stock, the Company purchased 68,872 shares of common stock totaling \$8.2 million as the result of the vesting of 183,573 shares of restricted stock.

PSUs

The following table summarizes restricted stock units contingent upon achievement of performance conditions, also known as PSUs, activity during the year ended December 31, 2022:

	Number of Shares	Weighted average grant date fair value
Nonvested stock at January 1, 2020	132,248	\$ 107.21
Granted	72,975	125.62
Vested	(48,053)	108.91
Forfeited	(34,504)	109.85
Nonvested stock at December 31, 2020	122,666	\$ 115.18
Granted	71,302	98.32
Vested	(29,468)	111.45
Forfeited	(12,090)	110.20
Nonvested stock at December 31, 2021	152,410	\$ 108.41
Granted	64,668	141.41
Vested	(16,834)	96.00
Forfeited	(33,542)	95.40
Nonvested stock at December 31, 2022	<u>166,702</u>	<u>\$ 125.08</u>

PSUs include awards related to earnings per share during the performance period as well as awards related to total shareholder return during the performance period. The Company used the Monte Carlo valuation model method to estimate the fair value of the total shareholder return PSUs which incorporated the following assumptions for awards granted in February 2022: risk-free interest rate (1.75)%, three-year volatility (32.2)% and three-year correlation with S&P 500 Index (0.51), and incorporated the following assumptions for awards granted in May 2022: risk-free interest rate (2.88)%, three-year volatility (32.8)% and three-year correlation with S&P 500 Index (0.52). Each of these performance shares has a performance condition under which the number of units ultimately awarded will vary from 0% to 200% of the original grant, with each unit representing the contingent right to receive one share of the Company's common stock. The vesting period for the PSUs contingent on the achievement of performance conditions is three years. For each of the performance awards, the PSUs will be settled in shares of the Company's common stock following vesting of the PSU assuming that the participant has been continuously employed during the vesting period, subject to acceleration in the event of a change in control of the Company, or a termination of employment following a change in control, or in the event of a participant's earlier death or disability. Participants have no voting rights with respect to the PSUs until the issuance of the shares of common stock. Dividends are accrued by the Company and will be paid once the PSUs contingent on the achievement of performance conditions vest.

In the year ended December 31, 2022, to satisfy employees' tax obligations upon the vesting of performance stock, the Company purchased 5,245 shares of common stock totaling \$0.6 million as the result of the vesting of 16,834 shares of performance stock.

As of December 31, 2022, there were \$36.9 million in total unrecognized compensation costs related to restricted stock, restricted stock units, and performance stock units. These costs are expected to be recognized over a weighted average period of 1.9 years.

Employee Stock Purchase Plan

In May 2018, the Company's stockholders approved an Employee Stock Purchase Plan, ("ESPP"), under which a total of 750,000 shares of the Company's common stock will be made available for purchase to employees. The ESPP is a broad-based plan that permits employees to contribute up to 10% of wages and base salary to purchase shares of the Company's common stock at a discount, subject to applicable annual Internal Revenue Service limitations. Under the ESPP, a participant may not purchase more than a maximum of 312 shares of the Company's common stock during any single offering period. No participant may accrue options to purchase shares of the Company's common stock at a rate that exceeds \$25,000 in fair market value of the Company's common stock (determined at the time such options are granted) for each calendar year in which such rights are outstanding at any time. The exercise price per share of common stock shall be 85% following September 15, 2022, and 90% prior to September 15, 2022 (for eligible U.S. employees) or 85% (for eligible international employees) of the lesser of the fair value of the stock on the first day of the applicable offering period or the applicable exercise date.

The Company records compensation expense over the offering period related to the discount that is given to employees, which totaled \$0.6 million, \$0.4 million, and \$0.3 million for the years ended December 31, 2022, 2021, and 2020, respectively. As of December 31, 2022, 617,805 shares were reserved for future issuance under the ESPP.

Cboe Digital Restricted Common Units

On November 18, 2022, Cboe Digital Holdings entered into minority interest purchase agreements with certain digital asset industry participants, pursuant to which Cboe Digital Holdings agreed to issue 185 Restricted Common Units in Cboe Digital. In addition, certain investor members and their affiliates are our customers, including trading permit holders, trading privilege holders, participants, and members. Certain Cboe Digital investor members paid for the Restricted Common Units through the issuance of promissory notes, which are nonrecourse in nature. The issuances of Restricted Common Units for nonrecourse promissory notes are accounted for as in-substance stock options. The promissory notes generally bear interest at a rate of 5% per annum and mature upon the earlier of the sale of vested Restricted Common Units, or either November 18, 2032 or November 18, 2037. A certain Cboe Digital investor member paid for the Restricted Common Units in exchange for cash.

The following table summarizes the option activity during the year ended December 31, 2022 (in millions, except number of shares and contractual term):

	Number of shares	Weighted average exercise price	Aggregate intrinsic value	Weighted average remaining contractual term
Outstanding, January 1, 2022.....	—	\$ —	\$ —	—
Granted	185	0.3	—	6 years
Vested	—	—	—	—
Outstanding and exercisable December 31, 2022.	185	\$ 0.3	\$ —	6 years

Vesting of Restricted Common Units is based on certain conditions relating to the participation and performance of the Cboe Digital investor members on the Cboe Digital platforms, generally over a five-year period. Performance is generally measured based on participation on the Cboe Digital platforms and the investor members maintaining certain average daily volumes on the platforms. Due to the existence of an option for investor members to sell their shares immediately after vesting, the options are liability classified. The options expire upon the maturity of the promissory notes, which is either November 18, 2032 or November 18, 2037, unless the options are exercised.

The cost associated with the options will be recognized as contra-revenue, net of actual forfeitures and based on the continued probability of the satisfaction of performance conditions ratably over the vesting period. For the year ended December 31, 2022, zero contra-revenue related to the options grants was recognized. As of December 31, 2022, \$14.0 million of contra-revenue related to the options grants is included in Other assets, net within the consolidated balance sheets and is expected to be recognized in net revenue in the consolidated statements of income over the remaining contractual term.

Changes in the fair value of the options, subsequent to the grant date, is recognized as other revenue or expense in the period in which the fair value of the options changes. The Company uses a Black Scholes pricing model to estimate the fair value of the in-substance stock options which incorporated the following assumptions as of December 31, 2022: risk-free interest rate range (3.88 to 3.95)%, expected dividend rate (0)%, expected volatility (60)%, and expected term of five to seven years. For the year ended December 31, 2022, there was no change in the fair value of the options grants since the grant date.

Cboe Digital Warrants

On November 18, 2022, Cboe Digital Holdings entered into a Warrant Agreement with an investor member to acquire up to 80 Common Units of Cboe Digital, subject to certain vesting events. The investor member is a customer of Cboe Digital. The vesting of the Warrant is based upon the achievement of certain conditions relating to the service provided by the investor member over a two-year period, of which some conditions represent conditions that are not service, performance, or market conditions and, therefore, the Warrant is liability classified. As of December 31, 2022, no portion of the Warrant has vested.

The cost associated with the Warrant will be recognized as contra-revenue ratably throughout the expected life of the Warrant before exercise. For the year ended December 31, 2022, zero contra-revenue related to the Warrant was recognized. As of December 31, 2022, \$5.9 million of contra-revenue related to the Warrant is included in Other assets, net within the consolidated balance sheets and is expected to be recognized in net revenue in the consolidated statements of income over the remaining life of the Warrant.

The following table summarizes the Warrant activity during the year ended December 31, 2022 (in millions, except number of shares):

	Number of shares	Weighted average exercise price
Outstanding, January 1, 2022.....	—	\$ —
Granted.....	80	0.2
Vested.....	—	—
Outstanding and exercisable December 31, 2022.....	80	\$ 0.2

Changes in the fair value of the Warrant, subsequent to the grant date, is recognized as other revenue or expense in the period in which the fair value of the Warrant changes. The Company uses a Black Scholes pricing model to estimate the fair value of the Warrant which incorporated the following assumptions as of December 31, 2022: risk-free interest rate (3.95)%, expected dividend rate (0)%, expected volatility (60)%, and expected term of five years. For the year ended December 31, 2022, there was no change in the fair value of the Warrant since the grant date.

20. EQUITY

Common Stock

The Company's common stock is listed on Cboe BZX under the trading symbol CBOE. As of December 31, 2022, 325,000,000 shares of the Company's common stock were authorized, \$0.01 par value, and 107,670,248 and 105,951,199 shares were issued and outstanding, respectively. The holders of common stock are entitled to one vote per share.

Common Stock in Treasury, at Cost

The Company accounts for the purchase of treasury stock under the cost method with the shares of stock repurchased reflected as a reduction to Cboe stockholders' equity and included in common stock in treasury, at cost in the consolidated balance sheets. Shares repurchased under the Company's share repurchase program are retired or they are available to be redistributed. When treasury shares are redistributed, they are recorded at the average cost of the treasury shares acquired. When treasury shares are retired, they are removed from the common stock in treasury balance. The Company held 1,719,049 and 1,512,821 shares of common stock in treasury as of December 31, 2022 and December 31, 2021, respectively.

On December 21, 2022, the Board of Directors approved the retirement of 744,127 shares of treasury stock. These shares represent shares that were repurchased as part of the Company's share repurchase program since December, 2021. The retirement was recorded as a decrease to treasury stock, common stock, and additional paid in capital on the consolidated balance sheets.

Share Repurchase Program

In 2011, the Board of Directors approved an initial authorization for the Company to repurchase shares of its outstanding common stock of \$100 million and subsequently approved additional authorizations, for a total authorization of \$1.6 billion. The Company expects to fund repurchases primarily through the use of existing cash balances. The program permits the Company to purchase shares, through a variety of methods, including in the open market or through privately negotiated transactions, in accordance with applicable securities laws. It does not obligate the Company to make any repurchases at any specific time or situation.

On August 16, 2022, President Biden signed into law H.R. 5376 (commonly known as the "Inflation Reduction Act of 2022" or simply the "IRA"). Tax measures contained in the IRA include, among other items, an excise tax of 1% on corporate stock buy-backs. The IRA imposes a new 1% excise tax on repurchases of stock by domestic corporations with stock traded on established securities markets. The amount on which the tax is imposed is reduced by the value of any stock issued by such corporation during the tax year and the tax generally applies to stock buy-back transactions occurring after December 31, 2022. This new tax is not expected to result in a material impact to the Company.

Under the program, for the year ended December 31, 2022, the Company has repurchased 876,238 shares of common stock at an average cost per share of \$115.20, totaling \$100.9 million. Since inception of the program through December 31, 2022, the Company has repurchased 18,948,367 shares of common stock at an average cost per share of \$70.30, totaling \$1.3 billion.

As of December 31, 2022, the Company had \$217.9 million of availability remaining under its existing share repurchase authorizations.

The table below shows the repurchased shares of common stock under the Company's share repurchase program during the periods presented as follows:

	<u>Shares Repurchased</u>	<u>Average Repurchase Price Per Share</u>	<u>Amount of Repurchases (in millions)</u>
2022			
Fourth quarter	132,111	\$ 116.07	\$ 15.3
Third quarter	—	—	—
Second quarter	147,139	106.12	15.6
First quarter	596,988	117.25	70.0
Total open market common stock repurchases	<u>876,238</u>		<u>100.9</u>
2021			
Fourth quarter	—	\$ —	\$ —
Third quarter	—	—	—
Second quarter	331,373	101.57	33.7
First quarter	490,632	96.97	47.6
Total open market common stock repurchases	<u>822,005</u>		<u>81.3</u>
2020			
Fourth quarter	1,013,709	\$ 86.79	\$ 88.0
Third quarter	465,366	89.92	41.8
Second quarter	992,159	100.54	99.8
First quarter	1,062,881	112.46	119.5
Total open market common stock repurchases	<u>3,534,115</u>		<u>349.1</u>

Purchase of Common Stock from Employees

The Company purchased 74,117 and 63,911 shares that were not part of the publicly announced share repurchase authorization from employees for an average price paid per share of \$119.45 and \$97.19 during the years ended December 31, 2022 and 2021, respectively. These shares consisted of shares retained to cover payroll withholding taxes or option costs in connection with the vesting of restricted stock awards, restricted stock units, and performance share awards.

Preferred Stock

The Company has authorized the issuance of 20,000,000 shares of preferred stock, par value \$0.01 per share, issuable from time to time in one or more series. For the years ended December 31, 2022, and 2021, the Company had no shares of preferred stock issued or outstanding.

Dividends

During the year ended December 31, 2022, the Company declared and paid cash dividends per share of \$1.96, for an aggregate payout of \$209.4 million. During the year ended December 31, 2021, the Company declared and paid cash dividends per share of \$1.80, for an aggregate payout of \$193.3 million.

Each share of common stock, including RSAs, RSUs, and PSUs, is entitled to receive dividend and dividend equivalents, respectively, if, as and when declared by the Board of Directors of the Company. The Company's expectation is to continue to pay dividends. The decision to pay a dividend, however, remains within the discretion of the Company's Board of Directors and may be affected by various factors, including earnings, financial condition, capital requirements,

level of indebtedness and other considerations the Board of Directors deems relevant. Future debt obligations and statutory provisions, among other things, may limit, or in some cases prohibit, the Company's ability to pay dividends.

As a holding company, the Company's ability to declare and continue to pay dividends in the future with respect to its common stock will also be dependent upon the ability of its subsidiaries to pay dividends to it under applicable corporate law.

21. INCOME TAXES

Net deferred tax assets and liabilities consist of the following as of December 31, 2022 and 2021 (in millions):

	<u>As of December 31,</u>	
	<u>2022</u>	<u>2021</u>
Deferred tax assets:		
Accrued compensation and benefits	\$ 16.1	\$ 14.7
Property, equipment and technology, net	16.0	2.8
Investments	95.1	—
Operating leases	37.1	33.5
Other	<u>75.7</u>	<u>54.4</u>
Subtotal	240.0	105.4
Valuation allowance	<u>(17.5)</u>	<u>(12.2)</u>
Total deferred tax assets	<u>222.5</u>	<u>93.2</u>
Deferred tax liabilities:		
Intangibles	(390.1)	(372.4)
Property, equipment and technology, net	(20.4)	(19.8)
Investments	—	(44.3)
Prepaid expenses or assets	(4.4)	(4.7)
Operating leases	<u>(28.2)</u>	<u>(24.7)</u>
Total deferred tax liabilities	<u>(443.1)</u>	<u>(465.9)</u>
Net deferred tax liabilities	<u>\$ (220.6)</u>	<u>\$ (372.7)</u>

The Company provides a valuation allowance against deferred tax assets if, based on management's assessment of historical and projected future operating results and other available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized. A valuation allowance of \$17.5 million and \$12.2 million was recorded against gross deferred tax assets for certain investments, net operating and capital losses as of December 31, 2022 and 2021, respectively.

As of December 31, 2022, the Company has capital loss carryforwards of \$9.4 million, which, if unused, will expire in 2024.

The Company considers its non-U.S. earnings to be indefinitely reinvested outside of the U.S. to the extent these earnings are not subject to U.S. income tax under an anti-deferral tax regime. As of December 31, 2022, the cumulative amount of undistributed earnings in these subsidiaries is \$84.4 million. Given our intent to reinvest these earnings for an indefinite period of time, the Company has not accrued a deferred tax liability on these earnings. A determination of an unrecognized deferred tax liability related to these earnings is not practicable.

The provision for income taxes for the years ended December 31, 2022, 2021 and 2020 consists of the following (in millions):

	Year Ended December 31,		
	2022	2021	2020
Current tax expense:			
Federal	\$ 210.4	\$ 148.4	\$ 143.7
State	130.2	83.4	70.5
Foreign	13.0	14.2	8.9
Total current tax expense	<u>353.6</u>	<u>246.0</u>	<u>223.1</u>
Deferred income tax (benefit) expense:			
Federal	(126.2)	(24.3)	(25.2)
State	(22.7)	(7.3)	(9.1)
Foreign	(6.8)	12.7	3.4
Total deferred income tax benefit	<u>(155.7)</u>	<u>(18.9)</u>	<u>(30.9)</u>
Total	<u>\$ 197.9</u>	<u>\$ 227.1</u>	<u>\$ 192.2</u>

For the years ended December 31, 2022, 2021, and 2020, income before taxes consists of the following (in millions):

	Year Ended December 31,		
	2022	2021	2020
U.S. operations	\$ 401.3	\$ 714.0	\$ 601.9
Foreign operations	31.6	42.1	58.5
Total	<u>\$ 432.9</u>	<u>\$ 756.1</u>	<u>\$ 660.4</u>

A reconciliation of the statutory federal income tax rate to the effective income tax rate for the years ended December 31, 2022, 2021, and 2020 is as follows:

	Year Ended December 31,		
	2022	2021	2020
Statutory U.S. federal income tax rate	21.0 %	21.0 %	21.0 %
Impact of federal, state and local tax law & rate changes, net	(0.5)%	1.9 %	(0.2)%
State taxes, net of federal benefit	4.5 %	4.3 %	4.2 %
Uncertain tax positions	20.6 %	3.2 %	2.9 %
Deduction for foreign-derived intangible income	(1.0)%	(0.6)%	(1.1)%
Valuation allowance	0.6 %	— %	0.8 %
Other, net	0.5 %	0.2 %	1.5 %
Effective income tax rate	<u>45.7 %</u>	<u>30.0 %</u>	<u>29.1 %</u>

A reconciliation of the beginning and ending unrecognized tax benefits, excluding interest and penalties, is as follows (in millions):

	2022	2021	2020
	Balance as of January 1	\$ 162.1	\$ 138.6
Gross increases on unrecognized tax benefits in prior period	21.8	3.4	3.3
Gross decreases on unrecognized tax benefits in prior period	—	(0.2)	—
Gross increases on unrecognized tax benefits in current period	32.9	26.5	24.3
Settlements	(3.7)	—	—
Lapse of statute of limitations	(1.0)	(6.2)	(5.7)
Balance as of December 31	<u>\$ 212.1</u>	<u>\$ 162.1</u>	<u>\$ 138.6</u>

As of December 31, 2022, 2021 and 2020, the Company had \$177.1 million, \$162.1 million, and \$137.4 million, respectively, of unrecognized tax benefits, net of federal benefit, which, if recognized in the future, would affect the effective income tax rate. Reductions to unrecognized tax benefits from the lapse of the applicable statutes of limitations and potential audit settlements during the next twelve months are estimated to be approximately \$52.4 million.

Estimated interest costs and penalties are classified as part of the provision for income taxes in the Company's consolidated statements of income and were \$39.1 million, \$9.7 million, and \$6.9 million, for the periods ended December 31, 2022, 2021 and 2020, respectively. Accrued interest and penalties were \$74.4 million, \$35.8 million and \$26.1 million as of December 31, 2022, 2021 and 2020, respectively.

The following table summarizes the tax years that are either currently under audit or remain open and subject to examination by the tax authorities in the most significant jurisdictions in which Cboe operates:

U.S. Federal	2008-2016, 2019-2022
California	2015-2022
Illinois	2019-2022
New York	2015-2022
New York City	2015-2022
United Kingdom	2019-2022
Netherlands	2016-2022

The Company petitioned the U.S. Tax Court on January 13, 2017, May 7, 2018, and November 29, 2018 for a redetermination of IRS notices of deficiency for Cboe and certain of its subsidiaries for tax years 2011 through 2015 related to its Section 199 deduction claims. These petitions resulted in the establishment of three cases before the U.S. Tax Court. The Company also filed a complaint on October 9, 2018 with the Court of Federal Claims for a refund of Section 199 claims related to tax years 2008 through 2010, the complaint resulted in the establishment of a single case before the Court of Federal Claims.

The first case that went to trial involved certain subsidiaries related to electronic trading for tax years 2011 through 2013. The U.S. Tax Court held the trial remotely from May 24, 2021 to June 1, 2021. On March 31, 2022, the U.S. Tax Court issued its decision rejecting the Company’s basis for its Petition (the “Section 199 Opinion”). On May 26, 2022, the U.S. Tax Court entered its decision, which gave effect to the Section 199 Opinion. On August 12, 2022, the Company filed a notice of appeal with the U.S. Court of Appeals for the 10th Circuit, and briefing is underway. Two cases remain pending in U.S. Tax Court, as does the case pending before the Court of Federal Claims. Trial dates in those cases have not been established. One of the two cases pending before the U.S. Tax Court involves certain subsidiaries (different from those that were involved in the first case that went to trial) related to trading for tax years 2011 through 2013. On August 26, 2022, the IRS filed a motion for partial summary judgment, and briefing has concluded. On February 2, 2023, the U.S. Tax Court issued an order denying the IRS’s motion for partial summary judgement.

As a result of the Section 199 Opinion, the Company’s Section 199 positions no longer meet the recognition threshold provided by ASC 740–10. Accordingly, in the first quarter of 2022, the Company increased its provision for income taxes in order to fully reserve for the expected aggregate amount of additional liabilities that the Company currently expects would result from these cases if they were all decided against the Company.

Tax measures contained in the IRA, among other items, a corporate alternative minimum tax of 15%. The new 15% corporate alternative minimum tax is based on the “adjusted financial statement income” of certain large corporations reporting at least \$1 billion average adjusted pre-tax net income on their consolidated financial statements for tax years beginning after December 31, 2022. This new tax is not expected to result in a material impact to the Company.

22. EARNINGS PER SHARE

The computation of basic net income per common share is calculated by reducing net income for the period by dividends paid or declared and undistributed net income for the period that are allocated to participating securities to arrive at net income allocated to common stockholders. Net income allocated to common stockholders is divided by the weighted average number of common shares outstanding during the period to determine net income per share allocated to common stockholders.

The computation of diluted net income per share is calculated by dividing net income allocated to common stockholders by the sum of the weighted average number of common shares outstanding plus all additional common shares that would have been outstanding if the potentially dilutive common shares had been issued. The dilutive effect is calculated using the more dilutive of the two-class or treasury stock method.

The following table sets forth the computation of basic and diluted earnings per share for the years ended December 31, 2022, 2021, and 2020 (in millions, except per share data):

	Year Ended December 31,		
	2022	2021	2020
Basic earnings per share numerator:			
Net income	\$ 235.0	\$ 529.0	\$ 468.2
Net income allocated to participating securities	(0.9)	(1.7)	(1.2)
Net income allocated to common stockholders	<u>\$ 234.1</u>	<u>\$ 527.3</u>	<u>\$ 467.0</u>
Basic earnings per share denominator:			
Weighted average shares outstanding	106.3	107.0	109.1
Basic earnings per share	\$ 2.20	\$ 4.93	\$ 4.28
Diluted earnings per share numerator:			
Net income	\$ 235.0	\$ 529.0	\$ 468.2
Net income allocated to participating securities	(0.9)	(1.7)	(1.2)
Net income allocated to common stockholders	<u>\$ 234.1</u>	<u>\$ 527.3</u>	<u>\$ 467.0</u>
Diluted earnings per share denominator:			
Weighted average shares outstanding	106.3	107.0	109.1
Dilutive common shares issued under stock program	0.4	0.2	0.2
Total dilutive weighted average shares	<u>106.7</u>	<u>107.2</u>	<u>109.3</u>
Diluted earnings per share	\$ 2.19	\$ 4.92	\$ 4.27

For the periods presented, the Company did not have shares of stock-based compensation that would have an anti-dilutive effect on the computation of diluted earnings per share.

23. COMMITMENTS, CONTINGENCIES, AND GUARANTEES

Legal Proceedings

As of December 31, 2022, the Company was subject to various legal proceedings and claims that have not been fully resolved and that have arisen in the ordinary course of business.

The Company reviews its legal proceedings and claims, regulatory reviews and inspections and other legal proceedings on an ongoing basis and follows appropriate accounting guidance when making accrual and disclosure decisions. The Company establishes accruals for those contingencies where the incurrence of a loss is probable and can be reasonably estimated, and the Company discloses the amount accrued and the amount of a reasonably possible loss in excess of the amount accrued, if such disclosure is necessary for the consolidated financial statements to not be misleading. The Company does not record liabilities when the likelihood that the liability has been incurred is probable, but the amount cannot be reasonably estimated, or when the liability is believed to be only reasonably possible or remote. The Company's assessment of whether a loss is remote, reasonably possible, or probable is based on its assessment of the ultimate outcome of the matter following all appeals.

As of December 31, 2022, the Company does not believe that there is a reasonable possibility that any material loss exceeding the amounts already recognized for these legal proceedings and claims, regulatory reviews, inspections or other legal proceedings, if any, has been incurred. While the consequences of certain unresolved proceedings are not presently determinable, the outcome of any proceeding is inherently uncertain and an adverse outcome from certain matters could have a material effect on the financial position, results of operations, or cash flows of the Company in any given reporting period.

Other

As self-regulatory organizations under the jurisdiction of the SEC, Cboe Options, C2, BZX, BYX, EDGX and EDGA are subject to routine reviews and inspections by the SEC. As a designated contract market under the jurisdiction of the CFTC, CFE, and Cboe Digital Exchange are subject to routine rule enforcement reviews and examinations by the CFTC. As a derivatives clearing organization under the jurisdiction of the CFTC, Cboe Clear Digital is also subject to routine audits and examinations by state regulators. Cboe SEF, LLC is a swap execution facility registered with the CFTC and subject to routine rule enforcement reviews and examinations by the CFTC. Cboe Trading, BIDS Trading and Cboe Fixed Income are subject to reviews and inspections by FINRA. The Company has from time to time received inquiries and

investigative requests from the SEC's Division of Examinations and the CFTC's Division of Market Oversight as well as the SEC Division of Enforcement and CFTC Division of Enforcement seeking information about the Company's compliance with its obligations as a self-regulatory organization under the federal securities laws and Commodity Exchange Act as well as members' compliance with the federal securities laws and Commodity Exchange Act.

In addition, while Cboe Europe, Cboe Chi-X Europe, Cboe Clear Europe, Cboe NL, Cboe Australia, Cboe Japan, MATCHNow, and NEO have not been the subject of any material litigation or regulatory investigation in the past, there is always the possibility of such action in the future. As Cboe Europe and Cboe Chi-X Europe are domiciled in the UK, it is likely that any action would be taken in the UK courts in relation to litigation or by the FCA in relation to any regulatory enforcement action. As Cboe Clear Europe is domiciled in the Netherlands, it is likely that any action would be taken in the Dutch courts in relation to litigation or by the DNB or Dutch Authority for Financial Markets in relation to any regulatory enforcement action. For Cboe NL, also domiciled in the Netherlands, it is likely that any actions would be taken in the Dutch courts in relation to litigation or Dutch Authority for Financial Markets in relation to any regulatory enforcement action. As Cboe Australia is domiciled in Australia, it is likely that any action would be taken in the Australian courts in relation to litigation or by the ASIC, in relation to any regulatory enforcement action. As Cboe Japan is domiciled in Japan, it is likely that any action would be taken in the Japanese courts in relation to litigation or by the JFSA or the JSDA in relation to any regulatory enforcement action. As MATCHNow and NEO are domiciled in Canada, it is likely that any action would be taken in the Canadian courts in relation to litigation or by the IIROC or Canadian SRO in relation to any regulatory enforcement action.

Cboe Digital has committed to securely store all crypto assets it holds on behalf of users. As such, Cboe Digital may be liable to its users for losses arising from theft or loss of user private keys. Cboe Digital has no reason to believe it will incur any expense associated with such potential liability because (i) it has no known or historical experience of claims to use as a basis of measurement, (ii) it accounts for and continually verifies the amount of crypto assets within its control, and (iii) it has established security around custodial private keys to minimize the risk of theft or loss. There were no loss events impacting safeguarded assets caused by the theft or loss of digital asset user private keys as of December 31, 2022. As such, the Company had not recorded a liability at December 31, 2022.

The Company is also currently a party to various other legal proceedings in addition to those already mentioned. Management does not believe that the likely outcome of any of these other reviews, inspections, investigations or other legal proceedings is expected to have a material impact on the Company's financial position, results of operations, liquidity or capital resources.

See also Note 8 ("Credit Losses") for information on promissory notes related to the CAT.

See also Note 21 ("Income Taxes").

Contractual Obligations

The Company has contractual obligations related to licensing agreements with various licensors, some of which included fixed fees and/or variable fees calculated using agreed upon contracted rates and reported cleared volumes. Certain licensing agreements contain annual minimum fee requirements that total between \$15.0 and \$16.0 million each year for the next five years. NEO has purchase obligations primarily related to software development activities of \$1.8 million in total over the next three years.

See Note 14 ("Clearing Operations") for information on the clearinghouse exposure guarantees for Cboe Clear Europe and Cboe Clear Digital.

See Note 24 ("Leases") for information on lease obligations.

24. LEASES

The Company currently leases office space, data centers, remote network operations centers, and equipment under non-cancelable operating leases with third parties as of December 31, 2022. Certain leases include one or more options to renew, with renewal terms that can extend the lease term from one to five years or more, and some of which include the Company's option to terminate the leases within one year. During the year ended December 31, 2022, \$24.4 million of

right of use assets and \$24.4 million of lease liabilities were added related to new operating leases, including the addition of \$1.3 million of right of use assets and lease liabilities related to acquisitions.

Additionally, in October 2021, the Company signed a new lease to secure approximately 29,500 square feet of office space in Amsterdam. The initial term of the lease is 120 months from the accounting commencement date, February 1, 2022. The Company has the option to renew the lease term for an additional 60 months. The total legally binding minimum lease payments for this lease are approximately \$9.2 million.

The following table presents the supplemental balance sheet information related to leases as of December 31, 2022 and 2021 (in millions):

	December 31, 2022	December 31, 2021
Operating lease right of use assets	\$ 111.7	\$ 110.1
Total leased assets	<u>\$ 111.7</u>	<u>\$ 110.1</u>
Accrued liabilities	\$ 18.3	\$ 15.6
Non-current operating lease liabilities	129.3	129.2
Total leased liabilities	<u>\$ 147.6</u>	<u>\$ 144.8</u>

The following table presents operating lease costs and other information as of and for the years ended December 31, 2022 and 2021 (in millions, except as stated):

	Year Ended December 31, 2022	Year Ended December 31, 2021
Operating lease costs (1)	\$ 30.0	\$ 25.6
Lease term and discount rate information:		
Weighted average remaining lease term (years)	10.2	11.1
Weighted average discount rate	3.1 %	3.3 %
Supplemental cash flow information and non-cash activity:		
Cash paid for amounts included in the measurement of lease liabilities	\$ 20.9	\$ 17.2
Right-of-use assets obtained in exchange for lease liabilities	24.4	14.1

(1) Includes short-term lease and variable lease costs, which are immaterial.

The total rent expense related to lease obligations, reflected in technology support services and facilities costs line items on the consolidated statements of income, for the years ended December 31, 2022, 2021, and 2020 were \$30.0 million, \$25.6 million, and \$20.2 million, respectively.

The maturities of the lease liabilities are as follows as of December 31, 2022 (in millions):

	December 31, 2022
2023	\$ 22.4
2024	17.1
2025	16.0
2026	16.7
2027	14.3
After 2027 (1)	90.6
Total lease payments	<u>\$ 177.1</u>
Less: Interest	(29.5)
Present value of lease liabilities	<u>\$ 147.6</u>

(1) Total lease payments include \$20.4 million related to options to extend lease terms that are reasonably certain of being exercised.

25. SUBSEQUENT EVENTS

On February 8 and 9, 2023, the Company's Board of Directors and Compensation Committee, as applicable, approved granting 301,668 RSUs and 64,916 PSUs, with an effective date of February 19, 2023, to certain officers and employees at a fair value, based on the closing price of the Company's stock on the grant date. The shares have a three year vesting period based on achievement of certain service, performance and/or market conditions and vesting accelerates upon the occurrence of a termination of employment following a change in control of the Company or in the event of earlier death, disability or, if applicable, qualified retirement.

On February 9, 2023, the Company's Board of Directors declared a quarterly cash dividend of \$0.50 per share. The dividend is payable on March 15, 2023 to stockholders of record at the close of business on February 28, 2023.

There have been no additional subsequent events that would require disclosure in, or adjustment to, the consolidated financial statements as of and for the year ended December 31, 2022.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Not applicable.

Item 9A. Controls and Procedures

(a) Evaluation of Disclosure Controls and Procedures

The Company's management, with the participation of its Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company's disclosure controls and procedures (as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Securities Exchange Act of 1934 (the "Exchange Act")) as of the end of the period covered by this report. Based upon that evaluation, the Company's Chief Executive Officer and Chief Financial Officer have concluded that, as of the end of such period, the Company's disclosure controls and procedures are effective.

(b) Management's Annual Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting. The Company's internal control system has been designed to provide reasonable assurance to management and the Board of Directors regarding the preparation and fair presentation of published financial statements.

Management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2022. Management based its assessment on criteria for effective internal control over financial reporting described in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Management's assessment included evaluating the design of our internal control over financial reporting and testing the operational effectiveness of our internal control over financial reporting. The results of its assessment were reviewed with the audit committee of the Board of Directors.

Management's assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2022, excluded Cboe Digital Intermediate Holdings, LLC (formerly known as Eris Digital Holdings, LLC) and its subsidiaries ("Cboe Digital"), as well as Aequitas Innovations, Inc. and its subsidiaries ("NEO"), acquired on May 2, 2022 and June 1, 2022, respectively. The acquired businesses had aggregate total assets and total stockholders' equity of \$336.4 million and \$302.2 million, respectively, and total revenues and revenues less costs of revenues of \$22.8 million and \$12.9 million, respectively, which are included in the Company's consolidated financial statements as of and for the year ended December 31, 2022.

As of the date of this Annual Report on Form 10-K, we have integrated the acquired Cboe Asia Pacific operations into our overall internal controls over financial reporting.

No changes occurred in the Company's internal control over financial reporting during fourth quarter 2022 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting. Based on its assessment of the Company's internal control over financial reporting, management believes that, as of December 31, 2022, internal control over financial reporting is effective.

The effectiveness of the Company's internal control over financial reporting as of December 31, 2022 has been audited by KPMG LLP, an independent registered public accounting firm, as stated in their report on page 102.

Item 9B. Other Information

Not applicable.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Information relating to our directors, including our audit committee and audit committee financial experts and the procedures by which stockholders can recommend director nominees, and our executive officers will be in our definitive Proxy Statement for our 2023 Annual Meeting of Stockholders planned to be held on May 11, 2023, which will be filed within 120 days of the end of our fiscal year ended December 31, 2022 ("2023 Proxy Statement") and is incorporated herein by reference. Information relating to our executive officers is included on pages 31 and 32 of this Annual Report on Form 10-K.

Code of Ethics

We have adopted a Code of Business Conduct and Ethics that applies to our Chief Executive Officer, Chief Financial Officer and Chief Accounting Officer, as well as all other employees and directors. Our Code of Business Conduct and Ethics is available on our website at <https://ir.cboe.com/corporate-governance/code-of-business-conduct-and-ethics>. We will also provide a copy of the Code of Business Conduct and Ethics to stockholders at no charge upon written request.

Item 11. Executive Compensation

Information relating to our executive officer and director compensation and the compensation committee of our Board of Directors will be in the 2023 Proxy Statement and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Information relating to security ownership of certain beneficial owners of our common stock and information relating to the security ownership of our management will be in the 2023 Proxy Statement and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

Information regarding certain relationships and related transactions and director independence will be in the 2023 Proxy Statement and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

Information regarding principal accountant fees and services will be in the 2023 Proxy Statement and is incorporated herein by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) Documents filed as part of this report

(1) Financial Statements

Our consolidated financial statements and the related reports of management and our independent registered public accounting firm which are required to be filed as part of this report are included in this Annual Report on Form 10-K beginning at page 99. These consolidated financial statements are as follows:

- Consolidated Balance Sheets as of December 31, 2022 and 2021
- Consolidated Statements of Income for the years ended December 31, 2022, 2021 and 2020
- Consolidated Statements of Comprehensive Income for the years ended December 31, 2022, 2021 and 2020
- Consolidated Statements of Changes in Stockholders' Equity for the years ended December 31, 2022, 2021 and 2020
- Consolidated Statements of Cash Flows for the years ended December 31, 2022, 2021 and 2020
- Notes to Consolidated Financial Statements

(2) Financial Statement Schedules

The Company has not included any financial statement schedules because they are not applicable or the required information is included in the consolidated financial statements or notes thereto.

(3) List of Exhibits

See (b) Exhibits below

(b) Exhibits

Exhibit No.	Description of Exhibit
3.1	Third Amended and Restated Certificate of Incorporation, incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on October 17, 2017.
3.2	Seventh Amended and Restated Bylaws, incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on August 5, 2021.
4.1	Indenture, dated as of January 12, 2017, by and between the Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.) and Wells Fargo Bank National Association, as trustee, incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on January 12, 2017.
4.2	Officer's Certificate, dated as of January 12, 2017, establishing the 3.650% Senior Notes due 2027 of Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.), incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on January 12, 2017.
4.3	Form of 3.650% Senior Notes due 2027 (included in Exhibit 4.2 hereto).
4.4	Officer's Certificate, dated as of December 15, 2020, establishing the 1.625% Senior Notes due 2030 of Cboe Global Markets, Inc., incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on December 15, 2020.
4.5	Form of 1.625% Senior Notes due 2030 (included in Exhibit 4.4 hereto).

- 4.6 Officers' Certificate, dated as of March 16, 2022, establishing the 3.000% Senior Notes due 2032 of Cboe Global Markets, Inc., incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on March 16, 2022.
- 4.7 Form of 3.000% Senior Notes due 2032 (included in Exhibit 4.6 hereto).
- 4.8 Description of Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934, incorporated by reference to Exhibit 4.6 to the Company's Annual Report on Form 10-K for the year ended December 31, 2019 (File No. 001-34774) filed on February 22, 2020.
- 10.1 Term Loan Credit Agreement, dated as of March 22, 2018, by and among Cboe Global Markets, Inc., Bank of America, N.A., as administrative agent, and the lender parties thereto, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on March 23, 2018.
- 10.2 Amendment No. 1 to Term Loan Credit Agreement, dated as of May 29, 2020, by and among Cboe Global Markets, Inc. and, Bank of America, N.A., as administrative agent, and the lender parties thereto, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on June 3, 2020.
- 10.3 Amendment No. 2 to Term Loan Credit Agreement, dated as of June 25, 2021, by and between Cboe Global Markets, Inc., Bank of America, N.A., as administrative agent and initial lender, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on July 1, 2021.
- 10.4 Amendment No. 3 to Term Loan Credit Agreement, dated as of March 29, 2022, by and among between Cboe Global Markets, Inc. and, Bank of America, N.A., as administrative agent and initial lender, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on April 1, 2022.
- 10.5 Amended and Restated Credit Agreement, dated as of December 21, 2020, by and among Cboe Global Markets, Inc., with Bank of America, N.A., as administrative agent and as swing line lender, certain lenders named therein, BofA Securities, Inc., as sole lead arranger and sole bookrunner and certain syndication agents named therein, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on December 22, 2020.
- 10.6 Second Amended and Restated Credit Agreement, dated as of February 25, 2022, by and among Cboe Global Markets, Inc., with Bank of America, N.A., as administrative agent and as swing line lender, certain lenders named therein, BofA Securities, Inc., as sole lead arranger and sole bookrunner and certain syndication agents named therein, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on February 28, 2022.
- 10.7 Facility Agreement, dated July 1, 2020, by and among European Central Counterparty N.V. as borrower, Cboe Global Markets, Inc. as guarantor, Bank of America Merrill Lynch International Designated Activity Company, as co-ordinator, facility agent, lender, sole lead arranger and sole bookrunner, Citibank N.A., as security agent, and certain lenders named therein (the "Facility Agreement"), incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on July 1, 2020.
- 10.8 Amendment and Restatement Agreement, dated July 1, 2021, by and among European Central Counterparty N.V., Cboe Global Markets, Inc., as guarantor, Bank of America Europe Designated Activity Company, as co-ordinator and facility agent and Citibank N.A., London Branch as security agent relating to the Facility Agreement (as amended and restated), incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on July 2, 2021.
- 10.9 Amendment and Restatement Agreement, dated June 30, 2022, by and among European Central Counterparty N.V., as borrower, Cboe Global Markets, Inc., as guarantor, Bank of America Europe Designated Activity Company, as co-ordinator and facility agent and Citibank N.A., London Branch as security agent relating to the Facility Agreement (as amended and restated), incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on July 5, 2022.
- 10.10 Restated License Agreement, dated November 1, 1994, by and between Standard & Poor's Financial Services LLC (as successor-in-interest to Standard & Poor's, a division of McGraw-Hill, Inc.) and Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) (the "S&P License Agreement"), incorporated by reference to Exhibit 10.1 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+

- 10.11 Amendment No. 1 to the S&P License Agreement, dated January 15, 1995, incorporated by reference to Exhibit 10.2 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
- 10.12 Amendment No. 2 to the S&P License Agreement, dated April 1, 1998, incorporated by reference to Exhibit 10.3 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
- 10.13 Amendment No. 3 to the S&P License Agreement, dated July 28, 2000, incorporated by reference to Exhibit 10.4 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
- 10.14 Amendment No. 4 to the S&P License Agreement, dated October 27, 2000, incorporated by reference to Exhibit 10.5 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
- 10.15 Amendment No. 5 to the S&P License Agreement, dated March 1, 2003, incorporated by reference to Exhibit 10.6 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
- 10.16 Amended and Restated Amendment No. 6 to the S&P License Agreement, dated February 24, 2009, incorporated by reference to Exhibit 10.7 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
- 10.17 Amended and Restated Amendment No. 7 to the S&P License Agreement, dated February 24, 2009, incorporated by reference to Exhibit 10.8 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
- 10.18 Amendment No. 8 to the S&P License Agreement, dated January 9, 2005, incorporated by reference to Exhibit 10.9 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
- 10.19 Amendment No. 10 to the S&P License Agreement, dated June 19, 2009, incorporated by reference to Exhibit 10.10 to Amendment No. 6 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on April 12, 2010.+
- 10.20 Amendment No. 11 to the S&P License Agreement, dated as of April 29, 2010, incorporated by reference to Exhibit 10 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on May 11, 2010.
- 10.21 Amendment No. 12 to the S&P License Agreement, dated March 9, 2013, incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-34774) filed on May 7, 2013. +
- 10.22 Amendment No. 13 to the S&P License Agreement, dated as of December 21, 2017, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on December 22, 2017.+
- 10.23 Amendment No. 14 to the S&P License Agreement, dated December 20, 2018, incorporated by reference to Exhibit 10.17 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 (File No. 001-34774) filed on February 22, 2019.
- 10.24 Amendment No. 15 to the S&P License Agreement, dated January 25, 2019, incorporated by reference to Exhibit 10.18 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 (File No. 001-34774) filed on February 22, 2019.
- 10.25 Amendment No. 16 to the S&P License Agreement, made as of April 1, 2020, incorporated by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q (File No. 001-34774) filed on July 31, 2020.
- 10.26 Amendment No. 17 to the S&P License Agreement, made as of August 1, 2020, incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-34774) filed on October 30, 2020. +
- 10.27 Amendment No. 18 to the S&P License Agreement, made as of October 26, 2021, incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-34774) filed on October 29, 2021.+

- 10.28 Amendment No. 19 to the S&P License Agreement, effective as of February 23, 2022, incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-34774) filed on April 29, 2022.
- 10.29 Amendment No. 20 to the S&P License Agreement, effective as of April 25, 2022, incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q (File No. 001-34774) filed on July 29, 2022.+
- 10.30 Amendment No. 21 to the S&P License Agreement, effective as of October 20, 2022, incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-34774) filed on November 4, 2022.
- 10.31 Amendment No. 22 to the S&P License Agreement, effective as of September 1, 2022, incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q (File No. 001-34774) filed on November 4, 2022.+
- 10.32 Form of Amended and Restated Director Indemnification Agreement, incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2017 (File No. 001-34774) filed on August 4, 2017.
- 10.33 Employment Agreement, by and between Cboe Global Markets, Inc. and Edward Tilly, dated February 11, 2020, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on February 14, 2020.*
- 10.34 Employment Agreement, by and between Cboe Global Markets, Inc. and Edward Tilly, dated February 9, 2023, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on February 14, 2023.*
- 10.35 Offer Letter Agreement for David Howson, dated December 19, 2019, incorporated by reference to Exhibit 10.28 to the Company's Annual Report on Form 10-K for the year ended December 31, 2019 (File No. 001-34774) filed on February 22, 2020.*
- 10.36 Form of UK Executive Employment Agreement between Bats Global Markets, Inc. and certain executive officers, incorporated by reference to Exhibit 10.16 to Amendment No. 3 to Bats Global Markets, Inc.'s Registration Statement on Form S-1 (File No. 333-208565) filed on April 4, 2016.*
- 10.37 Relocation Benefits for David Howson, incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q (File No. 001-34774) filed on July 29, 2022.*
- 10.38 Cancellation Amendment of Employment Agreement and Participation in Executive Severance Plan, signed November 16, 2022, by and between Cboe Global Markets, Inc. and David Howson, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on November 17, 2022.*
- 10.39 Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Executive Retirement Plan, incorporated by reference to Exhibit 10.13 to Amendment No. 4 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on August 14, 2009.*
- 10.40 Amendments to the Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Executive Retirement Plan, incorporated by reference to Exhibit 10.13 to the Company's Annual Report on Form 10-K for the year ended December 31, 2016 (File No. 001-34774) filed on February 22, 2017.*
- 10.41 Amendments to the Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Executive Retirement Plan (filed herewith).*
- 10.42 Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Supplemental Retirement Plan, incorporated by reference to Exhibit 10.14 to Amendment No. 4 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on August 14, 2009.*
- 10.43 Amendment No. 1 to the Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Supplemental Retirement Plan, incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2010 (File No. 001-34774) filed on November 12, 2010.*
- 10.44 Amendments to the Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Supplemental Retirement Plan, incorporated by reference to Exhibit 10.18 to the Company's Annual Report on Form 10-K for the year ended December 31, 2016 (File No. 001-34774) filed on February 22, 2017.*

- 10.45 Amendments to the Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Supplemental Retirement Plan (filed herewith).*
- 10.46 Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Deferred Compensation Plan for Officers, incorporated by reference to Exhibit 10.15 to Amendment No. 4 to the Company's Registration Statement on Form S-4 (File No. 333-140574) filed on August 14, 2009.*
- 10.47 Amendments to the Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Deferred Compensation Plan for Officers, incorporated by reference to Exhibit 10.16 to the Company's Annual Report on Form 10-K for the year ended December 31, 2016 (File No. 001-34774) filed on February 22, 2017.*
- 10.48 Amendments to the Cboe Exchange, Inc. (f/k/a Chicago Board Options Exchange, Incorporated) Deferred Compensation Plan for Officers (filed herewith).*
- 10.49 Cboe Global Markets, Inc. Executive Severance Plan, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on August 2, 2018.*
- 10.50 Cboe Global Markets, Inc. Amended and Restated Executive Severance Plan, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on February 12, 2021.*
- 10.51 Cboe Global Markets, Inc. Employee Stock Purchase Plan, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on May 18, 2018.*
- 10.52 Second Amended and Restated Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.) Long-Term Incentive Plan, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on May 24, 2016.*
- 10.53 Cboe Global Markets, Inc. Director Equity Deferral Plan (filed herewith).*
- 10.54 Form of Restricted Stock Award Agreement (for Non-employee Directors), incorporated by reference to Exhibit 10.17 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 (File No. 001-34774) filed on May 11, 2017.*
- 10.55 Form of Restricted Stock Award Agreement (for Non-employee CDN Directors), incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on August 2, 2019.*
- 10.56 Form of Restricted Stock Unit Award Agreement (for Non-employee US and CDN Directors) (filed herewith).*
- 10.57 Form of Restricted Stock Unit Award Agreement (for Non-employee CDN Directors) (filed herewith).*
- 10.58 Form of 2019 Restricted Stock Unit Award Agreement (for Executive Officers), incorporated by reference to Exhibit 10.64 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 (File No. 001-34774) filed on February 22, 2019.*
- 10.59 Form of 2019 Restricted Stock Unit Award Agreement (relative total shareholder return), incorporated by reference to Exhibit 10.65 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 (File No. 001-34774) filed on February 22, 2019. *
- 10.60 Form of 2019 Restricted Stock Unit Award Agreement (earnings per share), incorporated by reference to Exhibit 10.66 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 (File No. 001-34774) filed on February 22, 2019.*
- 10.61 Form of 2019 Restricted Stock Unit Award Agreement (3 Year Cliff Vest), incorporated by reference to Exhibit 10.67 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 (File No. 001-34774) filed on February 22, 2019.*
- 10.62 Form of 2020 Edward Tilly Restricted Stock Unit Award Agreement (relative total shareholder return), incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on February 14, 2020.*
- 10.63 Form of 2020 Edward Tilly Restricted Stock Unit Award Agreement (earnings per share), incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on February 14, 2020.*
- 10.64 Form of 2020 Restricted Stock Unit Award Agreement (for Executive Officers), incorporated by reference to Exhibit 10.66 to the Company's Annual Report on Form 10-K for the year ended December 31, 2019 (File No. 001-34774) filed on February 22, 2020.*

- 10.65 Form of 2020 Restricted Stock Unit Award Agreement (relative total shareholder return), incorporated by reference to Exhibit 10.67 to the Company's Annual Report on Form 10-K for the year ended December 31, 2019 (File No. 001-34774) filed on February 22, 2020.*
- 10.66 Form of 2020 Restricted Stock Unit Award Agreement (earnings per share), incorporated by reference to Exhibit 10.68 to the Company's Annual Report on Form 10-K for the year ended December 31, 2019 (File No. 001-34774) filed on February 22, 2020.*
- 10.67 Form of 2020 Restricted Stock Unit Award Agreement (3 Year Cliff Vest), incorporated by reference to Exhibit 10.69 to the Company's Annual Report on Form 10-K for the year ended December 31, 2019 (File No. 001-34774) filed on February 22, 2020.*
- 10.68 Form of 2021 Edward Tilly Restricted Stock Unit Award Agreement (relative total shareholder return), incorporated by reference to Exhibit 10.67 to the Company's Annual Report on Form 10-K for the year ended December 31, 2020 (File No. 001-34774) filed on February 19, 2021.*
- 10.69 Form of 2021 Edward Tilly Restricted Stock Unit Award Agreement (earnings per share), incorporated by reference to Exhibit 10.68 to the Company's Annual Report on Form 10-K for the year ended December 31, 2020 (File No. 001-34774) filed on February 19, 2021.*
- 10.70 Form of 2021 Restricted Stock Unit Award Agreement (for Executive Officers), incorporated by reference to Exhibit 10.69 to the Company's Annual Report on Form 10-K for the year ended December 31, 2020 (File No. 001-34774) filed on February 19, 2021.*
- 10.71 Form of 2021 Restricted Stock Unit Award Agreement (relative total shareholder return), incorporated by reference to Exhibit 10.70 to the Company's Annual Report on Form 10-K for the year ended December 31, 2020 (File No. 001-34774) filed on February 19, 2021.*
- 10.72 Form of 2021 Restricted Stock Unit Award Agreement (earnings per share), incorporated by reference to Exhibit 10.71 to the Company's Annual Report on Form 10-K for the year ended December 31, 2020 (File No. 001-34774) filed on February 19, 2021.*
- 10.73 Form of 2022 Edward Tilly Restricted Stock Unit Award Agreement (relative total shareholder return), incorporated by reference to Exhibit 10.61 to the Company's Annual Report on Form 10-K for the year ended December 31, 2021 (File No. 001-34774) filed on February 18, 2022.*
- 10.74 Form of 2022 Edward Tilly Restricted Stock Unit Award Agreement (earnings per share), incorporated by reference to Exhibit 10.62 to the Company's Annual Report on Form 10-K for the year ended December 31, 2021 (File No. 001-34774) filed on February 18, 2022.*
- 10.75 Form of 2022 Restricted Stock Unit Award Agreement (for Executive Officers), incorporated by reference to Exhibit 10.63 to the Company's Annual Report on Form 10-K for the year ended December 31, 2021 (File No. 001-34774) filed on February 18, 2022.*
- 10.76 Form of 2022 Restricted Stock Unit Award Agreement (relative total shareholder return), incorporated by reference to Exhibit 10.64 to the Company's Annual Report on Form 10-K for the year ended December 31, 2021 (File No. 001-34774) filed on February 18, 2022.*
- 10.77 Form of 2022 Restricted Stock Unit Award Agreement (earnings per share), incorporated by reference to Exhibit 10.65 to the Company's Annual Report on Form 10-K for the year ended December 31, 2021 (File No. 001-34774) filed on February 18, 2022.*
- 10.78 Form of 2022 Restricted Stock Unit Award Agreement without Retirement Vesting (relative total shareholder return), incorporated by reference to Exhibit 10.66 to the Company's Annual Report on Form 10-K for the year ended December 31, 2021 (File No. 001-34774) filed on February 18, 2022.*
- 10.79 Form of 2022 Restricted Stock Unit Award Agreement without Retirement Vesting (earnings per share), incorporated by reference to Exhibit 10.67 to the Company's Annual Report on Form 10-K for the year ended December 31, 2021 (File No. 001-34774) filed on February 18, 2022.*
- 10.80 Form of 2022 Restricted Stock Unit Award Agreement for David Howson, incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on March 10, 2022.*
- 10.81 Form of 2023 Edward Tilly Restricted Stock Unit Award Agreement (relative total shareholder return), incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on February 14, 2023.*

- 10.82 Form of 2023 Edward Tilly Restricted Stock Unit Award Agreement (earnings per share), incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K (File No. 001-34774) filed on February 14, 2023.*
- 10.83 Form of 2023 Restricted Stock Unit Award Agreement (for Executive Officers) (filed herewith).*
- 10.84 Form of 2023 Restricted Stock Unit Award Agreement (relative total shareholder return) (filed herewith).*
- 10.85 Form of 2023 Restricted Stock Unit Award Agreement (earnings per share) (filed herewith).*
- 10.86 Form of 2023 Restricted Stock Unit Award Agreement without Retirement Vesting (relative total shareholder return) (filed herewith).*
- 10.87 Form of 2023 Restricted Stock Unit Award Agreement without Retirement Vesting (earnings per share) (filed herewith).*
- 21.1 Subsidiaries of Cboe Global Markets, Inc. (filed herewith).
- 23.1 Consent of Independent Registered Public Accounting Firm (filed herewith).
- 24.1 Powers of Attorney (incorporated by reference to the signature page of this Annual Report on Form 10-K).
- 31.1 Certification of Chief Executive Officer pursuant to Rule 13a-14 (filed herewith).
- 31.2 Certification of Chief Financial Officer pursuant to Rule 13a-14 (filed herewith).
- 32.1 Certificate of Chief Executive Officer pursuant to Rule 13a-14(b) and Section 1350 of Chapter 63 of Title 18 of the United States Code (filed herewith).
- 32.2 Certificate of Chief Financial Officer pursuant to Rule 13a-14(b) and Section 1350 of Chapter 63 of Title 18 of the United States Code (filed herewith).
- 101.INS iXBRL Instance Document (filed herewith).
- 101.SCH iXBRL Taxonomy Extension Schema Document (filed herewith).
- 101.CAL iXBRL Taxonomy Extension Calculation Linkbase Document (filed herewith).
- 101.DEF iXBRL Taxonomy Extension Definition Linkbase (filed herewith).
- 101.LAB iXBRL Taxonomy Extension Label Linkbase Document (filed herewith).
- 101.PRE iXBRL Taxonomy Extension Presentation Linkbase Document (filed herewith).
- 104 Cover Page Interactive Data File (embedded as Inline XBRL document).

*Indicates Management Compensatory Plan, Contract or Arrangement.

+Certain confidential portions (as indicated therein) of this exhibit have been omitted.

Item 16. Form 10-K Summary

None.

SIGNATURES

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

Cboe Global Markets, Inc.
(Registrant)

Date: February 17, 2023

By: /s/ Brian N. Schell
Name: **Brian N. Schell**
Title: **Executive Vice President and Chief Financial Officer (Principal Financial Officer)**

POWERS OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Edward T. Tilly, as attorney-in-fact and agent, with full power of substitution and re-substitution, to sign on his or her behalf, individually and in any and all capacities, including the capacities stated below, any and all amendments to this Annual Report on Form 10-K for the year ended December 31, 2022 and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting to said attorney-in-fact and agent, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities on the dates indicated.

<u>SIGNATURE</u>	<u>TITLE</u>	<u>DATE</u>
<u>/s/ EDWARD T. TILLY</u> Edward T. Tilly	Chairman, and Chief Executive Officer (Principal Executive Officer)	February 17, 2023
<u>/s/ BRIAN N. SCHELL</u> Brian N. Schell	Executive Vice President, Chief Financial Officer and Treasurer (Principal Financial Officer)	February 17, 2023
<u>/s/ JILL M. GRIEBENOW</u> Jill M. Griebenow	Senior Vice President and Chief Accounting Officer (Principal Accounting Officer)	February 17, 2023
<u>/s/ WILLIAM M. FARROW III</u> William M. Farrow III	Director	February 17, 2023
<u>/s/ EDWARD J. FITZPATRICK</u> Edward J. Fitzpatrick	Director	February 17, 2023
<u>/s/ IVAN K. FONG</u> Ivan K. Fong	Director	February 17, 2023
<u>/s/ JANET P. FROETSCHER</u> Janet P. Froetscher	Director	February 17, 2023
<u>/s/ JILL R. GOODMAN</u> Jill R. Goodman	Director	February 17, 2023

<u>SIGNATURE</u>	<u>TITLE</u>	<u>DATE</u>
<u>/s/ ALEXANDER J. MATTURRI</u> Alexander J. Maturri	Director	February 17, 2023
<u>/s/ JENNIFER J. McPEEK</u> Jennifer J. McPeek	Director	February 17, 2023
<u>/s/ RODERICK A. PALMORE</u> Roderick A. Palmore	Director	February 17, 2023
<u>/s/ JAMES E. PARISI</u> James E. Parisi	Director	February 17, 2023
<u>/s/ JOSEPH P. RATTERMAN</u> Joseph P. Ratterman	Director	February 17, 2023
<u>/s/ EUGENE S. SUNSHINE</u> Eugene S. Sunshine	Director	February 17, 2023
<u>/s/ FREDRIC J. TOMCZYK</u> Fredric J. Tomczyk	Director	February 17, 2023

Investor Information

Stock Listing

Cboe Global Markets, Inc.'s common stock is listed on the Cboe BZX Exchange, Inc. under the ticker symbol "CBOE." On December 31, 2022, there were 105,951,199 shares of common stock outstanding.

Annual Meeting

The 2023 Annual Meeting of Stockholders will be held on Thursday, May 11, 2023, at 8:00 a.m. Central Time, via a live webcast at www.virtualshareholdermeeting.com/CBOE2023.

Holders of common stock of record at the close of business on March 16, 2023 are entitled to vote at the Annual Meeting. A notice of meeting, proxy statement and proxy card or voting instructions were provided to stockholders of record with this Form 10-K.

Transfer Agent

Registered stockholders can access their account online. Log on to www.shareholder.broadridge.com/cboe to view share balance, change address, complete certain transactions and get answers to other stock related inquiries. You can also write or call the Cboe transfer agent at:

Broadridge Corporate Issuer Solutions

P.O. Box 1342
Brentwood, NY 11717
Phone: 1-877-830-4936
Fax: 215-553-5402
E-mail: shareholder@broadridge.com

Investor Relations

Direct inquiries to:
Investor Relations
Cboe Global Markets, Inc.
433 W. Van Buren Street
Chicago, IL 60607
Phone: 312-786-7559
E-mail: investorrelations@cboe.com

Investor information is available on the Investor Relations section of the Cboe website, <http://ir.cboe.com>, including SEC filings, quarterly earnings releases, webcasts and presentations, press releases, information on corporate governance and a variety of stockholder resources, including historical stock information, dividend payments, an investor FAQ and a list of analysts who cover the company.

Corporate Social Responsibility Report

This report provides insight into Cboe's approach to ESG with the goal of demonstrating how ESG practices are integrated within our strategy, business processes and culture. You can read the report online at <https://www.cboe.com/about/corporate-social-responsibility/>.

Corporate Information

Cboe Global Markets (Cboe: CBOE), a leading provider of market infrastructure and tradable products, delivers cutting-edge trading, clearing and investment solutions to market participants around the world. The company is committed to operating a trusted, inclusive global marketplace, providing leading products, technology and data solutions that enable participants to define a sustainable financial future. Cboe provides trading solutions and products in multiple asset classes, including equities, derivatives, FX and digital assets, across North America, Europe and Asia Pacific. To learn more, visit www.cboe.com.

Independent Auditors for the 2022 Fiscal Year

KPMG LLP
Kansas City, MO

The Cboe logo features the word "Cboe" in a white, sans-serif font. The letter "C" is significantly larger than the other letters and contains a small green diamond-shaped icon with a white cross inside it. A registered trademark symbol (®) is positioned to the upper right of the "e".

Cboe®

**THE
EXCHANGE
FOR THE
WORLD
STAGE.™**