

 MarketAxess[®]

2023

Proxy Statement
and Notice of
Annual Meeting
of Stockholders





Dear Fellow Stockholders and Clients,

MarketAxess made substantial progress in executing our long-term growth strategy in 2022. We reported a record \$718 million in revenue in 2022, the 14th consecutive year of record annual revenue. We delivered record levels of estimated market share across most of our product areas and enhanced our competitive position in the institutional client e-trading space, both in the U.S. and on the international front. The market is increasingly turning to our unique Open Trading® solution for liquidity and significant price improvement. Our operating margin remains strong at 46% and our balance sheet reflects attractive operating cash flow and is free of debt.

Our global footprint continues to broaden and deepen as we diversify our product offering and achieve record growth in active clients, with over 2,000 active client firms and a record of nearly 12,000 active traders. We have seen especially strong growth in our international business with over 1,000 active client firms and 6,000 active traders. Finally, the improved macro backdrop for fixed-income markets is creating an attractive operating environment for MarketAxess in 2023 and beyond, with the end of quantitative easing and more normal levels of interest rates and volatility. We are already seeing signs that investors are increasing allocations to fixed-income in their portfolios due to the higher rate environment.

During the year, the Federal Reserve raised the Fed Funds rate a total of 425 basis points, making it the fastest rate hike cycle since 1980-1981. This shock to the fixed-income markets, especially with the initial moves in the first half of the year, drove an unprecedented 14% decline in investment-grade bond indices for the year. The rapid pace of interest rate hikes negatively impacted our U.S. high-grade average variable fee per million and dampened our top-line growth.

While interest rates moved higher and spreads widened, Open Trading reinforced its position as the preferred all-to-all marketplace in global fixed-income markets in 2022. As traditional sources of liquidity have become scarcer, the importance of our all-to-all solution has increased. Total credit Open Trading penetration¹ was a record 36% and was a key driver of our valuable price improvement for our clients, helping them meet best execution requirements. For the full-year 2022, 1,700 client firms were active in Open Trading, and we delivered estimated price improvement in excess of our total annual revenue.

Open Trading was also a critical driver of our strong estimated market share gains in 2022, as spreads widened, and dealer liquidity was less prevalent in the market. We achieved record estimated market share of 19.9% (+180 basis points) of composite corporate bond², 17.9% (+270 basis points) of U.S. high-yield, 29.0% (+220%) of FINRA TRACE-reportable emerging markets, 15.4% (+330 basis points) of Eurobonds and 4.5% (+240 basis points) of municipal bonds. We generated estimated market share of

¹ Total credit Open Trading penetration is derived by taking total Open Trading volume across all credit products where Open Trading is offered and dividing by total credit trading volume across all credit products where Open Trading is offered.

² Composite corporate bond estimated market share is defined as combined estimated market share across U.S. high-grade (derived from FINRA TRACE reported data), U.S. high-yield (derived from FINRA TRACE reported data), emerging markets (derived from FINRA TRACE-reportable emerging markets volume, principally U.S. dollar denominated corporates) and Eurobonds (derived from MarketAxess TraX data which is currently estimated to represent approximately 70% of the total European market) product areas.

3.5% (+90 basis points) in U.S. Treasury bonds as we build-out our unique all-to-all solution in this benchmark product area. These strong results reflect the power of our deep liquidity and our competitive differentiation.

The breadth of our estimated market share gains reflects the progress we have made to establish new areas of growth to diversify our franchise across products, protocols and geographies over the last several years. In terms of product diversification, we reported record trading volume of \$5.3 trillion in U.S. Treasuries, as we add our existing institutional investor client base to the all-to-all liquidity pool. Our municipal bond platform generated a record \$94 billion in trading volume and estimated market share of 4.5%, reflecting organic growth and the benefit of the MuniBrokers acquisition. In 2022, our Portfolio Trading protocol made significant strides in taking estimated market share from other participants in the space. We registered a total of \$92 billion in Portfolio Trading volume during the year, up from \$29 billion in the prior year and we exited 2022 with estimated e-trading share in Portfolio Trading of approximately 31% in the fourth quarter of 2022. In terms of geographic diversification, revenue from international clients grew to 20% of total revenues in 2022, up from 16% in 2018, with our institutional investor and broker-dealer clients now based in over 80 countries. In 2022, our emerging markets debt and Eurobonds businesses turned in strong trading volume and market share gains. Emerging markets and Eurobonds trading volumes increased 7% and 8%, respectively, compared to the prior year which includes the impact of a strengthening U.S. dollar. The five-year compound annual growth rate of international client revenue is 10%.

Our leading presence at the heart of the global credit markets generates a rich, valuable source of data that is powering the automation of fixed-income trading. We believe that our automated trading protocols increase trading efficiency and allow traders to focus on higher-value trades. In 2022, there were 23.7 million dealer algorithmic responses on our platforms, up 29.2% from 2021. Similarly, investor usage of Auto-X grew 58% in trade count and 39% in trade volume at the end of 2022 and now represents approximately 20% of total credit trade count. In the first quarter of 2023, we launched a pilot of our new Adaptive Auto-X solution, which provides algorithmic workflows for clients to systematically access broader liquidity across multiple trading protocols. We expect this new solution to unlock additional cost savings for clients, while simplifying client workflow and will position MarketAxess to gain additional market share in all trade sizes. We look forward to introducing this solution to a broader set of our clients this year.

We are also creating innovative and actionable data solutions in the fixed-income market by leveraging our data, content and intellectual property to create new products and establish new revenue streams. CP+, our algorithmic pricing engine, is a critical engine that powers our trading protocols and automated trading solutions and drives new sources of data revenue. The launch of the MKTX U.S. Investment Grade 400 Bond Index (MKTX 400) and the strategic collaboration with MSCI that led to the MSCI MarketAxess HY Tradable Corporate Bond Index are examples of our evolving strategy around data and exchange traded funds (“ETFs”). The key differentiators between the MKTX 400 and the HY Tradable Corporate Bond Index and other fixed-income indices is the high liquidity and tradability of the constituent bonds in each index.

Based on recent BlackRock projections, global bond ETF assets are expected to triple and reach \$5 trillion by 2030. This growth in passive investing is one of the drivers of our decision last year to make a substantial minority investment in RFQ-hub, a platform focused on electronically delivering aggregated and competitive liquidity in equity and fixed-income listed and over-the-counter derivatives, structured products and ETFs. A group of liquidity providers that include Virtu Financial, Citadel securities, Flow

Traders and Jane Street Capital, as well as asset manager BlackRock, are also consortium members. We are excited to add their product capabilities to our global client network.


Last year, we continued to make significant advances in our ESG strategy, which includes initiatives that MarketAxess believes are critical to our long-term business success and an important expression of our company's values. In 2022, under the oversight of our Board of Directors, we increased our investment in our people, increased our support of the communities in which we operate, used our technology to promote diversity and support the transition to a greener economy and continued our commitment to strong governance practices. We also introduced reporting against the Task Force on Climate-Related Disclosure framework in order to give our stakeholders better information on our climate change practices and policies. Please download our 2022 ESG Report in the [Investor Relations – ESG section](#) of our website to learn more about these initiatives.

As we move into 2023, our foundation for growth has never been stronger, with an expanding client base, an increasingly diversified product base and a wide range of trading protocols to capture the long-term e-trading opportunity in the global fixed-income markets. And it is precisely because of our strong positioning that now is the right time for Chris Concannon, a proven leader deeply experienced in electronic markets, to assume the CEO role. I would like to congratulate Chris on a well-deserved promotion. I am excited to take on the new role of Executive Chairman where I will continue to work with Chris and our Board of Directors on long-term strategy, key client relationships, regulatory affairs, and investor communications.

After founding MarketAxess over two decades ago, I would like to thank all our shareholders for their partnership and our Board of Directors for their guidance and perspectives that have helped drive the growth of our Company. Most importantly, I would like to thank all our employees for their resolute focus on delivering results for our clients and our shareholders.

I am looking forward to continuing to leverage my 40 years of experience in the fixed-income markets to support Chris in driving long term-value creation for our stockholders as Executive Chairman.

Sincerely,

A handwritten signature in dark ink, reading "Richard M. McVey". The signature is fluid and cursive, with the first name "Richard" and last name "McVey" clearly legible.

Richard M. McVey
Founder and Executive Chairman
April 26, 2023



MarketAxess Holdings Inc.
55 Hudson Yards, 15th Floor
New York, New York 10001

April 26, 2023

TO THE STOCKHOLDERS OF MARKETAXESS HOLDINGS INC.:

You are invited to attend the 2023 Annual Meeting of Stockholders (the "Annual Meeting") of MarketAxess Holdings Inc. (the "Company") scheduled for Wednesday, June 7, 2023 at 9:00 a.m., Eastern Daylight Time. The Annual Meeting will be a virtual meeting of stockholders. You will be able to participate in the Annual Meeting, vote and submit your questions via live webcast by visiting www.virtualshareholdermeeting.com/MKTX2023. The Company's Board of Directors and management look forward to your participation.

Details of the business to be conducted at the Annual Meeting are provided in the attached Notice of Annual Meeting and Proxy Statement, which you are urged to read carefully.

We are pleased to take advantage of the U.S. Securities and Exchange Commission ("SEC") rules that allow issuers to furnish proxy materials to their stockholders on the Internet. We believe these rules allow us to provide our stockholders with the information they need, while lowering the costs of delivery and reducing the environmental impact of our Annual Meeting. On April 26, 2023, we expect to mail to our stockholders a Notice of Internet Availability of Proxy Materials ("Notice") containing instructions on how to access our Proxy Statement and Annual Report on Form 10-K for the year ended December 31, 2022 online and how to vote. The Notice contains instructions on how you can receive a paper copy of the Proxy Statement, proxy card and Annual Report if you only received a Notice by mail.

Your vote is important to us. Whether or not you plan to attend the Annual Meeting, your shares should be represented and voted. After reading the Proxy Statement, please cast your vote via the Internet or telephone or complete, sign, date and return the proxy card in the pre-addressed envelope that we have included for your convenience if you received paper copies. If you hold your shares in a stock brokerage account, please check your proxy card or contact your broker or nominee to determine whether you will be able to vote via the Internet or by telephone or how to instruct your broker to vote on your behalf.

On behalf of the Board of Directors, thank you for your continued support.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Richard M. McVey', written in a cursive style.

Richard M. McVey
Executive Chairman of the Board of Directors

NOTICE OF 2023 ANNUAL MEETING OF STOCKHOLDERS

Attend the Annual Meeting at:

www.virtualshareholdermeeting.com/MKTX2023

Your vote is very important, regardless of the number of shares you own. Please read the attached Proxy Statement carefully and complete and submit your proxy card via the Internet or sign and date your paper proxy card as promptly as possible and return it in the envelope that was enclosed if you received paper copies. Alternatively, you may be able to submit your proxy by touch-tone phone as indicated on the Notice or proxy card.

TO THE STOCKHOLDERS OF MARKETAXESS HOLDINGS INC.:

NOTICE IS HEREBY GIVEN that the 2023 Annual Meeting of Stockholders (the "Annual Meeting") of MarketAxess Holdings Inc., a Delaware corporation (the "Company"), will be held via live webcast on Wednesday, June 7, 2023, at 9:00 a.m., Eastern Daylight Time. You can participate in the Annual Meeting, vote and submit your questions during the Annual Meeting by visiting www.virtualshareholdermeeting.com/MKTX2023. You must have your 16-digit control number included on your Notice of Internet Availability of Proxy Materials or your proxy card (if you received a printed copy of the proxy materials) to join the Annual Meeting.

At the Annual Meeting we will:

1. vote to elect the 11 nominees named in the attached Proxy Statement as members of the Company's Board of Directors for terms expiring at the 2024 Annual Meeting of Stockholders;
2. vote to ratify the appointment of PricewaterhouseCoopers LLP as the Company's independent registered public accounting firm for the year ending December 31, 2023;
3. hold an advisory vote to approve the compensation of the Company's named executive officers as disclosed in the attached Proxy Statement;
4. hold an advisory vote on the frequency of future advisory votes on the compensation of the Company's named executive officers; and
5. transact such other business as may properly come before the Annual Meeting or any adjournment or postponement thereof.

These items are more fully described in the Company's Proxy Statement accompanying this notice.

The record date for the determination of the stockholders entitled to notice of, and to vote at, the Annual Meeting, or any adjournment or postponement thereof, was the close of business on April 10, 2023. You have the right to receive this Notice and vote at the Annual Meeting if you were a stockholder of record at the close of business on April 10, 2023. Please remember that your shares cannot be voted unless you cast your vote by one of the following methods: (1) vote via the Internet or call the toll-free number as indicated on the Notice or proxy card; (2) sign and return a paper proxy card; or (3) vote during the Annual Meeting at www.virtualshareholdermeeting.com/MKTX2023.

By Order of the Board of Directors,



Scott Pintoff
General Counsel and Corporate Secretary
New York, New York
April 26, 2023



BY INTERNET

Visit 24/7
www.proxyvote.com



BY PHONE

Call 1-800-690-6903
in the U.S. or Canada to vote your shares



BY MAIL

If you received printed copies of the proxy materials, cast your ballot, sign your proxy card and return



PARTICIPATE IN THE ANNUAL MEETING

Vote during the Annual Meeting at www.virtualshareholdermeeting.com/MKTX2023 using your 16-digit control number

TABLE OF CONTENTS

PROXY SUMMARY	1	A LETTER FROM OUR COMPENSATION AND TALENT COMMITTEE	32
PROPOSAL 1 — ELECTION OF DIRECTORS	2	COMPENSATION DISCUSSION AND ANALYSIS	33
Your vote	2	Responding to stockholders; evolving pay practices	33
Qualifications for director nominees	3	Executive summary	34
Board of Directors skills and expertise	3	Executive compensation practices and governance	39
Director diversity	4	How we determine pay levels	42
Director Information	5	2022 compensation detail	43
CORPORATE GOVERNANCE AND BOARD MATTERS	11	Additional compensation information	55
Director independence	11	REPORT OF THE COMPENSATION AND TALENT COMMITTEE OF THE BOARD OF DIRECTORS	58
Board refreshment	11	EXECUTIVE COMPENSATION	59
Board diversity policy	11	Summary compensation table	59
How nominees to our Board are selected	12	Grants of plan-based awards	60
Board leadership structure	12	Outstanding equity awards at fiscal year-end	62
Board committees	13	Option exercises and stock vested	64
Meetings and attendance	15	Non-qualified deferred compensation	65
Risk oversight	15	Employment agreements and severance arrangements with our Named Executive Officers	67
Board evaluations	17	Potential termination or change in control payments and benefits	71
Succession planning and talent management	17	Compensation Committee interlocks and insider participation	78
Code of Conduct, Code of Ethics and other governance documents	18	PROPOSAL 3 — ADVISORY VOTE ON EXECUTIVE COMPENSATION	79
Communicating with our Board members	18	PROPOSAL 4 — ADVISORY VOTE ON FREQUENCY OF SAY-ON-PAY VOTE	80
Director compensation	18	CEO PAY RATIO	81
Certain relationships and related person transactions	22	PAY VERSUS PERFORMANCE	82
ENVIRONMENTAL, SOCIAL AND GOVERNANCE STRATEGY AND INITIATIVES	23	Financial performance measures	83
PROPOSAL 2 — RATIFICATION OF SELECTION OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM	25	Analysis of the information presented in the Pay versus Performance table	84
Your vote	25	OTHER INFORMATION	86
Audit and other fees	26	General information	86
REPORT OF THE AUDIT COMMITTEE OF THE BOARD OF DIRECTORS	27	Solicitation of proxies	87
SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT	28	Voting	87
EXECUTIVE OFFICERS	30	Availability of certain documents	90
		Other matters	90
		Stockholder proposals for 2024 Annual Meeting	90
		APPENDIX A – RECONCILIATION OF NON-GAAP AMOUNTS	A-1

PROXY SUMMARY

This summary contains highlights about MarketAxess Holdings Inc. (“MarketAxess”, the “Company”, “we” or “our”) and the upcoming 2023 Annual Meeting of Stockholders (the “Annual Meeting”). This summary does not contain all of the information you should consider in advance of the Annual Meeting and we encourage you to read the entire Proxy Statement before voting. This Proxy Statement, the accompanying Notice of Annual Meeting of Stockholders and proxy card are first being mailed to stockholders on or about April 26, 2023. Whenever we refer in this Proxy Statement to the “Annual Meeting,” we are also referring to any meeting that results from any postponement or adjournment of the June 7, 2023 meeting.

Annual Meeting information

Date and Time: Wednesday, June 7, 2023, at 9:00 a.m., Eastern Daylight Time
Virtual Meeting: www.virtualshareholdermeeting.com/MKTX2023
Record Date: Monday, April 10, 2023

The Annual Meeting will be held in virtual format only.

Voting items

The following table summarizes the items on which we are asking our stockholders to vote at the Annual Meeting, along with the voting recommendations of our Board of Directors (the “Board” or “Board of Directors”).

Item	Board Recommendation	Required Approval	Page Reference
1. Election of 11 Directors	FOR each nominee	Majority of votes cast for each nominee	2
2. Ratification of the appointment of PricewaterhouseCoopers LLP as the Company's independent registered public accounting firm for the year ending December 31, 2023	FOR	Majority of shares of Common Stock having voting power present in person or represented by proxy	25
3. Advisory vote to approve the compensation of the Company's named executive officers as disclosed in the attached Proxy Statement	FOR	Majority of shares of Common Stock having voting power present in person or represented by proxy	79
4. Advisory vote on the frequency of future advisory votes on the compensation of the Company's named executive officers	ONE YEAR	Majority of shares of Common Stock having voting power present in person or represented by proxy	80

How to vote

Your vote is important. Stockholders of record as of the Record Date are entitled to vote through one of the following options:

By Mail: If you received printed copies of the proxy materials, cast your ballot, sign your proxy card and return.

Via the Internet: To vote before the meeting, visit www.proxyvote.com.
To vote at the meeting, visit www.virtualshareholdermeeting.com/MKTX2023. You will need the control number printed on your Notice, proxy card or voting instruction form.

By Telephone: Call the phone number located on your Notice or proxy card.

PROPOSAL 1 — ELECTION OF DIRECTORS

The first proposal to be voted on at the Annual Meeting is the election of directors. Our Board currently consists of 12 directors, 10 of whom are not our employees. Each of the nominees for director was elected by the Company's stockholders on June 8, 2022. The directors are nominated for a term that begins at the Annual Meeting and ends at the 2024 Annual Meeting of Stockholders. Each director will hold office until such director's successor has been elected and qualified, or until such director's earlier resignation, retirement or removal. The Board will continue to evaluate its composition as part of its focus on self-assessment and board refreshment.

Xiaojia Charles Li, who has been a director since July 2021, has not been re-nominated for election at the Annual Meeting. Mr. Li has not been renominated due to difficulty attending board meetings in person in the United States as a result of restrictions and requirements arising out of the COVID-19 pandemic. Mr. Li's service as a director on the Board will cease as of the date of the Annual Meeting. Following the Annual Meeting, assuming the election of each director nominee, our Board will consist of 11 directors, 9 of whom are not our employees. The Company thanks Mr. Li for his service.

Your vote

If you sign the attached or enclosed proxy card and return it to the Company, your proxy will be voted FOR each nominee, for terms expiring at the 2024 Annual Meeting of Stockholders, unless you specifically indicate on the proxy card that you are casting a vote against one or more of the nominees or abstaining from such vote.

A vote of the majority of the votes cast is required to elect each director. Abstentions and broker non-votes are not treated as votes cast and will therefore have no effect on the outcome of the vote.



BOARD RECOMMENDATION

The board unanimously recommends that you vote "FOR" the election of each of the following nominees:

- Richard M. McVey
- Christopher R. Concannon
- Nancy Altobello
- Steven L. Begleiter
- Stephen P. Casper
- Jane Chwick
- William F. Cruger
- Kourtney Gibson
- Richard G. Ketchum
- Emily H. Portney
- Richard L. Prager

Each nominee currently serves as a director on our Board, and each nominee has agreed to continue to serve on the Board if such nominee is elected at the Annual Meeting. If any nominee is unable (or for good cause declines) to serve as a director at any time before the Annual Meeting, proxies may be voted for the election of a qualified substitute designated by the current Board, or else the size of the Board will be reduced accordingly. Biographical information about each of the nominees is included below under "Director information."

Qualifications for director nominees

Our Board has adopted minimum qualifications for our directors:

- substantial experience working as an executive officer for, or serving on the board of, a public company;
- significant accomplishment in another field or endeavor; or
- an ability to make a meaningful contribution to the oversight and governance of a company having a scope and size similar to our Company.

A director must have an exemplary reputation and record for honesty in his or her personal dealings and business or professional activity. All directors must demonstrate strong leadership skills and should possess a basic understanding of financial matters; have an ability to review and understand the Company's financial and other reports; and be able to discuss such matters intelligently and effectively. A director also needs to exhibit qualities of independence in thought and action. A candidate should be committed first and foremost to the interests of the stockholders of the Company. The key experience, qualifications and skills each of our directors brings to the Board that are important in light of our business are included in their individual biographies below.

Board of Directors skills and expertise

The Company's directors are selected on the basis of specific criteria set forth in our Corporate Governance Guidelines. All of our directors possess financial industry experience and a history of strategic leadership. In addition to those qualifications, listed below are the skills and experience that we consider important for our director nominees. More detailed information is provided in each director nominee's biography.

	Corporate Governance	Fixed Income/ Electronic Trading	Regulatory	Technology/ Cyber-security	Mergers and Acquisitions	Finance / Accounting	Risk Management	Other Public Company Board Experience	Talent Management
Richard M. McVey	•	•	•	•	•		•		•
Christopher R. Concannon	•	•	•	•	•		•	•	
Nancy Altobello	•		•		•	•	•	•	•
Steven L. Begleiter	•				•	•	•	•	•
Stephen P. Casper	•	•	•		•	•	•		•
Jane Chwick	•	•		•			•	•	•
William F. Cruger	•	•			•	•	•	•	
Kourtney Gibson		•	•			•	•	•	•
Richard G. Ketchum	•	•	•				•	•	
Emily Portney	•				•	•	•		•
Richard L. Prager	•	•		•	•		•		•

Director diversity

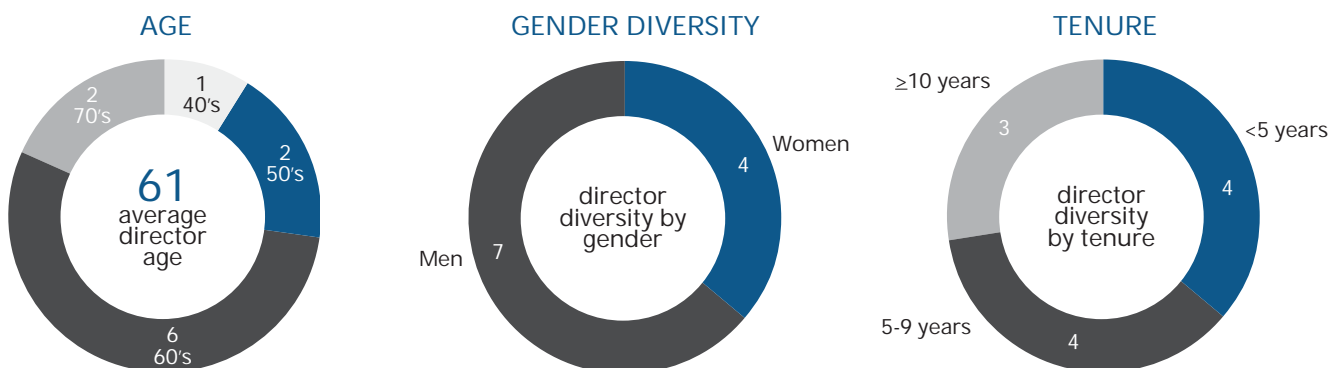
The Company recognizes and embraces that having a diverse Board enhances both the Board's effectiveness in fulfilling its oversight role and the Company's performance. See "Corporate governance and Board matters — Board diversity policy" for more information.

We are subject to Nasdaq Listing Rule 5605(f), which, after a transition period, will require us to have, or explain why we do not have, at least two members of our Board who are diverse, including at least one diverse director who self-identifies as female and at least one director who self-identifies as an underrepresented minority or LGBTQ+. We currently meet the diversity objectives of this requirement.

In addition, we are also subject to Nasdaq Listing Rule 5606, which requires each Nasdaq-listed company, subject to certain exceptions, to provide statistical information about the company's board of directors, related to each director's self-identified gender, race, and self-identification as LGBTQ+. Below, please find the board diversity matrix for the Company:

Board Diversity Matrix (As of April 26, 2023)		
Total Number of Directors	12	
	Female	Male
Part I: Gender Identity		
Directors	4	8
Part II: Demographic Background		
African American or Black	1	0
Asian	0	1
White	3	7

The charts below demonstrate the diversity of our director nominees by age, gender and tenure.



Director information

At the recommendation of the Nominating and Corporate Governance Committee, the Board has nominated the persons named below to serve as directors of the Company for a term beginning at the Annual Meeting and ending at the 2024 Annual Meeting of Stockholders.

Richard M. McVey



Age: 63
 Director since: April 2000
 Founder and Executive Chairman of the Board
 Board Committees:
 • None
 Public Company Directorships:
 • MarketAxess (NASDAQ: MKTX)

Christopher R. Concannon



Age: 55
 Director since: January 2019
 Board Committees:
 • None
 Public Company Directorships:
 • MarketAxess (NASDAQ: MKTX)

Qualifications and Career Highlights:

Richard M. McVey, our founder, has been our Executive Chairman since April 2023. Prior to this role, Mr. McVey served as our Chief Executive Officer and Chairman from our inception in 2000 to April 2023. As an employee of J.P. Morgan & Co., one of our founding broker-dealers, Mr. McVey was instrumental in the founding of MarketAxess. Prior to founding MarketAxess, Mr. McVey was Managing Director and Head of North America Fixed-Income Sales at J.P. Morgan, where he managed the institutional distribution of fixed-income securities to investors. Mr. McVey led MarketAxess through the Company's initial public offering in 2004, and since that time, MarketAxess has been one of the fastest growing financial technology companies in the U.S. public markets. Mr. McVey was named the Ernst & Young National Entrepreneur of the Year for financial services in 2012, and he has been named to the Institutional Investor Tech 40 list 15 times. Mr. McVey was a member of the U.S. Securities and Exchange Commission's ("SEC") Fixed Income Market Structure Advisory Committee, for which he chaired the Technology and Electronic Trading Sub-Committee from November 2017 to March 2021. Mr. McVey serves on the Board of Directors of the Board of Trustees of Colby College. He previously served on the Board of Directors of Miami (Ohio) University Foundation and Blue Mountain Credit Alternatives L.P., an asset management fund focused on the credit markets and equity derivatives markets. Mr. McVey received a B.A. in finance from Miami (Ohio) University and an M.B.A. from Indiana University.

Mr. McVey's role as one of our founders and his service as our Chief Executive Officer for over 20 years give him deep knowledge and understanding of all aspects of the business and operations of MarketAxess. Mr. McVey's extensive experience in the financial services industry, including significant leadership roles at J.P. Morgan, has provided the Company with comprehensive knowledge of the financial markets that we serve and the institutions and dealers that are our clients.

Qualifications and Career Highlights:

Christopher R. Concannon has been our Chief Executive Officer since April 2023. Prior to serving in this role, Mr. Concannon served as our President and Chief Operating Officer from January 2019 to April 2023. Mr. Concannon previously served as President and Chief Operating Officer of Cboe Global Markets, Inc., one of the world's largest exchange holding companies, until 2019, a position he was appointed to upon Cboe's acquisition of Bats Global Markets, Inc. in 2017. Until Bats' acquisition by Cboe, Mr. Concannon served as President of Bats from December 2014, director from February 2015, and Chief Executive Officer from March 2015. Mr. Concannon has more than 20 years of experience as an executive at Nasdaq, Virtu Financial, Instinet and as an attorney at Morgan Lewis & Bockius and the SEC. Mr. Concannon received a B.A. from Catholic University, an M.B.A. from St. John's University, and a J.D. from Catholic University's Columbus School of Law.

Mr. Concannon brings to the Board extensive experience leading companies in the global exchange industry. Mr. Concannon also has deep and critical knowledge regarding automated trading, the delivery of innovative technology solutions, market structure and clearing operations.

Nancy Altobello



Age: 65
 Director since: April 2019
 Lead Independent Director
 Board Committees:

- Compensation and Talent
- Nominating and Governance

 Public Company Directorships:

- MarketAxess (NASDAQ: MKTX)
- Amphenol Corporation (NYSE: APH)
- WEX Inc. (NYSE: WEX)

Qualifications and Career Highlights:

Nancy Altobello was most recently Global Vice Chair, Talent of Ernst & Young ("EY"), a professional services firm, where she was responsible for EY's talent and people strategy worldwide from July 2014 until her retirement in June 2018. Previously, Ms. Altobello held a number of senior positions at EY, including Americas Vice Chair, Talent from 2008 to 2014, Managing Partner, Northeast Region Audit and Advisory Practices from 2003 to 2008 and Managing Partner, North American Audit Practice from 1999 to 2003. Throughout this time, Ms. Altobello also served as an audit partner for a number of leading global organizations. She currently serves on the Board of Directors of Amphenol Corporation and WEX Inc. She previously served on the Board of Directors of CA Technologies, Cornerstone OnDemand and MTS Systems Corporation until each of their respective acquisitions. Ms. Altobello received a B.S. in accounting from Fairfield University, earned a Corporate Director Certificate from Harvard Business School and a certificate in Climate Leadership from the Diligent Institute and is a licensed Certified Public Accountant in Connecticut.

Ms. Altobello was selected to serve on the Board due to her financial, audit and Sarbanes Oxley compliance expertise, her knowledge of talent and people strategy, and her global business experience.

Steven L. Begleiter



Age: 61
 Director since: April 2012
 Board Committees:

- Finance (Chair)

 Public Company Directorships:

- MarketAxess (NASDAQ: MKTX)
- Great Ajax Corp. (NYSE: AJAX)

Qualifications and Career Highlights:

Steven L. Begleiter has been employed with Flexpoint Ford, LLC, a private equity group focused on investments in financial services and healthcare, since October 2008, where he currently serves as Managing Director. Prior to joining Flexpoint Ford, Mr. Begleiter spent 24 years at Bear Stearns & Co., serving first as an investment banker in the Financial Institutions Group and then as Senior Managing Director and member of its Management and Compensation Committee from 2002 to September 2008. Mr. Begleiter also served as head of Bear Stearns' Corporate Strategy Group. Mr. Begleiter currently serves on the Board of Directors of Great Ajax Corp. and certain portfolio companies of Flexpoint Ford, LLC. He previously served on the Board of Directors of WisdomTree Investments, Inc. Mr. Begleiter received a B.A. with Honors in economics from Haverford College.

Mr. Begleiter brings many years of leadership experience in the financial services and private equity industries to the Board. Mr. Begleiter also has extensive industry knowledge and expertise relating to mergers and acquisitions and capital formation.

Stephen P. Casper



Age: 73
 Director since: April 2004
 Board Committees:

- Audit (Chair)
- Compensation and Talent

 Public Company Directorships:

- MarketAxess (NASDAQ: MKTX)

Qualifications and Career Highlights:

Stephen P. Casper was most recently the President of TRG Management L.P., the investment manager of the TRG Global Opportunity Master Fund, Ltd., from April 2010 to August 2012. From September 2008 to April 2010, Mr. Casper was a partner of Vastardis Capital Services, which provides fund administration and securities processing outsourcing services to hedge funds, funds of funds and private equity funds and their investment management sponsors. Prior to this, Mr. Casper was Chairman and Chief Executive Officer of Charter Atlantic Corporation, the holding company of Fischer Francis Trees & Watts, Inc. ("FFTW"), a specialist manager of U.S., global and international fixed-income portfolios for institutional clients, and Malbec Partners, a manager of single-strategy hedge funds. From April 2004 to January 2008, Mr. Casper was the President and CEO of FFTW. Mr. Casper joined FFTW as Chief Financial Officer in 1990 and was appointed Chief Operating Officer in May 2001. From 1984 until 1990, Mr. Casper was Treasurer of the Rockefeller Family Office. Mr. Casper is Vice-Chairman of the Board of Directors of GMO LLC, a global investment management firm providing clients with asset management solutions and services, since May 2014 and a member of the Investment Committee of the Brooklyn Museum. Mr. Casper is a Certified Public Accountant and received a B.B.A. in accounting from Baruch College, from which he graduated magna cum laude, Beta Gamma Sigma, and an M.S. in finance and accounting from The Wharton School at the University of Pennsylvania.

Mr. Casper's experience in the fixed-income markets and financial services industry and his experience in financial reporting and accounting roles bring extensive public accounting, financial reporting, risk management and leadership skills to the Board.

Jane Chwick



Age: 60
 Director since: October 2013
 Board Committees:

- Nominating and Governance
- Risk (Chair)

 Public Company Directorships:

- MarketAxess (NASDAQ: MKTX)
- M&T Bank Corporation (NYSE: MTB)
- Thoughtworks Holding, Inc. (NASDAQ: TWKS)
- Voya Financial, Inc. (NYSE: VOYA)

Qualifications and Career Highlights:

Jane Chwick was most recently the Co-Founder and Co-CEO of Trewtec, Inc., a technology advisory firm designed to help board members and CEOs evaluate the technology function in their companies, from September 2014 until the firm ceased operations in August 2017. Prior to this role, she was a Partner and Co-Chief Operating Officer of the Technology Division of Goldman Sachs Group, Inc. where she was responsible for financial and business planning, technical strategy and ongoing management of an 8,000-person organization until her retirement in April 2013. During her 30-year career at Goldman Sachs, Ms. Chwick held a number of senior positions, including Global Head of Technology of the Securities Division and Global Head of Derivatives Technology. Ms. Chwick served on many governance committees at Goldman Sachs, including the firm's Finance Committee, the firm-wide New Activity Committee and the Technology Risk Committee, and served as co-chair of the Technology Division Operating Committee. During her tenure, she drove the design, build and integration of technology across all of Goldman Sachs' derivatives businesses, including fixed income, commodities, currencies and equities. Ms. Chwick is a member of the Board of Directors of M&T Bank Corporation, Thoughtworks Holding, Inc. and Voya Financial, Inc., and Ms. Chwick previously served on the Board of Directors of Essent Group and People's United Financial, Inc. until its acquisition by M&T Bank Corporation in 2022. Ms. Chwick received a B.A. in mathematics from Queens College and an M.B.A. from St. John's University with a concentration in MIS and quantitative analysis.

Ms. Chwick's extensive technology leadership experience gained in a global financial services firm, combined with her depth of market knowledge and industry insight, bring valuable skills and strategic perspective to the Board.

William F. Cruger		Kourtney Gibson	
	Age: 64		Age: 41
	Director since: November 2013		Director since: July 2020
	Board Committees:		Board Committees:
	<ul style="list-style-type: none"> • Audit • Finance • Nominating and Governance (Chair) 		<ul style="list-style-type: none"> • Audit • Compensation and Talent
	Public Company Directorships:		Public Company Directorships:
	<ul style="list-style-type: none"> • MarketAxess (NASDAQ: MKTX) • M&T Bank Corporation (NYSE: MTB) • Virtu Financial, Inc. (NASDAQ: VIRT) 		<ul style="list-style-type: none"> • MarketAxess (NASDAQ: MKTX) • lululemon athletica inc. (NASDAQ: LULU)

Qualifications and Career Highlights:

William F. Cruger was most recently Vice Chairman of Investment Banking at JPMorgan Chase & Co., a multinational investment bank and financial services company, where he was responsible for key client relationships on a global basis until his retirement in August 2013. Previously, Mr. Cruger held a number of senior positions at J.P. Morgan, including Managing Director in the Financial Institutions group from 1996 to 2011. During this time, he oversaw the rationalization of the firm's private equity investments in trading platforms and related ventures at LabMorgan from 2000 to 2001. Prior to this, Mr. Cruger ran the firm's investment banking practices in Japan from 1991 to 1996, Latin America from 1989 to 1991 and Emerging Asia from 1984 to 1988. He currently serves on the Board of Directors of M&T Bank Corporation and Virtu Financial, Inc., and has previously served on the Boards of Directors of Archipelago, Credittrade, Capital IQ. and People's United Financial, Inc. until its acquisition by M&T Bank Corporation. Mr. Cruger received a B.A. from Clark University and an M.B.A. from Columbia University.

Mr. Cruger's diverse experience in investment banking at a global financial services firm, his extensive knowledge of financial institutions and financial markets, his leadership roles as a director of other financial services firms, and his international business experience bring critical skills and strategic insight to the Board.

Qualifications and Career Highlights:

Kourtney Gibson has been the Chief Institutional Client Officer of TIAA, a leading provider of secure retirements and outcome-focused investment solutions, since July 2022. Previously, Ms. Gibson was Executive Vice Chairman of Loop Capital Markets, an investment bank, brokerage and advisory firm, from March 2022 to July 2022. Prior to this role, Ms. Gibson served in various roles at Loop Capital Markets, including as President from June 2016 to March 2022, Head of the Fixed Income Division from January 2015 to June 2016 and Head of the Equity Division from June 2005 to December 2015. Ms. Gibson currently serves on the Board of lululemon athletica inc. and is a member of The Economic Club of Chicago. Ms. Gibson also currently serves on the Board of Trustees at the University of Miami and Viterbo University, the Board of the Dibia Dream Foundation and the Board of the Chicago Scholars Foundation. Ms. Gibson received an M.B.A. from the Kellogg School of Management at Northwestern University and a B.B.A. from the University of Miami.

Ms. Gibson brings to the Board her wealth of experience relating to the evolving market structure of both the fixed income and equity markets, as well her broad-based experience with institutional investor clients.

Richard G. Ketchum



Age: 72
 Director since: April 2017
 Board Committees:

- Audit
- Risk

 Public Company Directorships:

- MarketAxess (NASDAQ: MKTX)

Qualifications and Career Highlights:

Richard G. Ketchum was most recently Chief Executive Officer of the Financial Industry Regulatory Authority, Inc. ("FINRA") from March 2009 to July 2016 and served as Chairman of FINRA's Board of Governors from March 2009 to August 2016. Prior to joining FINRA, Mr. Ketchum held a range of senior regulatory positions in the financial industry over twenty years, including as Chief Executive Officer of NYSE Regulation, Inc., President of the NASDAQ OMX Group Inc., a predecessor of Nasdaq, Inc., President and Chief Operating Officer of the National Association of Securities Dealers Inc., a predecessor of FINRA, and Director of the Division of Market Regulation at the SEC. Mr. Ketchum was also the General Counsel of the Corporate and Investment Bank of Citigroup Inc. Mr. Ketchum is on the Board of Directors of GSS, a subsidiary of BNY Mellon. He previously served as Non-Executive Chairman of the Board of Directors of Sculptor Capital Management, Inc. Mr. Ketchum received a B.A. from Tufts University and a J.D. from New York University School of Law.

Mr. Ketchum brings to the Board substantial regulatory experience in the securities industry and deep knowledge of the legal and compliance issues facing companies in the financial services industry.

Emily Portney



Age: 51
 Director since: October 2017
 Board Committees:

- Risk

 Public Company Directorships:

- MarketAxess (NASDAQ: MKTX)

Qualifications and Career Highlights:

Emily Portney became the CEO of Asset Servicing for the Bank of NY Mellon ("BK"), a global financial services institution, in February 2023, after serving as the Chief Financial Officer of the firm from 2020 to 2023 and Head of Asset Servicing, Americas from 2018 to 2020. Emily is a member of BK's Executive Committee. As CEO of Asset Servicing, Emily oversees BK's largest business unit, providing investment administration, operational and technology solutions to traditional and alternative asset managers, asset owners, insurance companies, banks and broker-dealers. Prior to joining BK, Ms. Portney was Chief Financial Officer of Barclays International where she helped to establish the non-ring-fenced bank, and led a global organization spanning the Corporate and Investment Bank, the Private Bank, as well as Cards and Payments. Ms. Portney started her career at JPMorgan Chase & Co in 1993 and served in various senior roles including Global Head of Clearing and Collateral Management as well as Chief Financial Officer of Equities and Prime Services. Ms. Portney previously served on the Board of Directors of The Depository Trust & Clearing Corporation (DTCC). Ms. Portney received a B.A. from Duke University and an M.B.A. from Columbia University.

Ms. Portney brings leadership experience from a number of financial institutions. Ms. Portney also has in-depth experience relating to clearing operations and strategies and the requirements of operating a firm in a highly regulated industry.

Richard L. Prager



Age: 63
Director since: July 2019
Board Committees:

- Compensation and Talent (Chair)
- Risk

Public Company Directorships:

- MarketAxess (NASDAQ: MKTX)

Qualifications and Career Highlights:

Richard L. Prager has been a Senior Advisor at Tresata, a data analytics firm, since July 2019. From May 2016 to July 2019, Mr. Prager was a Senior Managing Director of BlackRock Inc. and served on the firm's Global Executive Committee. In that role, he led the firm's global trading, cash management and securities lending teams and played a leadership role in managing BlackRock's global investment platform for both active portfolios and the iShares ETF business. Mr. Prager joined BlackRock in 2008 during the financial crisis as a Managing Director in their Financial Market Advisory business where BlackRock assisted the U.S. Government and many financial firms navigating the crisis. After BlackRock acquired BGI in 2009, Mr. Prager moved internally to the investment platform where he initially headed fixed income trading and soon thereafter, oversaw all asset class trading. In 2012 he assumed responsibility of the firm's cash management and securities lending businesses in addition to global trading. Before joining BlackRock in 2008, Mr. Prager worked in various senior roles for Bank of America from 2000 to 2008 including Global Head of Rates, Currencies and Commodities. He has also held senior roles at GenRe from 1999 to 2000, ING from 1993 to 1999 and Westpac from 1984 to 1993. Mr. Prager received a B.S. from Duke University.

Mr. Prager possesses valuable expertise in the financial markets, and has been an industry leader in the areas of electronic trading and trading technology. Mr. Prager also brings significant experience in the areas of global asset management, risk management and settlements.

CORPORATE GOVERNANCE AND BOARD MATTERS

Director independence

The Board of Directors has determined that each of our current directors, other than Mr. McVey, our Executive Chairman, and Mr. Concannon, our Chief Executive Officer ("CEO"), currently meet the independence requirements contained in the NASDAQ listing standards and applicable securities rules and regulations. In determining the independence of each of our non-employee directors, the Board considered the transactions described under "Certain relationships and related person transactions – Other transactions." None of our non-employee directors has a relationship with the Company or its subsidiaries that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director.

Board refreshment

We do not have director age or term limits, as we believe our efforts to regularly refresh the Board with new directors, as well as natural turnover, have achieved the appropriate balance between maintaining longer-term directors with deep institutional knowledge and new directors who bring new perspectives and diversity to our Board. Our Board reviews director tenure every year in connection with its director independence determinations. We plan to continue to refresh our Board of Directors to ensure that it is composed of high functioning, qualified and diverse members.

Currently, 4 of our 11 director nominees have served for less than five years. See "Proposal 1 — Election of Directors — Director Diversity" for more information.

In addition, on an annual basis, the Nominating and Governance Committee reviews and makes recommendations to the Board related to the size, structure and composition of the Board and its Committees.

Board diversity policy

The Company recognizes and embraces that having a diverse Board enhances both the Board's effectiveness in fulfilling its oversight role and the Company's performance. The Company's Board Diversity Statement, included in our Corporate Governance Guidelines, cites diversity at the Board level as an essential element in the attainment of its strategic objectives and in achieving sustainable and balanced development. In designing the Board's composition, the Board takes a holistic view of diversity, considering, among other things, diversity of gender, age, race, ethnicity, nationality, cultural and educational background, professional experience, skills, knowledge and length of service. In any formal search for Board candidates, the Nominating and Corporate Governance Committee includes, and requests that any search firm that it engages include, qualified candidates with a diversity of race/ethnicity and gender in the initial pool from which the Committee selects director candidates. The ultimate decision on all Board nominations is based on merit and the contributions that the selected candidates will bring to the Board, having due regard for the benefits of diversity.

The Nominating and Corporate Governance Committee annually reviews the approval criteria for the selection of new directors and the evaluation and renomination of existing directors, including with regard to the Board Diversity Statement. This annual evaluation enables the Board and the Nominating and Corporate Governance Committee to update the skills and experience they seek in the Board as a whole, and in individual directors, as the Company's needs evolve and change over time, and to assess the effectiveness of efforts at promoting diversity.

We are subject to Nasdaq Listing Rule 5605(f), which, after a transition period, will require us to have, or explain why we do not have, at least two members of our Board who are diverse, including at least one diverse director who self-identifies as female and at least one director who self-identifies as an underrepresented minority or

LGBTQ+. We currently meet the diversity objectives of this requirement. See “Proposal 1 — Election of Directors — Director Diversity” for more information.

How nominees to our Board are selected

Candidates for election to our Board of Directors are nominated by our Nominating and Corporate Governance Committee and ratified by our full Board of Directors for election by the stockholders. The Nominating and Corporate Governance Committee operates under a charter, which is available in the Investor Relations — Corporate Governance section of our corporate website at www.marketaxess.com. Under our By-Laws, directors are elected by a majority of the votes cast. Pursuant to our resignation policy, if an incumbent nominee for director does not receive at least a majority of the votes cast, that director is required to tender his or her resignation to the Board, subject to acceptance by the Board.

The Nominating and Corporate Governance Committee will give the same consideration to properly submitted candidates recommended by stockholders as they do candidates suggested by other parties. Stockholders may recommend candidates for the Nominating and Corporate Governance Committee’s consideration by submitting such recommendations directly to the Nominating and Corporate Governance Committee as described below under “— Communicating with our Board members.” In making recommendations, stockholders should be mindful of the discussion of minimum qualifications set forth above under “— Qualifications for director nominees” though meeting such minimum qualification standards does not imply that the Nominating and Corporate Governance Committee will necessarily nominate the person recommended by a stockholder. The Nominating and Corporate Governance Committee may also engage outside search firms to assist in identifying or evaluating potential nominees.

Board leadership structure

Currently, the roles of Chairman of the Board and CEO are held by two separate individuals. From 2000 until April 3, 2023 (the “Transition Effective Date”), Mr. McVey, MarketAxess’ founder, served as both Chairman of the Board and CEO of the Company. On January 9, 2023, the Company announced that Mr. McVey would become Executive Chairman and Mr. Concannon, formerly the Company’s President and Chief Operating Officer, would be promoted to CEO, each effective as of the Transition Effective Date. As Executive Chairman, Mr. McVey focuses on supporting Mr. Concannon in his new role, further developing corporate strategy and working closely with key clients and our Board. This separation of the roles of Executive Chairman and CEO allows MarketAxess to continue to leverage Mr. McVey’s industry expertise and extensive knowledge of MarketAxess while transitioning full management of MarketAxess’ operations and business plans to Mr. Concannon.

Our Corporate Governance Guidelines provide that when the Chairman of the Board is an affiliated director or a member of the Company’s management, the Chairman of the Nominating and Corporate Governance Committee shall act as the Lead Independent Director, unless otherwise determined by a majority vote of the independent directors of the Board. Mr. Casper served as our Lead Independent Director from 2012 to April 2023. In April 2023, the independent directors of the Board elected Ms. Altobello to serve as the Board’s Lead Independent Director. Our Lead Independent Director is responsible for, among other things, consulting with the Executive Chairman regarding the agenda and meeting schedules for each Board meeting, coordinating the activities of the non-employee directors, including presiding over the executive sessions of non-employee directors, and serving as a liaison between the Executive Chairman and the non-employee directors. The Lead Independent Director also has the authority to call meetings of the independent directors and, if requested by significant shareholders, is available for consultation and direct communication. Our Lead Independent Director leads an executive session of the independent directors at each board meeting.

We believe that this Board leadership structure, when combined with the composition of the Board and the strong leadership of our independent directors and Lead Independent Director, strikes an appropriate balance between consistent leadership and independent oversight of MarketAxess' business and affairs.

The Board has established other structural safeguards that serve to preserve the Board's independent oversight of management. The Board is comprised almost entirely of independent directors who are highly qualified and experienced, and who exercise a strong, independent oversight function. The Board's Audit Committee, Compensation and Talent Committee, Nominating and Corporate Governance Committee, Risk Committee and Finance Committee are comprised entirely of, and are chaired by, independent directors. Independent oversight of our Executive Chairman's and CEO's performance is provided through a number of Board and committee processes and procedures, including regular executive sessions of non-employee directors and annual evaluations of our Executive Chairman's and CEO's respective performance against pre-determined goals. The Board believes that these safeguards preserve the Board's independent oversight of management and provide a balance between the authority of those who oversee the Company and those who manage it on a day-to-day basis.

Board committees

Audit Committee

The Audit Committee of the Board of Directors oversees the accounting and financial reporting process of the Company and the audits of the financial statements of the Company. The Audit Committee is also responsible for preparing the audit committee report required to be included in this Proxy Statement, and the Audit Committee is directly responsible for the appointment, retention, compensation and oversight of the Company's outside auditor. The Audit Committee currently consists of Mr. Casper (Chair), Mr. Cruger, Ms. Gibson and Mr. Ketchum.

The Board of Directors has determined that each member of the Audit Committee is an independent director in accordance with NASDAQ listing standards and Rule 10A-3 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). The Board has determined that each member of the Audit Committee is able to read and understand fundamental financial statements, including the Company's balance sheet, income statement and cash flow statement, as required by NASDAQ rules. In addition, the Board has determined that each member of the Audit Committee satisfies the NASDAQ rule requiring that at least one member of our Board's Audit Committee have past employment experience in finance or accounting, requisite professional certification in accounting, or any other comparable experience or background that results in the member's financial sophistication, including being or having been a chief executive officer, chief financial officer or other senior officer with financial oversight responsibilities. The Board has also determined that each member of the Audit Committee is an "audit committee financial expert" as defined by the SEC. For information regarding the experience and qualifications of our Audit Committee members, see the information in this Proxy Statement under the section heading "Proposal 1 – Election of Directors — Director information."

Compensation and Talent Committee

The Compensation and Talent Committee of the Board of Directors (the "Compensation Committee") is responsible for reviewing and approving, and, as applicable, recommending to the full Board for approval, the compensation of the CEO and all other officers of the Company, as well as the Company's compensation philosophy, strategy, program design and administrative practices. The compensation programs reviewed and approved by the Compensation Committee consist of all forms of compensation, including salaries, cash incentives and stock-based awards and benefits. The Compensation Committee is also responsible for oversight of the Company's talent management processes, including talent acquisition, leadership development and succession planning for key roles, reviewing the Company's diversity, equity and inclusion programs, and reviewing the Company's corporate culture. The Compensation Committee currently consists of Mr. Prager (Chair), Ms. Altobello, Mr. Casper and Ms. Gibson. Mr. Casper joined the Compensation Committee effective April

CORPORATE GOVERNANCE AND BOARD MATTERS

12, 2023, following the review by the Committee of the “Letter from the Compensation and Talent Committee,” the “Compensation Discussion and Analysis” and the “Report of the Compensation and Talent Committee.” The Board of Directors has determined that each member of the Compensation Committee is an “independent director” in accordance with NASDAQ listing standards and a “non-employee director” under the applicable SEC rules and regulations.

Finance Committee

The Finance Committee assists the Board with its oversight of the Company’s global treasury activities, mergers, acquisitions, divestitures, strategic investments, capital structure and capital allocation strategy, financing and liquidity requirements, dividends, stock repurchase authorizations, investor relations activities and insurance and self-insurance programs. The Finance Committee currently consists of Messrs. Begleiter (Chair) and Cruger.

Nominating and Corporate Governance Committee

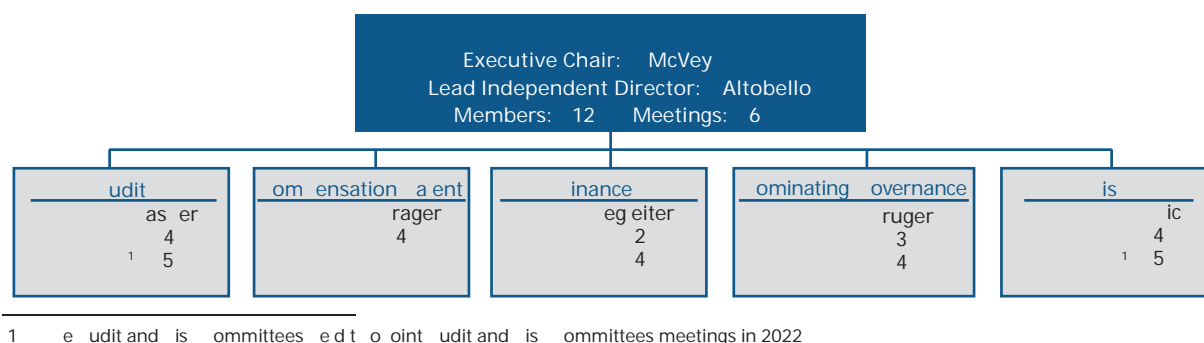
The Nominating and Corporate Governance Committee of the Board of Directors identifies individuals qualified to become Board members and recommends for selection by the Board the director nominees to stand for election at each annual meeting of the Company’s stockholders. In connection therewith, the Nominating and Corporate Governance Committee reviews certain policies regarding the nomination of directors and recommends any changes in such policies to the Board for its approval; identifies individuals qualified to become directors; evaluates and recommends for the Board’s selection nominees to fill positions on the Board; and recommends changes in the Company’s corporate governance policies, including the Corporate Governance Guidelines, to the Board for its approval. The Nominating and Corporate Governance Committee oversees the annual review of the performance of the Board of Directors, each director and each committee. The Nominating and Corporate Governance Committee also oversees the Company’s environmental, social and governance strategy and initiatives. See “Environmental, social and governance strategy and initiatives.” The Nominating and Corporate Governance Committee currently consists of Mr. Cruger (Chair), Ms. Altobello and Ms. Chwick. The Board of Directors has determined that each member of the Nominating and Corporate Governance Committee is an independent director in accordance with NASDAQ listing standards.

Risk Committee

The Risk Committee assists the Board with its oversight of the Company’s risk management activities, with particular responsibility for overseeing designated areas of risk that are not the primary responsibility of another committee of the Board or retained for the Board’s direct oversight. Items delegated to the Risk Committee by the Board include technology and cyber-security risk, credit risk, clearing risk and regulatory risk. The Risk Committee also oversees and receives reports related to the Company’s cyber-security insurance policies and data security policies and procedures. The Risk Committee currently consists of Ms. Chwick (Chair), Mr. Ketchum, Ms. Portney and Mr. Prager.

Meetings and attendance

The following table sets forth the chairs and membership structure of the Board and each standing Board committee as of April 26, 2023, and the number of Board and Board committee meetings held during 2022.



The non-management directors met in executive session without management directors or employees at each of the meetings of the Board during 2022. We expect each director to attend each meeting of the full Board and of the committees on which such director serves and to attend the annual meeting of stockholders. All directors, except Mr. Li, attended at least 75% of the meetings of the full Board and the meetings of the committees on which they served. Mr. Li has not been renominated due to the difficulty in attending board meetings in the United States as a result of restrictions and requirements arising out of the COVID-19 pandemic. All of the directors who were serving on our Board at the time attended our 2022 annual meeting of stockholders (the “2022 Annual Meeting”).

Risk oversight

The Board's involvement in risk oversight

The Board's responsibility is to oversee the Company's risk management processes over the short-, medium- and long-term by informing itself of the Company's material risks and evaluating whether management has reasonable controls in place to address the material risks. The Board is not responsible, however, for defining or managing the Company's various risks. See “—Management's involvement in risk oversight” below.

The Board of Directors and its committees oversee risk through regular reports from management. The Board's committees report on the matters discussed at the committee level to the full Board. The Risk Committee assists the Board with its oversight of the Company's risk management activities, including operational risks, technology risks relating to information security, business resiliency and continuity, software change management and deployment and system capacity, credit and settlement risks and regulatory risks. The Audit Committee assists the Board in its oversight of the Company's significant financial risk exposures. In addition, the Compensation Committee is charged with reviewing and assessing risks arising from the Company's compensation policies. Risk management is a factor that the Board and the Nominating and Corporate Governance Committee consider when determining who to nominate for election as a director of the Company and which directors serve on each Committee. In addition, the Nominating and Corporate Governance Committee is charged with overseeing risk related to the Company's environmental, social and governance strategy and initiatives. The Board believes this division of responsibilities provides an effective and efficient approach for addressing risk management.

Management's involvement in risk oversight

The Company's management is responsible for defining the various short-, medium and long-term risks facing the Company, formulating risk management policies and procedures, and managing the Company's risk exposures on a day-to-day basis. The Company has adopted an Enterprise Risk and Resilience Framework (the "ERRF") to identify, assess, monitor, and control the Company's risks. The implementation and execution of the ERRF is headed by our Chief Risk Officer.

The Company maintains several management risk governance committees, including:

- The Global Management Team, which assists management's efforts to assess and manage risk and is comprised of the Company's senior managers. The Global Management Team assesses the Company's business strategies and plans and ensures that appropriate policies and procedures are in place for identifying, evaluating, monitoring, managing and measuring significant risks;
- The Credit Risk Management Committee, which is responsible for overseeing and challenging risk appetite for global credit risk exposures;
- The EMEA and APAC Operating Committee, which maintains operational oversight of the international business of MarketAxess across EMEA & APAC;
- The Data Management Committee, which is responsible for overseeing data risk-related matters including privacy considerations;
- The Information Security Management System Committee, which is responsible for maintaining the Company's global Information Security Management Framework and providing oversight on information security matters; and
- The Operational Risk Committee, which is responsible for operational risks are adequately resourced, risk assessed and controlled.

The Company follows the "three lines of defense" approach to risk management. The first line of defense is the Company's business functions that generate revenue. This line is charged with: (i) identifying, assessing, monitoring and managing the Company's risks within the Company's risk appetite limits; and (ii) identifying inherent and residual risks by process. The second line of defense is comprised of the Company's Risk and Legal and Compliance departments. This line is charged with: (i) independently assessing, quantifying and overseeing risks by the first line; and (ii) assisting risk owners in reporting risk-related information up and down the Company. The third line of defense is the Company's internal audit department. This line: (i) independently assesses and tests the effectiveness of the control processes established by the first line; (ii) independently evaluates design and effectiveness of the second line's risk management program; and (iii) provides global assurance to the Audit Committee and executive management on the effectiveness of internal controls and risk processes. See "—Internal Audit's involvement in risk oversight" below.

The Chief Risk Officer regularly prepares updates and reports for the Global Management Team, Risk Committee and the Board of Directors.

Outside advisors' role in risk oversight

Management and our Board and its committees also engage outside advisors where appropriate to assist in the identification, oversight, evaluation and management of the risks facing our business. Advisors may be engaged either on a regular basis to inform the Board or management of ongoing risks, or occasionally to advise on specific topics.

Such advisors include auditors, law firms, financial firms, compensation consultants, cybersecurity experts and other consultants.

Internal Audit's involvement in risk oversight

Our internal audit department, led by our Chief Audit Executive and under the direct supervision of the Audit Committee, provides independent and objective assurance, verifies risk mitigation activities and strives to improve the Company's overall operations through effective internal controls. The internal audit department assesses the Company's disclosure controls and procedures and reports any material weaknesses or significant deficiencies to the Audit Committee. At each meeting of the Audit Committee, the Chief Audit Executive meets with the Audit Committee in a closed executive session.

Board evaluations

Each year, the members of the Board of Directors conduct a confidential written assessment of the Board's performance that is reviewed and summarized by the Company's Lead Independent Director and the Chair of the Nominating and Corporate Governance Committee. As part of the evaluation process, the Board reviews its overall composition, including director tenure, board leadership structure, diversity, including the effectiveness of its diversity policy, and individual skill sets, to ensure it serves the best interests of stockholders and positions the Company for future success. Each Board committee also conducts an annual written self-assessment of its performance during the prior year. The results of the assessments are then summarized and communicated back to the appropriate committee chairpersons and our Lead Independent Director. After the evaluations, the Board and management work to improve upon any issues or focus points disclosed during the evaluation process. As part of the evaluation process, each committee reviews its charter annually.

Succession planning and talent management

The Board is committed to positioning MarketAxess for further growth through ongoing talent management, succession planning and the deepening of our leadership bench. Management facilitates a formal talent management and leadership development review on an annual basis for the Board. The review is focused on both immediate, short-term coverage plans for all executives in the event of an unforeseen situation, as well as longer-term, strategic succession planning. A critical element of the review is an evaluation of the Company's formal leadership development and talent acquisition initiatives in order to ensure that our leadership team has the skills, capabilities and experience to effectively lead our existing, and future, global business. The review also focuses on the retention of key managers. The annual talent management and leadership development review is supplemented by an additional year-end review by the Board of the individual performance and year-end compensation proposals for the executive management team and other key staff.

The Board values diversity among the management team and strives to increase the diversity of the executive management team, as well as the management teams reporting to them. The Board considers formal and informal initiatives to promote diversity as part of their annual talent management review. In addition, in any external searches for executive management team candidates in which the Company considers candidates that are not employees of the Company, the Company will request that any search firm that it engages include qualified candidates with a diversity of race/ethnicity and gender in the initial pool from which the Company selects such executive management team candidates.

The Board has formal exposure to the executive team at Board meetings, as well as at Board committee meetings and other discussions. There are other opportunities for more informal interaction with employees across the organization throughout the year through various events and collaborative experiences.

Code of Conduct, Code of Ethics and other governance documents

The Board has adopted a Code of Conduct that applies to all officers, directors and employees, and a Code of Ethics for the CEO and Senior Financial Officers, which includes Mr. Gerosa, our Chief Financial Officer (“CFO”). Both the Code of Conduct and the Code of Ethics for the CEO and Senior Financial Officers can be accessed in the Investor Relations — Corporate Governance section of our website at www.marketaxess.com. We intend to satisfy any disclosure obligations regarding waivers of or amendments to our Code of Ethics for the CEO and Senior Financial Officers by posting such information on our website at www.marketaxess.com.

You may also obtain a copy of these documents without charge by writing to MarketAxess Holdings Inc., 55 Hudson Yards, 15th Floor, New York, New York 10001, Attention: Investor Relations.

Copies of the charters of our Board’s Audit Committee, Compensation Committee, Finance Committee, Risk Committee and Nominating and Corporate Governance Committee, as well as a copy of the Company’s Corporate Governance Guidelines, can be accessed in the Investor Relations — Corporate Governance section of our website.

Communicating with our Board members

We make every effort to ensure that the views of stockholders are heard by the Board or by individual directors, as applicable, and we believe that this has been an effective process to date. Stockholders may communicate with the Board by sending a letter to the MarketAxess Holdings Inc. Board of Directors, c/o General Counsel, 55 Hudson Yards, 15th Floor, New York, New York 10001. The General Counsel will review the correspondence and forward it to our Executive Chairman and the Lead Independent Director, or to any individual director or directors to whom the communication is directed, as appropriate. Notwithstanding the above, the General Counsel has the authority to discard or disregard any communication that is unduly hostile, threatening, illegal or otherwise inappropriate or to take any other appropriate actions with respect to such communications.

In addition, any person, whether or not an employee, who has a concern regarding the conduct of the Company or our employees, including with respect to our accounting, internal accounting controls or auditing issues, may, in a confidential or anonymous manner where permitted by local law, communicate that concern in writing by addressing a letter to the Chairman of the Audit Committee, c/o Corporate Secretary, at our corporate headquarters address, which is 55 Hudson Yards, 15th Floor, New York, New York 10001, or electronically, at our corporate website, www.marketaxess.com under the heading “Investor Relations — Corporate Governance,” by clicking the “Confidential Ethics Web Form” link.

Director compensation

For 2022, our Compensation Committee retained the services of Frederic W. Cook & Co., Inc. (“FW Cook”) as its independent compensation consultant for purposes of advising on non-employee director compensation. FW Cook reports directly to the Compensation Committee and prepares an annual review of director compensation for the Compensation Committee. The Compensation Committee then submits any proposed changes in pay level or program structure to the full Board for its consideration, and if appropriate, approval.

FW Cook reviews and recommends compensation structure and adjustments based on the board compensation of our Proxy peer group (see “Compensation discussion and analysis — How we determine pay levels — Peer group”).

All directors, other than Mr. McVey and Mr. Concannon, are non-employee and independent directors. Mr. McVey and Mr. Concannon receive no additional compensation for their service as a director.

In 2022, (i) the Risk Committee chair fee was increased to \$25,000 per year; and (ii) the Risk Committee member fee was increased to \$12,500 per year, in each case, as recommended by FW Cook. The changes were effective as of July 1, 2022 and were made to better align director compensation with the market data provided by FW Cook.

A summary of the structure of our director pay program that is in effect as of July 2022 is as follows:

Director Compensation Pay Structure - Effective July 2022				
	Board Cash Retainer	Cash Committee Chair / LID Fee ¹	Cash Committee Membership Fee ¹	Board Equity Retainer
Annual Retainer - All	\$ 85,000	-	-	\$ 140,000
Audit Committee	-	\$ 25,000	\$ 12,500	-
Compensation / Talent Committee	-	\$ 20,000	\$ 10,000	-
Governance / Nominating Committee	-	\$ 20,000	\$ 10,000	-
Finance Committee	-	\$ 20,000	\$ 10,000	-
Risk Committee	-	\$ 25,000	\$ 12,500	-
Lead Independent Director ²	-	\$ 25,000	-	\$ 25,000

(1) Committee members serving as chair do not also receive a membership fee.

(2) The Lead Independent Director may choose to receive the retainer in cash or a combination of cash and equity.

In June 2022, we granted 497 shares of restricted stock or restricted stock units (“RSUs”) to each non-employee director. Mr. Casper, as Lead Independent Director, received 89 additional shares of restricted stock, equating to half of his Lead Independent Director Fee. All shares are scheduled to vest on the date of the next annual stockholders’ meeting. The number of shares of restricted stock or RSUs granted was determined on the grant date by dividing the equity grant value of \$140,000 by the average of the closing price of our Common Stock for the ten trading days up to and including the grant date. We expect to continue to compensate our non-employee directors with a combination of cash and equity awards. All equity awards to non-employee directors are made under the Company’s 2020 Equity Incentive Plan.

Below is a summary of the amount and form of actual compensation received by each non-employee director in 2022:

Director Compensation for Fiscal 2022				
Name	Fees Earned or Paid in Cash ¹	Stock Awards ^{2,5}	All Other Compensation ³	Total
	(\$)	(\$)	(\$)	(\$)
Stephen P. Casper	120,000	164,672	960	285,632
Nancy Altobello	120,000	139,662	0	259,662
Steven L. Begleiter	105,694	139,662	0	245,356
Jane Chwick	117,500	139,662	816	257,978
William F. Cruger	127,500	139,662	816	267,978
Kourtney Gibson	107,500	139,662	816	247,978
Justin Gmelich ⁴	104,511	139,662	0	244,173
Richard Ketchum	96,250	139,662	816	236,728
Xiaojia Charles Li ⁴	85,000	139,662	0	224,662
Emily Portney	96,250	139,662	816	236,728
Richard Prager	116,250	139,662	816	256,728

(1) The amounts represent Board, Committee, Committee Chair and Lead Independent Director cash retainers earned in 2022.

(2) The amounts represent the aggregate grant date fair value of stock awards granted by the Company in 2022, computed in accordance with FASB ASC Topic 718. For further information on how we account for stock-based compensation, see Note 11 to the consolidated financial statements included in the Company’s Annual Report on Form 10-K for the year ended December 31, 2022.

CORPORATE GOVERNANCE AND BOARD MATTERS

- (3) Represents accrued dividends paid on restricted stock or RSUs, as applicable.
- (4) Mr. Gmelich resigned from the Board, effective April 13, 2023 and Mr. Li has not been re-nominated for election at the Annual Meeting.
- (5) The table below sets forth information regarding the aggregate number of unvested stock awards outstanding at the end of fiscal year 2022 for each non-employee director, including unvested stock awards granted in fiscal year 2022 and, in relation to Messrs. Begleiter, Cruger, Gmelich and Li and Ms. Altobello, RSUs for which the director previously elected to defer receipt. There are no stock option awards granted to directors in fiscal year 2022 and no stock options outstanding at fiscal year-end.

Equity Awards Outstanding	
Name	Aggregate Number of Stock Awards Outstanding at Fiscal Year End
Stephen P. Casper	586
Nancy Altobello	1,035
Steven L. Begleiter	1,553
Jane Chwick	497
William F. Cruger	1,469
Kourtney Gibson	497
Justin Gmelich	1,035
Richard Ketchum	497
Xiaojia Charles Li	768
Emily Portney	497
Richard Prager	497

Stock ownership and holding guidelines

To keep the interests of non-employee directors and stockholders aligned, the Board of Directors has adopted stock ownership guidelines for our non-employee directors. Non-employee directors are required to hold not less than the number of shares of Common Stock equal in value to five times the annual cash retainer payable to a director, or \$425,000. The holding requirement must be achieved within five years after the director has become a Board member and maintained throughout the non-employee director's service with the Company. All shares of Common Stock beneficially owned by the director, including shares purchased and held personally, vested and unvested restricted shares, vested and unvested RSUs, settled performance shares, and shares deferred under a non-qualified deferred compensation arrangement, count toward the minimum ownership requirement. Vested and unvested stock options and unearned performance shares are excluded.

In addition to the ownership guidelines, all non-employee directors must hold all shares granted for service for a minimum of five years from the date of grant. Directors are also required, for a period of six months following his or her departure from the Board, to comply with the Company's Insider Trading Policy that, among other things, prohibits trading in the Company's securities during specified blackout periods.

As of April 1, 2023, the holding requirement was equal to 1,491 shares, calculated using a price of \$285.06 per share, which was the average of the daily closing price of our Common Stock for the twelve-month period ended on March 31, 2023. All of our non-employee directors have either achieved the designated level of ownership or are in the five-year period following their appointment or election to the Board during which they are expected to achieve compliance:

Directors' Stock Ownership			
Name	Appointed	Requirement (multiple of cash retainer)	Current Holdings (multiple of cash retainer)
Stephen P. Casper	April 2004	5.0x	182.3x
Nancy Altobello	April 2019	5.0x	4.7x
Steven L. Begleiter	April 2012	5.0x	28.6x
Jane Chwick	October 2013	5.0x	22.4x
William F. Cruger	November 2013	5.0x	22.3x
Kourtney Gibson	July 2020	5.0x	3.4x
Justin Gmelich ¹	October 2019	5.0x	4.2x
Richard Ketchum	April 2017	5.0x	8.6x
Xiaojia Charles Li ¹	July 2021	5.0x	2.6x
Emily Portney	October 2017	5.0x	7.7x
Richard Prager	July 2019	5.0x	11.1x

(1) Mr. Gmelich resigned from the Board, effective April 13, 2023 and Mr. Li has not been re-nominated for election at the Annual Meeting.

Our equity plan provides for the accrual of dividends (or dividend equivalents) on unvested shares and units. However, dividends are not paid and are subject to forfeiture until all restrictions on the shares or units have lapsed.

We do not provide any retirement benefits or other perquisites to our non-employee directors.

Certain relationships and related person transactions

Related person transactions

Our related persons include our directors, director nominees, executive officers, holders of more than five percent of the outstanding shares of our Common Stock and the foregoing persons' immediate family members. We review relationships and transactions in which the Company and our related parties are or will be participants to determine whether such related persons have a direct or indirect material interest. As required under SEC rules, related person transactions that involve in excess of \$120,000 and are determined to be directly or indirectly material to a related person are disclosed in this Proxy Statement. In addition, pursuant to its charter, the Audit Committee reviews and, if appropriate, approves or ratifies any related person transaction that is required to be disclosed.

Since January 1, 2022, there has not been, nor is there currently proposed, any related person transaction in which the Company was a participant, the amount involved exceeded or will exceed \$120,000 and in which any related person had or will have a direct or indirect material interest.

Other transactions

Although not considered related person transactions that are required to be disclosed under SEC rules, each of the 5% stockholders that are listed under "Security ownership of certain beneficial owners and management" or their affiliated entities is a party to a user agreement, dealer agreement or data agreement that governs their access to, and activity on, our electronic trading platforms and access to our data products.

In addition, certain entities for which some of our directors serve as employees or officers have entered into transactions with the Company, including user agreements, dealer agreements and data agreements that govern their access to, and activity on, our electronic trading platforms and access to our data products. Each of these agreements were entered into in the ordinary course of business and, subject to our usual trade terms, provide for the fees and expenses to be paid by such entities for the use of the platform or access to data. While these transactions are not considered related person transactions that are required to be disclosed under SEC rules, our Audit Committee reviews and approves such transactions on an annual basis.

ENVIRONMENTAL, SOCIAL AND GOVERNANCE STRATEGY AND INITIATIVES

We are focused on growing our business sustainably by delivering long-term value for our customers, suppliers, stockholders, employees and the communities where we live and work. At MarketAxess, we think of our environmental, social and governance (“ESG”) strategy as one that encompasses both corporate and commercial objectives. We aim to operate the Company responsibly while managing risks and using our resources wisely. The report details topics identified by a non-financial materiality and prioritization assessment, including customer privacy, data security, ethical conduct of business, diversity, equity and inclusion, human capital management and employee health and wellbeing. Our 2022 ESG Report can be accessed in the Investor Relations — Corporate Governance section of our website. The 2022 ESG Report, and our response to the Climate Disclosure Project’s climate change questionnaire referenced below are not, and will not be deemed to be, part of this Proxy Statement or incorporated by reference into any of our filings with the SEC.

Board and management oversight of ESG matters

Our board has played the leading role in setting the objectives and priorities for our ESG initiatives and will continue to do so. Their industry knowledge and independent viewpoints have helped ensure that our ESG initiatives align with our company’s values and the interests of our shareholders and clients. As a result, our corporate governance policies have consistently been recognized as among the best of our peers.

The Company’s ESG strategy and initiatives are generally overseen by the Board’s Nominating and Corporate Governance Committee. In addition, other Board committees have oversight of specific topics that fall within our ESG umbrella. For example, the Compensation Committee oversees the Company’s efforts with respect to diversity, equity and inclusion and the Risk Committee oversees the Company’s cyber-security policies and procedures. Our CEO and General Counsel & Corporate Secretary share management oversight over our ESG strategy and initiatives.

Investing in our people and supporting our communities

In 2022, we increased investment in learning and development for all employees and launched a centralized learning management system. In addition, we initiated programs designed to ensure that our company culture is one in which diverse employees can thrive. When it comes to employee benefits, MarketAxess is well positioned to compete for talent with the largest financial and technology companies.

We also continued to expand philanthropic and community partnerships through the MarketAxess Charitable Foundation as well as volunteer opportunities for MarketAxess employees. The Charitable Foundation’s mission is to work with organizations that support underserved communities, with an emphasis on youth education, equality, diversity, and inclusion. Our aim is to use the Charitable Foundation to help shape the future of financial technology by creating opportunities for today’s youth in the fields of software development and finance.

Promoting diversity and the transition to a greener economy

Based on US reported data, we believe that MarketAxess ranks as the largest electronic corporate and municipal green bond marketplace for corporate and municipal green bond trading volume. The MarketAxess “Trading for Trees” initiative, now in its fourth year, resulted in over 316,000 trees being planted across the world in 2022. Our Diversity Dealer Initiative, launched in 2021, opened the way for large investment managers to trade more easily with minority-, women-, and veteran-owned broker-dealers, while still achieving best execution.

In addition, in 2022, we first responded to the Climate Disclosure Project’s climate change questionnaire and this year marks our first reporting against the Task Force on Climate-Related Disclosure framework in order to give our stakeholders more information on our climate change practices and policies.

PROPOSAL 2 — RATIFICATION OF SELECTION OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Audit Committee of our Board has appointed PricewaterhouseCoopers LLP (“PwC”) as our independent registered public accounting firm to audit our consolidated financial statements for the year ending December 31, 2023 and to audit the Company’s internal control over financial reporting as of December 31, 2023, and the Board is asking stockholders to ratify that selection. PwC has audited our consolidated financial statements each year since our formation in 2000. The Audit Committee periodically considers whether there should be a rotation of independent registered public accounting firms and the Audit Committee currently believes that the continued retention of PwC is in the best interests of the Company and our stockholders. Although current law, rules and regulations, as well as the charter of the Audit Committee, require our independent registered public accounting firm to be engaged, retained and supervised by the Audit Committee, the Board considers the selection of our independent registered public accounting firm to be an important matter of stockholder concern and considers a proposal for stockholders to ratify such selection to be an important opportunity for stockholders to provide direct feedback to the Board on an important issue of corporate governance. In the event that stockholders fail to ratify the appointment, the Audit Committee will reconsider whether or not to retain PwC, but may ultimately determine to retain PwC as our independent registered public accounting firm. Even if the appointment is ratified, the Audit Committee, in its sole discretion, may direct the appointment of a different independent registered public accounting firm at any time during the year if the Audit Committee determines that such a change would be in the best interests of the Company and its stockholders.

In 2011, the Company, in the ordinary course of its business, entered into a bulk data agreement with PwC for the purpose of supporting valuation conclusions reached by PwC in the normal course of PwC’s audit and other work for its clients, which has been amended from time to time. Pursuant to the agreement, the Company provides bond pricing data to PwC on terms consistent with the terms of similar data sales agreements entered into by the Company. The aggregate annual revenue to the Company from the data agreement is \$295,000. On an annual basis, the Audit Committee evaluates the effect of such agreement on the independence of PwC and has concurred with the opinion of the Company’s management and PwC that the arrangement constitutes an “arm’s-length” transaction that would not affect PwC’s independence.

Representatives of PwC will be present at our Annual Meeting, will have the opportunity to make a statement if they desire to do so, and will be available to respond to appropriate questions from stockholders.

Your vote

Unless proxy cards are otherwise marked, the persons named as proxies will vote FOR the ratification of PwC as the Company’s independent registered public accounting firm for the year ending December 31, 2023. Approval of this proposal requires the affirmative vote of the holders of a majority of the shares of Common Stock having voting power present in person or represented by proxy. Abstentions will have the same effect as a vote AGAINST this proposal. Brokers have discretionary authority to vote on Proposal 2 and, therefore, there will be no broker non-votes on Proposal 2.



BOARD RECOMMENDATION

The board unanimously recommends that you vote “FOR” ratification of PwC as the Company’s independent registered public accounting firm for the year ending December 31, 2023.

Audit and other fees

The aggregate fees billed by our independent registered public accounting firm for professional services rendered in connection with the audit of our annual financial statements included in our Annual Report on Form 10-K for the years ended December 31, 2022 and 2021 and the audit of our broker-dealer subsidiary annual financial statements, as well as fees paid to PwC for tax compliance and planning, if any, and other services, are set forth below.

Except as set forth in the following sentence, the Audit Committee, or a designated member thereof, pre-approves 100% of all audit, audit-related, tax and other services rendered by PwC to the Company or its subsidiaries. The Audit Committee has authorized the CEO and the CFO to purchase permitted non-audit services rendered by PwC to the Company or its subsidiaries up to, and including, a limit of \$10,000 per service and an annual aggregate limit of \$20,000 for all such services.

Each fiscal year, the Company's independent registered public accounting firm submits to the Audit Committee (and the Audit Committee requests from the independent registered public accounting firm) the written disclosures and the letter required by the applicable requirements of the Public Company Accounting Oversight Board ("PCAOB") regarding the independent registered public accounting firm's communications with the Audit Committee concerning independence.

Each fiscal year, the independent registered public accounting firm also submits to the Audit Committee (and the Audit Committee requests from the independent registered public accounting firm), a formal written statement of the fees billed by the independent registered public accounting firm to the Company in each of the last two fiscal years for each of the following categories of services rendered by the independent registered public accounting firm: (i) the audit of the Company's annual financial statements and the reviews of the financial statements included in the Company's Quarterly Reports on Form 10-Q or services that are normally provided by the independent registered public accounting firm in connection with statutory and regulatory filings or engagements; (ii) assurance and related services not included in clause (i) that are reasonably related to the performance of the audit or review of the Company's financial statements, in the aggregate and by each service; (iii) tax compliance, tax advice and tax planning services, in the aggregate and by each service; and (iv) all other products and services rendered by the independent registered public accounting firm, in the aggregate and by each service.

Set forth below is information regarding fees paid by the Company to PwC during the fiscal years ended December 31, 2022 and 2021.

Fee Category	2022	2021
Audit Fees ¹	\$2,869,147	\$2,690,747
Tax Fees ²	228,000	-
All Other Fees ³	10,650	1,720
Total	\$3,107,797	\$2,692,467

(1) The aggregate fees incurred include amounts for the audit of the Company's consolidated financial statements (including fees for the audit of our internal control over financial reporting), the audit of our broker-dealer subsidiary's annual financial statements and the audits of our foreign subsidiaries' annual statutory financial statements.

(2) Tax fees are comprised of fees for transfer pricing services.

(3) Other Fees are comprised of annual subscription fees for accounting related research and service fees related to XBRL conversion services.

REPORT OF THE AUDIT COMMITTEE OF THE BOARD OF DIRECTORS

The Audit Committee currently consists of Mr. Casper (Chair), Mr. Cruger, Ms. Gibson and Mr. Ketchum. Each member of the Audit Committee is independent, as independence is defined for purposes of Audit Committee membership by the listing standards of NASDAQ and the applicable rules and regulations of the SEC.

The Audit Committee appoints our independent registered public accounting firm, reviews the plan for and the results of the independent audit, approves the fees of our independent registered public accounting firm, reviews with management and the independent registered public accounting firm our quarterly and annual financial statements and our internal accounting, financial and disclosure controls, reviews and approves transactions between the Company and its officers, directors and affiliates, and performs other duties and responsibilities as set forth in a charter approved by the Board of Directors.

During fiscal year 2022, the Audit Committee met five times. The Company's senior financial management and independent registered public accounting firm were in attendance at such meetings. Following each quarterly meeting during 2022, the Audit Committee conducted a private session with the independent registered public accounting firm, without the presence of management. The Audit Committee also had two joint meetings with the Risk Committee during 2022.

The management of the Company is responsible for the preparation and integrity of the financial reporting information and related systems of internal controls. The Audit Committee, in carrying out its role, relies on the Company's senior management, including particularly its senior financial management, to prepare financial statements with integrity and objectivity and in accordance with generally accepted accounting principles, and relies upon the Company's independent registered public accounting firm to review or audit, as applicable, such financial statements in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB").

We have reviewed and discussed with senior management the Company's audited financial statements for the year ended December 31, 2022 which are included in the Company's 2022 Annual Report on Form 10-K. Management has confirmed to us that such financial statements (i) have been prepared with integrity and objectivity and are the responsibility of management and (ii) have been prepared in conformity with generally accepted accounting principles.

In discharging our oversight responsibility as to the audit process, we have discussed with PwC, the Company's independent registered public accounting firm, the matters required to be discussed by the applicable requirements of the PCAOB and the SEC.

We have received the written disclosures and the letter from PwC concerning their communications with us concerning independence, as required by applicable requirements of the PCAOB, and we have discussed with PwC their independence.

Based upon the foregoing review and discussions with our independent registered public accounting firm and senior management of the Company, we recommended to our Board that the financial statements prepared by the Company's management and audited by its independent registered public accounting firm be included in the Company's Annual Report on Form 10-K for the year ended December 31, 2022, that was filed with the SEC.

Submitted by the Audit Committee of the
Board of Directors:

Stephen P. Casper— Chair
William F. Cruger
Kourtney Gibson
Richard G. Ketchum

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth certain information regarding the beneficial ownership of the Company's Common Stock as of April 10, 2023 by (i) each person or group of persons known by us to beneficially own more than five percent of our Common Stock, (ii) each of our named executive officers ("NEOs"), (iii) each of our directors and nominees for director and (iv) all of our directors and executive officers as a group.

The following table gives effect to the shares of Common Stock issuable within 60 days of April 10, 2023 upon the exercise of all options and other rights beneficially owned by the indicated stockholders on that date. Beneficial ownership is determined in accordance with Rule 13d-3 promulgated under Section 13 of the Exchange Act and includes voting and investment power with respect to shares. The percentage of beneficial ownership is based on 37,381,480 shares of Common Stock outstanding at the close of business on April 10, 2023. Except as otherwise noted below, each person or entity named in the following table has sole voting and investment power with respect to all shares of our Common Stock that such person or entity beneficially owns.

Unless otherwise indicated, the address of each beneficial owner listed below is c/o MarketAxess Holdings Inc., 55 Hudson Yards, 15th Floor, New York, New York 10001.

	Number of Shares Beneficially Owned	Percentage of Stock Owned
5% Stockholders		
The Vanguard Group ¹	4,291,798	11.48%
BlackRock, Inc. ²	3,820,652	10.22%
T. Rowe Price Investment Management, Inc. ³	2,071,391	5.54%
Guardian Capital LP ⁴	1,910,101	5.11%
NEOs and Directors		
Richard M. McVey ⁵	540,529	1.44%
Christopher R. Concannon ⁶	38,946	*
Nancy Altobello ⁷	865	*
Steven Begleiter ⁸	7,482	*
Stephen P. Casper ⁹	54,347	*
Jane Chwick ¹⁰	6,674	*
William F. Cruger ¹¹	5,689	*
Kourtney Gibson ¹²	1,006	*
Richard G. Ketchum ¹³	2,557	*
Xiaojia Charles Li ¹⁴	497	*
Emily H. Portney ¹⁵	2,294	*
Richard Prager ¹⁶	3,323	*
Christopher N. Gerosa ¹⁷	1,788	*
Kevin M. McPherson ¹⁸	70,032	*
Naineshkumar S. Panchal ¹⁹	520	*
Scott Pintoff ²⁰	5,077	*
Christophe Roupie ²¹	3,782	*
All Executive Officers and Directors as a Group (17 persons) ²²	745,408	2.00%

* Less than 1%.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

- (1) Information regarding the number of shares beneficially owned by The Vanguard Group was obtained from a Schedule 13G filed by The Vanguard Group with the SEC on February 9, 2023. The principal business address of The Vanguard Group is 100 Vanguard Blvd., Malvern, PA 19355.
- (2) Information regarding the number of shares beneficially owned by BlackRock, Inc. was obtained from a Schedule 13G filed by BlackRock, Inc. with the SEC on March 8, 2023. The principal business address of BlackRock, Inc. is 50 Hudson Yards, New York, NY 10001.
- (3) Information regarding the number of shares beneficially owned by T. Rowe Price Investment Management, Inc. was obtained from a Schedule 13G filed by T. Rowe Price Associates, Inc. with the SEC on February 14, 2023. The principal business address of T. Rowe Price Associates, Inc. is 101 E. Pratt Street, Baltimore, MD 21202.
- (4) Information regarding the number of shares beneficially owned by Guardian Capital LP was obtained from a Schedule 13G filed by Guardian Capital LP with the SEC on February 15, 2023. The principal business address of Guardian Capital LP is Commerce Court West, Suite 2700, P.O. Box 201, Toronto, Ontario, Canada M5L 1E8.
- (5) Consists of (i) 468,550 shares of Common Stock owned individually; (ii) 2,000 shares of Common Stock owned by immediate family members; (iii) 37,742 shares of unvested restricted stock; and (iv) 32,237 shares of Common Stock issuable pursuant to stock options granted to Mr. McVey that are or become exercisable within 60 days. Does not include (i) 163,078 shares of Common Stock issuable pursuant to stock options that are not exercisable within 60 days; (ii) 4,568 unvested RSUs; (iii) 144,753 deferred RSUs or (iv) 12,872 PSUs (as defined herein).
- (6) Consists of (i) 17,713 shares of Common Stock owned individually; (ii) 18,914 shares of unvested restricted stock; and (iii) 5,048 shares of Common Stock issuable pursuant to stock options granted to Mr. Concannon that are or become exercisable within 60 days. Does not include (i) 88,154 shares of Common Stock issuable pursuant to stock options that are not exercisable within 60 days; (ii) 6,269 unvested RSUs or (iii) 14,895 PSUs.
- (7) Consists of (i) 368 shares of Common Stock owned individually; and (ii) 497 unvested RSUs that vest within 60 days. Does not include 538 deferred RSUs.
- (8) Consists of (i) 6,985 shares of Common Stock owned individually; and (ii) 497 unvested RSUs that vest within 60 days. Does not include 1,056 deferred RSUs.
- (9) Consists of (i) 8,953 shares of Common Stock owned individually; (ii) 44,808 shares of Common Stock held indirectly in a trust for which Mr. Casper's spouse is the trustee; and (iii) 586 unvested restricted stock awards that vest within 60 days.
- (10) Consists of (i) 6,177 shares of Common Stock owned individually; and (ii) 497 unvested restricted stock awards that vest within 60 days.
- (11) Consists of (i) 5,192 shares of Common Stock owned individually; and (ii) 497 unvested restricted stock awards that vest within 60 days. Does not include 972 deferred RSUs.
- (12) Consists of (i) 509 shares of Common Stock owned individually; and (ii) 497 unvested restricted stock awards that vest within 60 days.
- (13) Consists of (i) 2,060 shares of Common Stock owned individually; and (ii) 497 unvested restricted stock awards that vest within 60 days.
- (14) Consists of 497 unvested RSUs that vest within 60 days. Does not include 271 deferred RSUs.
- (15) Consists of (i) 1,797 shares of Common Stock owned individually; and (ii) 497 unvested restricted stock awards that vest within 60 days.
- (16) Consists of (i) 2,826 shares of Common Stock owned individually; and (iii) 497 unvested restricted stock awards that vest within 60 days.
- (17) Consists of (i) 966 shares of Common Stock owned individually; and (ii) 822 shares of Common Stock issuable pursuant to stock options granted to Mr. Gerosa that are or become exercisable within 60 days. Does not include (i) 2,585 shares of Common Stock issuable pursuant to stock options that are not exercisable within 60 days; (ii) 978 unvested RSUs or (ii) 2,037 PSUs.
- (18) Consists of (i) 70,032 shares of Common Stock owned individually. Does not include (i) 3,867 unvested RSUs or (ii) 5,384 PSUs.
- (19) Consists of (i) 520 shares of Common Stock owned individually. Does not include (i) 5,680 unvested RSUs; or (ii) 4,899 PSUs.
- (20) Consists of (i) 5,077 shares of Common Stock owned individually. Does not include (i) 2,079 unvested RSUs or (ii) 2,904 PSUs.
- (21) Consists of (i) 3,634 shares of Common Stock owned individually and (ii) 148 shares of unvested restricted stock. Does not include (i) 2,100 unvested restricted stock units or (ii) 2,973 performance shares and PSUs.
- (22) Consists of (i) 648,375 shares of Common Stock owned individually; (ii) 56,804 shares of unvested restricted stock; (iii) 5,556 shares of RSUs that vest or deliver within 60 days; and (iv) 38,107 shares of Common Stock issuable pursuant to stock options that are or become exercisable within 60 days. Does not include (i) 253,817 shares of Common Stock issuable pursuant to stock options that are not exercisable within 60 days; (ii) 22,812 RSUs that are unvested; (iii) 148,128 deferred RSUs or (iv) 40,925 performance shares PSUs.

EXECUTIVE OFFICERS

Set forth below is information concerning our executive officers as of the date hereof.

Name	Age	Position
Richard M. McVey	63	Executive Chairman
Christopher R. Concannon	55	Chief Executive Officer
Christopher N. Gerosa	47	Chief Financial Officer
Kevin M. McPherson	52	Global Head of Sales
Naineshkumar S. Panchal	51	Chief Information Officer
Scott Pintoff	52	General Counsel and Corporate Secretary
Christophe Roupie	57	Head of EMEA and APAC

Richard M. McVey has been Executive Chairman since April 2023 and previously served as our Chairman and CEO from our inception to April 2023. See “Proposal 1 – Election of Directors — Director information” for a discussion of Mr. McVey’s business experience.

Christopher R. Concannon has been Chief Executive Officer since April 2023 and previously served as our President & Chief Operating Officer, from January 2019 to April 2023. Mr. Concannon has been a member of the Board of Directors since January 2019. See “Proposal 1 – Election of Directors — Director information” for a discussion of Mr. Concannon’s business experience.

Christopher N. Gerosa has been CFO since August 2021. Prior to his current role, Mr. Gerosa was Head of Accounting and Finance of the Company from April 2015 to August 2021, with global responsibility for accounting, tax, treasury management and financial planning and analysis functions. Prior to joining the Company, Mr. Gerosa was Chief Financial Officer of Primus Guaranty, Ltd. (“Primus”) from 2010 to 2014 and Corporate Treasurer from April 2007 to 2014. Prior to these roles, Mr. Gerosa held the position of Corporate Controller and served as the Director of Investor Relations of Primus. Mr. Gerosa joined Primus in 2003 and was an integral part of taking Primus public in 2004. Before joining Primus, he worked in the product controller areas of Deutsche Bank and Goldman Sachs. Mr. Gerosa began his professional career at Arthur Andersen. He served as a U.S. Army National Guard Infantry Officer after receiving his B.B.A. from the University of Notre Dame.

Kevin M. McPherson has been Global Head of Sales since June 2014. From January 2008 to June 2014, Mr. McPherson was the Company’s U.S. Sales Manager. From March 1999 to December 2007, Mr. McPherson was a Sales Representative for the Company, running the Company’s West Coast sales and distribution effort. From June 1996 to March 1999, Mr. McPherson worked within the Emerging Markets Fixed Income Group of Scudder Stevens & Clark, where he traded emerging market fixed income securities and supported portfolio administration. Mr. McPherson began his career at State Street Bank & Trust, where he worked from June 1994 to June 1996 as an accountant and auditor for fixed income and equities portfolios. Mr. McPherson received a B.A. in business administration from the University of Maine.

Naineshkumar S. Panchal has been Chief Information Officer since March 2022. Prior to his current role, Mr. Panchal served as a Managing Director of Goldman Sachs Asset Management Technology from November 2014 to February 2022. In that role, he served in various capacities, including a Global Co-Head of Technology, Asset Management Division from 2020 to 2021, Global Head of Goldman Sachs Asset Management Portfolio Management and Trading Technology from 2019 to 2020, Global Co-Head of Goldman Sachs Asset Management Portfolio Management and Trading Technology from 2018 to 2019 and Global Head of Fixed Income and Sales Technology, Asset Management Division from 2014 to 2018. Prior to this role, he was a Managing Director, Technology of Goldman Sachs Securities Division, serving in various capacities from 1996 to 2014. Mr. Panchal began his career as a Consultant, Financial Services at Andersen Consulting prior to his tenure at Goldman Sachs. He holds a B.A. and an M.A., each in Computer Science, from Cambridge University.

Scott Pintoff has been General Counsel and Corporate Secretary of MarketAxess since February 2014. In this role, Mr. Pintoff is responsible for the legal and compliance departments, as well as the regulatory affairs of the Company. Prior to joining MarketAxess, Mr. Pintoff was General Counsel and Corporate Secretary at GFI Group, a position he held since 2003. At GFI, Mr. Pintoff was responsible for all legal, regulatory and compliance matters, including GFI's initial public offering, all major acquisitions and implementation of the Dodd-Frank Act. Mr. Pintoff joined GFI Group in 2000 as Associate General Counsel. Prior to GFI, Mr. Pintoff was at Dewey Ballantine LLP from 1996 to 2000 within the mergers and acquisitions group. Mr. Pintoff received a B.A. (Honors) from Wesleyan University and a J.D from the New York University School of Law.

Christophe Roupie has been Head of EMEA and APAC since May 2020. From March 2017 through May 2020, Mr. Roupie was the Company's Head of Europe and Asia. Prior to joining MarketAxess, from October 2015 until October 2016, Mr. Roupie was the CEO of HiRock AG, a family office in Switzerland. From May 2005 to October 2015, Mr. Roupie was Global Head of Trading and Securities Financing at AXA Investment Managers. While at AXA Investment Managers, he managed trading teams in Paris, London, Hong Kong and Greenwich, Connecticut across equities, fixed income, FX, derivatives, repo and stock lending. Prior to this, Mr. Roupie was the Global Head of Fixed Income Trading at IXIS AM (now Natixis Asset Management) from October 2000 to March 2005.

A LETTER FROM OUR COMPENSATION AND TALENT COMMITTEE

Dear Fellow Stockholders,

As members of MarketAxess' Compensation and Talent Committee (the "Compensation Committee"), we endeavor to create an executive compensation program that is performance-based, directly correlated with business and financial results, and designed to attract, reward and retain high caliber executives.

In 2022, we received strong positive feedback from stockholders on our compensation program. The 2022 say-on-pay proposal received 96.4% support, and subsequent stockholder engagement in late 2022 and early 2023, has generally been positive. The Compensation Committee seeks to include the input of our stockholders in the regular evaluation of our programs and welcomes continued stockholder feedback regarding our executive compensation practices. The Company reached out to stockholders who collectively represented over 66% of our outstanding common stock and had conversations with 13 stockholders who requested engagement representing approximately 38% percent of our outstanding common stock. The feedback from our stockholders, including the welcomed evolution of our executive compensation programs over the last few years, was conveyed to our Compensation Committee. We remain determined to understand your perspectives and committed to considering constructive changes in response to your feedback.

Our compensation program is designed to reward the short-term and long-term success of the Company. The Company's 2022 NEO cash incentives were tied to both 2022 Adjusted Operating Income and the executive's individual performance, including contributions to the Company's growth strategy and performance related to the Company's diversity and human capital goals. The Company's 2022 equity incentives, granted in February 2023, were comprised 50% of performance stock units ("PSUs"), which measure a combination of market share, revenue growth, and operating margin, over a subsequent three-year performance period.

Our Compensation Committee is and will remain committed to the ongoing evaluation and improvement of our executive compensation program. We look forward to continuing the dialogue and encourage you to reach out with any questions or concerns related to our program before making your voting decision. Thank you for your investment in MarketAxess.

Submitted by the Compensation and
Talent Committee of the Board of
Directors:

Richard L. Prager – Chair
Nancy Altobello
Kourtney Gibson

COMPENSATION DISCUSSION AND ANALYSIS

This Compensation Discussion and Analysis (“CD&A”) describes the Company’s executive compensation program and provides an overview of the Company’s pay for performance methodology and compensation decisions for the following NEOs:

Name	Title
Richard M. McVey	Executive Chairman
Christopher R. Concannon	Chief Executive Officer
Christopher N. Gerosa	Chief Financial Officer
Kevin M. McPherson	Global Head of Sales
Naineshkumar S. Panchal	Chief Information Officer

On January 9, 2023, the Company announced that Mr. McVey, formerly the Company’s CEO, would become Executive Chairman and Mr. Concannon, formerly the Company’s President and Chief Operating Officer, would be promoted to CEO, each effective as of April 3, 2023. Messrs. McVey and Concannon are currently serving as Executive Chairman and Chief Executive Officer, respectively.

Responding to stockholders; evolving pay practices

Say-on-Pay support and 2022 stockholder engagement

Our annual say-on-pay vote (“Say-on-Pay”) is one of our opportunities to receive feedback from stockholders regarding our executive compensation program. At the 2022 Annual Meeting, approximately 96.4% of the votes cast approved the Say-on-Pay proposal, an increase from 96.2% and 93.7% in 2021 and 2020, respectively. The Company continues to conduct annual outreach with our stockholders to better understand investors’ perspectives on our compensation program and incorporate their feedback. Following the 2022 Annual Meeting, we continued this dialogue by reaching out to stockholders who collectively represented over 66% of our outstanding common stock and had conversations with 13 stockholders who requested engagement representing more than 38% percent of our outstanding common stock. During our outreach, we discussed a range of relevant topics with stockholders, including the evolution of our executive compensation programs, for which we received consistently positive feedback.

With regard to non-compensation matters, the stockholders with whom we spoke welcomed the publication of our third ESG Report, our decision to begin measuring the Company’s carbon emissions in 2022 and the success of our Trading-for-Trees and Diversity Dealer initiatives.

Stockholder feedback was relayed directly to the Board of Directors, including to relevant Board committees that oversee various ESG Topics. See “Environmental, social and governance strategy and initiatives — Board and management oversight of ESG matters” for more information.

Executive summary

MarketAxess 2022 performance overview

In 2022, the Company made significant strides in executing its long-term growth strategy despite the headwinds from the shock of rapid interest rate increases, which had an indirect negative impact on our U.S. high-grade variable transaction fees per million, and the impact of a strengthening U.S. dollar. In terms of our core business, the Company delivered record total credit average daily trading volume of \$11.8 billion, representing an increase of 13% compared to the prior year. The Company delivered these strong results by expanding our strong leadership position in the global institutional client e-trading space driven by record levels of estimated market share in the U.S., including high-yield (17.9%, up +270 bps) and municipal bonds (4.5%, up +240 bps), as well as in our international credit businesses, including Eurobonds (15.4%, up +330 bps) and emerging markets, reflecting the benefit of our global product diversification efforts.

Open Trading continues to be a key differentiator for the Company, with a record 36% of total credit trading executed via Open Trading in 2022. With approximately 1,700 counterparties, we delivered price improvement of approximately \$945 million for our clients in 2022, well in excess of our full-year 2022 total revenue.

Beyond our core business, we made significant progress expanding our new growth initiatives. Our U.S. Treasury bond platform generated a record \$5.3 trillion of trading volume in 2022 and we are continuing to expand the platform to our broad institutional investor client base to make the platform a unique and innovative all-to-all solution for the U.S. Treasury market. In municipal bonds, we are leveraging our acquisition of MuniBrokers to drive continued electrification and bring higher levels of efficiency to a market characterized by a large number of small trade tickets. The result has been record levels of estimated market share and record trading volumes. As we continue to add liquidity providers, we are also focused on bringing enhanced transparency to the municipal bond market with our premier pricing engine, CP+, for municipal bonds. We also made significant headway in growing our data and post-trade businesses, despite the negative impact of a strengthening U.S. dollar.

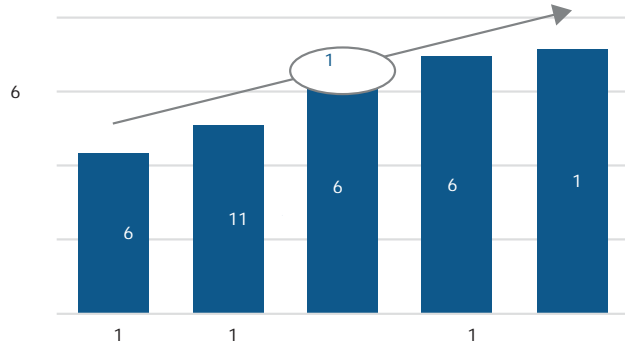
In 2022, we announced our strategic collaboration with MSCI on liquid fixed income indices, portfolio construction solutions and ESG data, and we launched two new fixed income indices. State Street Global Advisors launched an ETF on the MarketAxess U.S. Investment Grade 400 Corporate Bond Index and we also acquired a significant minority stake in RFQ-hub Holdings, a bilateral multi-asset and multi-dealer request for quote platform with several of the leading ETF market makers.

For reference, we have included compound annual growth rates ("CAGR"), where appropriate, for the key performance metrics discussed below.

Key financial and operational performance highlights

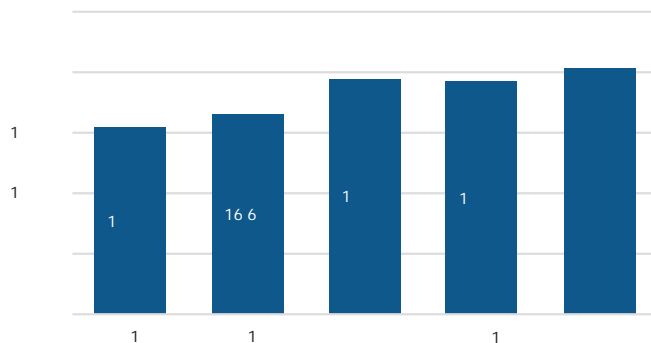
Our key financial and operational performance highlights include:

Total Revenues:



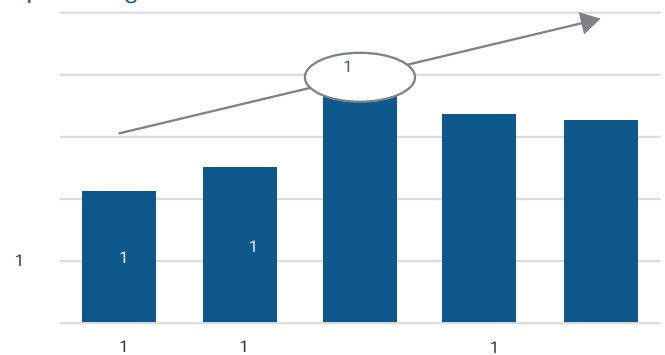
Market conditions began to improve in 2022 as the fixed-income markets continued to normalize with higher levels of interest rates and volatility after a period of benign credit market conditions in 2021. The Company reported a record \$718 million in revenue, the 14th consecutive year of record revenue. Total revenue growth of 3% reflected a 10% decline in our total credit variable transaction fees per million, principally due to the negative impact of the sharp increase in interest rates, as well as the impact of a strengthening U.S. dollar. These headwinds partially offset record levels of estimated market share across U.S. high-yield, emerging markets, Eurobonds and municipal bonds.

Estimated U.S. Credit Market Share:



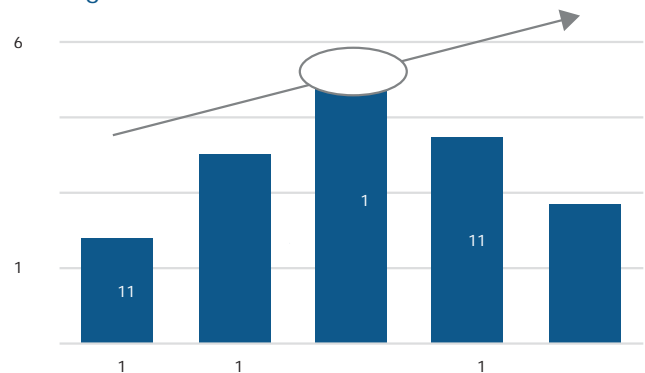
In 2022, the Company expanded its strong leadership position in the U.S. credit institutional e-trading space. The institutional client segment is the largest in the global credit markets and represents the highest-quality order flow for banks and other market makers. In 2022, approximately 91% of credit volume on the platform was executed by institutional clients and our estimated market share of the U.S. credit market was 20.4%, an increase of 110 basis points, and estimated U.S. credit market TRACE volumes increased 5%.

Operating Income:



Total expenses increased 8% as the Company is continuing to invest in new markets, trading protocols and data and in 2022, our U.S. high-grade variable transaction fees per million was negatively impacted by the shock of rapid interest rate increases. In addition, the impact of a strengthening U.S. dollar dampened our top-line growth.

Closing Stock Prices as of December 31:



As discussed below, the increase in interest rates in 2022 also negatively impacted technology focused, high multiple stocks. Multiple contraction was broad based across the technology sector. See below for a discussion of our relative stock performance against the S&P 500, the Dow Jones U.S. Financials Index and our peer group median.

COMPENSATION DISCUSSION AND ANALYSIS

Relative Stock Performance

All of the major product areas trading on the Company's platforms are in relatively early stages of electronification. Given this, the Company's focus is on investing and innovating to capture the long-term opportunity. We believe that the differentiated liquidity pool on our platforms, and the trading efficiency and price improvement that we provide to investors and dealers globally, will lead to greater growth in market share and volumes on our platforms. The lower stock price returns for stockholders over the last several years has been driven by several factors. First, coming off our strong pandemic-driven financial performance of 2020, the market environment changed dramatically in 2021, characterized by a significant tightening of credit spreads and decrease in credit spread volatility driven by the extreme levels of liquidity injected into the market by central banks. These challenging market conditions resulted in lower levels of growth in 2021 relative to the record levels generated in 2020. Next, at the end of 2021, the Federal Reserve signaled that interest rate increases would begin in early 2022 and the rapid pace of rate increases, the most since the early 1980s, resulted in a massive interest rate shock to the market. The rapid pace of interest rate hikes negatively impacted our U.S. high-grade average variable fee per million and dampened our top-line growth. Last, in 2022, technology-focused, high-multiple stocks were negatively impacted by the increase in interest rates and, as a result, multiples contracted broadly across the sector.

	10-Year Return	5-Year Return	3-Year Return	1-Year Return
MKTX	757.6	43.4	-24.9	-31.5
S&P 500	169.2	56.9	24.8	-18.1
Dow Jones U.S. Financials Index	N/A	37.1	13.6	-13.7
Peer Group Median	275.0	37.9	21.1	-22.2

Elements of executive compensation

The compensation structure for our NEOs is comprised of base salaries, annual cash incentive compensation and various forms of equity granted under our 2020 Equity Incentive Plan. The combination of these elements enables us to offer a competitive, cost-effective compensation program that balances variable, or at-risk, compensation with prudent risk-taking and the interests of our stockholders. Equity awards may be granted on an annual basis or as one-time awards, including multi-year awards that are attributed over multiple years of compensation. We believe that equity awards serve as an important part of a NEO's compensation in that they further ensure alignment of the NEO's interests with those of our stockholders.

Annual variable cash and equity compensation gives the Compensation Committee the flexibility to tie NEO compensation to individual and corporate performance, which is an important element of our pay philosophy and each NEO's compensation.

The table below summarizes the elements of our compensation program as in effect for fiscal year 2022, and how each element supports the Company's compensation objectives:

Component		Performance Link	Description
Base Salary	Cash	N/A	<ul style="list-style-type: none"> Provides a consistent minimum level of compensation that is paid throughout the year at a cost-effective level for the Company
Annual Cash Incentive	Cash	Adjusted operating income (60% for Messrs. McVey and Concannon; 50% for all other NEOs)	<ul style="list-style-type: none"> Performance-based cash incentive opportunity Rewards short-term performance in a framework that discourages excessive risk-taking
		Individual performance and contributions to strategic corporate objectives (40% for Messrs. McVey and Concannon; 50% for all other NEOs)	
Long-Term Annual Equity Incentive	50% PSUs	U.S. credit market share (1/3 rd)	<ul style="list-style-type: none"> Financial performance targets are pre-determined by the Compensation Committee and reflect our financial and strategic long-term goals Three-year performance periods with one- year calculation periods Targets for years two and three are tied to prior year's results Cliff-vest after three years
		Revenue growth excluding U.S. credit (1/3 rd)	
		Operating margin (1/3 rd)	
	50% Time vested equity (RSUs and stock options)	Stock price performance	<ul style="list-style-type: none"> Stock-based awards establish direct alignment with our stock price performance and stockholder interests Messrs. McVey and Concannon receive half of their annual long-term equity award that is time-based in RSUs and the other half in stock options Under our "Flex Share" program, the other NEOs may choose to receive this portion of their award in all RSUs or a combination of RSUs and stock options, allowing the Company to deliver more individualized awards without incurring additional expense Vest ratably over three years

COMPENSATION DISCUSSION AND ANALYSIS

The NEOs also receive standard employee benefits, including healthcare, life insurance, disability and retirement savings plans. The NEOs do not generally receive any perquisites. In 2022, however, Mr. McVey received a one-time perquisite in the form of a payment of fees to the Federal Trade Commission for his required filing under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended (the “HSR Act”), as a result of his stock ownership of the Company. See “—2022 compensation detail—Other benefits; Perquisites” for more information.

2022 compensation decisions

A significant portion of each NEO’s compensation is dependent on our financial performance, with firm-wide annual cash incentives tied to the Company’s adjusted operating income. The Company generated \$370.4 million of adjusted operating income in 2022, which was below our 2022 internal target goal of \$426.0 million. Accordingly, the cash incentive plan pool funding was lower than budgeted. See “Appendix A–Reconciliation of Non-GAAP Amounts” for a reconciliation of adjusted operating income to operating income, a non-GAAP measure. Further details about how the adjusted operating income affected the NEO’s cash incentive can be found under “— 2022 compensation detail — Annual cash incentives” below. The remainder of each NEO’s annual cash incentive awards for 2022 was determined by the Compensation Committee’s assessment of each NEO’s attainment of quantitative and qualitative performance criteria, which include contributions to the Company’s growth strategy as well as progress on diversity and human capital objectives.

Our annual long-term equity incentives are stock-based awards that establish direct alignment with our stock price performance and stockholder interests. The amount awarded to each of the NEOs is based upon the NEO’s individual performance and may be further informed by benchmark data.

Given the NEOs’ attainment of objectives within their control and the Company’s compensation positioning relative to market benchmarking data, cash incentives were largely funded below target with additional total compensation driven by the use of long-term equity incentive awards.

2022 Total Compensation Summary (000's)							
	2022 Base	2022 Incentive			Total Compensation ²		
	Salary	Cash	Equity ¹	Total	2022	vs. 2021 (\$)	vs. 2021 (%)
Richard M. McVey	\$500	\$1,750	\$5,750	\$7,500	\$8,000	\$250	3%
Christopher R. Concannon	\$500	\$1,300	\$3,800	\$5,100	\$5,600	\$350	7%
Christopher N. Gerosa ³	\$300	\$600	\$800	\$1,400	\$1,700	\$500	42%
Kevin M. McPherson	\$300	\$900	\$1,550	\$2,450	\$2,750	\$100	4%
Naineshkumar S. Panchal ⁴	\$400	\$900	\$1,400	\$2,300	\$2,700	-	-

- (1) Represents equity awards attributable to 2022 performance. Messrs. McVey’s, Concannon’s, Gerosa’s and Panchal’s equity incentive column include \$2,200,000, \$1,000,000, \$333,333 and \$750,000 in attributed multi-year compensation from previously granted multi-year equity awards. See “—Multi-Year Awards” below.
- (2) “2022 Total Compensation” differs from the figures shown in the total column of the table under “Executive compensation —Summary compensation table.” The Summary Compensation Table reflects the full grant date value of any equity award received by the NEOs in the year actually granted, in accordance with FASB ASC Topic 718.
- (3) Mr. Gerosa was promoted to CFO effective as of August 1, 2021. 2022 represents his first full year as CFO.
- (4) Mr. Panchal became CIO on March 1, 2022. The amount in the 2022 Base Salary column reflects his salary on an annualized basis. Mr. Panchal received \$333,333 in base salary in 2022.

Executive compensation practices and governance

Principles and strategy

Our executive compensation program is designed to promote the following core principles that are aligned with our Company's business strategy:

- **Alignment:** we align Company and individual performance and decision-making with long-term stockholder value creation;
- **Retention:** attract, reward and retain high caliber executives;
- **Motivation:** motivate high performance from our NEOs by offering greater incentives for superior performance and reduced awards for underperformance;
- **Prudence:** discourage imprudent risk-taking by avoiding undue emphasis on any one metric or short-term goals; and
- **Fairness:** be transparent and fair to both our NEOs and our stockholders.

We believe these principles have served us well for many years, and we are continuing to refine them in response to input from our stockholders.

Our compensation principles place a majority of our executive officers' compensation at risk and emphasize incentives tied to individual and Company performance, as well as continued service. As a result, the only fixed compensation paid is base salary, which represented 6% of Mr. McVey's total compensation, 9% of Mr. Concannon's total compensation and no more than 18% of the other NEO's total compensation in 2022. We also seek to promote long-term commitments from our NEOs because we believe that continuity of the Company's leadership team benefits both the Company and our stockholders. As such, we utilize long-term (three- to five-year) equity incentives in conjunction with short-term incentives (performance-based annual cash awards). Ultimately, the value realized by our NEOs from our equity incentive awards will depend on our financial performance, changes in our Common Stock price, and satisfaction of an award's vesting schedule. Taken together, we believe these factors help create a comprehensive scheme that both reinforces our long-term performance-based orientation and is aligned with the interests of our stockholders.

Best practices

Our pay practices align with our compensation principles and facilitate our implementation of those principles. They also demonstrate our commitment to sound compensation and governance policies.

Compensation Policies and Practices	
What We Do	What We Avoid
✓ Emphasis on performance-based compensation	✗ No guaranteed bonuses except for new hires
✓ Maintain clawback policies	✗ No pension / SERP plans
✓ Stock ownership guidelines	✗ No single-trigger change in control benefits
✓ Use of long-term equity awards that align with stockholder interests	✗ No §280G excise tax "gross-up" benefits
✓ Automatic reduction of severance payments subject to §280G excise tax	✗ No recycling of options or stock appreciation rights
✓ Engage with investors	✗ No "repricing" underwater options without stockholder approval
✓ Dividends and dividend equivalents on restricted stock and RSUs are paid only when the awards vest	✗ No hedging or pledging of MarketAxess stock
✓ Engage independent compensation consultants	✗ No significant perquisites or other personal benefits for NEOs

COMPENSATION DISCUSSION AND ANALYSIS

Role of the Compensation Committee

The Compensation Committee administers the compensation program for our NEOs. The Compensation Committee reviews all components of remuneration (both cash and equity) and decides which elements of compensation, if any, should be adjusted or paid based on corporate and individual performance results and competitive benchmark data. The Compensation Committee also determines performance award payouts for the prior fiscal year based on actual results against performance goals.

In performing its duties, the Compensation Committee:

- annually reviews competitive compensation data, recent compensation trends and any other relevant market data obtained by its compensation consultants and considers the impact on our compensation architecture, policies and strategies;
- reviews all compensation earned by each NEO, including each NEO's past wealth realization and future equity incentive opportunities;
- consults with the compensation consultants and full Board regarding market and performance data when considering decisions concerning the structure and amount of our Executive Chairman's and CEO's compensation;
- considers the recommendations of our CEO relating to the performance of our NEOs (other than himself) and the recommendations of its compensation consultants relating to market data and compensation trends when considering decisions concerning the structure and amount of compensation of our NEOs.

The Compensation Committee's function is fully described in its charter, which is available on our corporate website at www.marketaxess.com under "Investor Relations – Corporate Governance." In performing its duties, the Compensation Committee receives assistance from management and our independent compensation consultants. The Compensation Committee's decisions relating to compensation for our NEOs are reviewed by our full Board of Directors.

Role of independent compensation consultants

Pursuant to its charter, the Compensation Committee may retain and terminate any consultant or other advisor, as well as approve the advisor's fees and other engagement terms. For fiscal year 2022, the Compensation Committee retained FW Cook as its independent compensation consultant for purposes of advising on executive compensation. Representatives from FW Cook attended Compensation Committee meetings, participated in executive sessions and communicated directly with the Compensation Committee. During 2022, FW Cook provided the following services to the Compensation Committee:

- **Executive Compensation Design** – Provided the Compensation Committee with executive compensation design suggestions and alternatives;
- **Pay Analysis** – Reviewed and benchmarked competitive market pay levels with respect to 2022 compensation for our global management team, including the NEOs;
- **Peer Group Construction** – Reviewed and recommended changes to the Company's peer group composition (as discussed below in Peer Group); and
- **General Advice/Compliance** – Provided general compensation-related recommendations to the Compensation Committee and performed other services, including providing advice regarding regulatory and advisory compliance issues, CEO succession and other governance issues.

FW Cook also advised the Compensation Committee with regard to the compensation for our Board of Directors. See "Corporate governance and board matters — Director compensation" for more information.

The compensation consultant reported directly, and is directly accountable, to the Compensation Committee. The Compensation Committee assessed the independence of FW Cook pursuant to SEC rules and determined that its work did not raise any conflicts of interest. The Compensation Committee will continue to monitor the independence of its compensation consultant on an annual basis.

Role of senior management

Senior management, including the Executive Chairman, the CEO and Chief Human Resources Officer, make recommendations for the meeting agendas and prepare the materials for Compensation Committee meetings and attend those meetings, other than during executive session. Other senior managers, such as the CFO and General Counsel, may also assist in the preparation or presentation of relevant material. In 2022, Mr. McVey, then CEO, made recommendations regarding the annual compensation for the NEOs, other than himself, to the Compensation Committee for consideration. No member of management is present in the Compensation Committee meetings when matters related to their individual compensation are under discussion.

Compensation risk assessment

The Compensation Committee is responsible for reviewing and assessing potential risk arising from the Company's compensation policies and practices. The Compensation Committee regularly reviews the Company's compensation policies and practices to ascertain any potential material risks that may be created by the Company's compensation programs. FW Cook provided the Compensation Committee an assessment of the effectiveness of all major components of the Company's compensation programs, including the mix between annual and long-term compensation; short and long-term incentive program design; incentive plan performance criteria and corresponding objectives; the Company's severance and change-in-control policies; its clawback policy; and its stock ownership guidelines. The Compensation Committee's review includes the compensation practices for our entire employee base to ensure that our pay practices, compensation programs and business strategies do not motivate imprudent risk-taking by any employee.

The Compensation Committee considered these items in determining the appropriate compensation programs for the Company. The Company utilizes many design features that mitigate the likelihood of encouraging excessive risk-taking behavior. Among these design features are the use of:

- Equity compensation with long-term vesting (three to five years);
- Holding periods or cliff-vesting for certain long-term equity awards;
- Clawback policies;
- Stock ownership and retention guidelines that meet market standards;
- The Compensation Committee's ability to exercise downward discretion in determining payouts, including after consideration of regulatory, compliance and legal issues; and
- Training on our Code of Conduct and other policies that educate our employees on appropriate behaviors and the consequences of taking inappropriate actions.

Based on the foregoing, the Compensation Committee and management agree that our compensation policies and practices do not encourage excessive risk-taking or create risks that are reasonably likely to have a material adverse effect on the Company. We believe that our compensation programs do not provide incentives that encourage risk-taking beyond the Company's ability to effectively identify and manage significant risks and is compatible with the internal controls and the risk management practices of the Company.

How we determine pay levels

Peer group

The Compensation Committee assesses the Company's financial performance and executive compensation competitiveness against a group of peer companies that it selects based on input from FW Cook. A key objective of our executive compensation program is to ensure that the total compensation package and structure that we provide to our NEOs is competitive with the companies with whom we compete for executive talent. The 2022 peer group consisted of companies that are similar to the Company in terms of competitive positioning, financial size, operating characteristics, market sector or industry classification. FW Cook engages with the Compensation Committee to review the peer group annually and periodically make changes.

In 2022, FW Cook completed an annual review of the composition of our peer group. Factors considered in determining the peer group ("Peer Group") included:

- financial size (e.g., revenue, market capitalization, operating income, etc.);
- whether companies compete with us for clients, executives or other employee talent;
- market sector, asset class or product offering;
- peers of peers, as well as peers designated by shareholder advisory firms in their annual reviews; and
- reviewing the broader market for additional firms in financial services, IT services and software industries, based on relative revenue, market capitalization and operating income similarity.

For 2022, our Peer Group was comprised of the following firms:

2022 Peer Group		
ACI Worldwide, Inc.	Factset Research Systems, Inc.	Q2 Holdings Inc.
Aspen Technologies, Inc.	Fair Isaac Corporation	SEI Investments Company
BGC Partners, Inc.	Guidewire Software, Inc.	Tradeweb Markets Inc.
Black Knight, Inc.	Hercules Capital, Inc.	Virtu Financial, Inc.
Cboe Global Markets, Inc.	Morningstar, Inc.	WisdomTree Investments, Inc.
Cohen & Steers, Inc.	MSCI Inc.	
Envestnet, Inc.	Nasdaq Inc.	

In 2022, we added Hercules Capital, Inc., Q2 Holdings Inc. and WisdomTree Investments, Inc. to, and removed TransUnion and Verisk Analytics from, our Peer Group. We made these changes because they result in a Peer Group that is more representative of the Company's revenue profile.

Benchmarking — importance and process

In addition to the peer group, FW Cook also used leading industry compensation surveys for the financial services and financial technology sectors for benchmarking purposes. The surveys provide a broader view of compensation levels and trends, which is useful in combination with the Peer Group data. The Compensation Committee considered this data, in conjunction with the Company's performance and each NEO's individual performance, contribution and expertise in determining how each NEO is paid vis-à-vis the recommended market data. The Compensation Committee is presented summary statistics and does not review the list of individual companies that participate in the surveys.

2022 compensation detail

Elements of executive compensation

The compensation structure for our NEOs is comprised of base salaries, annual cash incentive compensation and various forms of equity granted under our 2020 Equity Incentive Plan. The combination of these elements enables us to offer a competitive, cost-effective compensation program that balances variable, or at-risk, compensation with prudent risk-taking and stockholder interests. Equity awards may be granted on an annual basis or as one-time awards, including multi-year awards, that are attributed over multiple years of compensation. We believe that equity awards serve as an important part of an NEO's compensation in that they further ensure alignment of the NEO's interests with those of our stockholders.

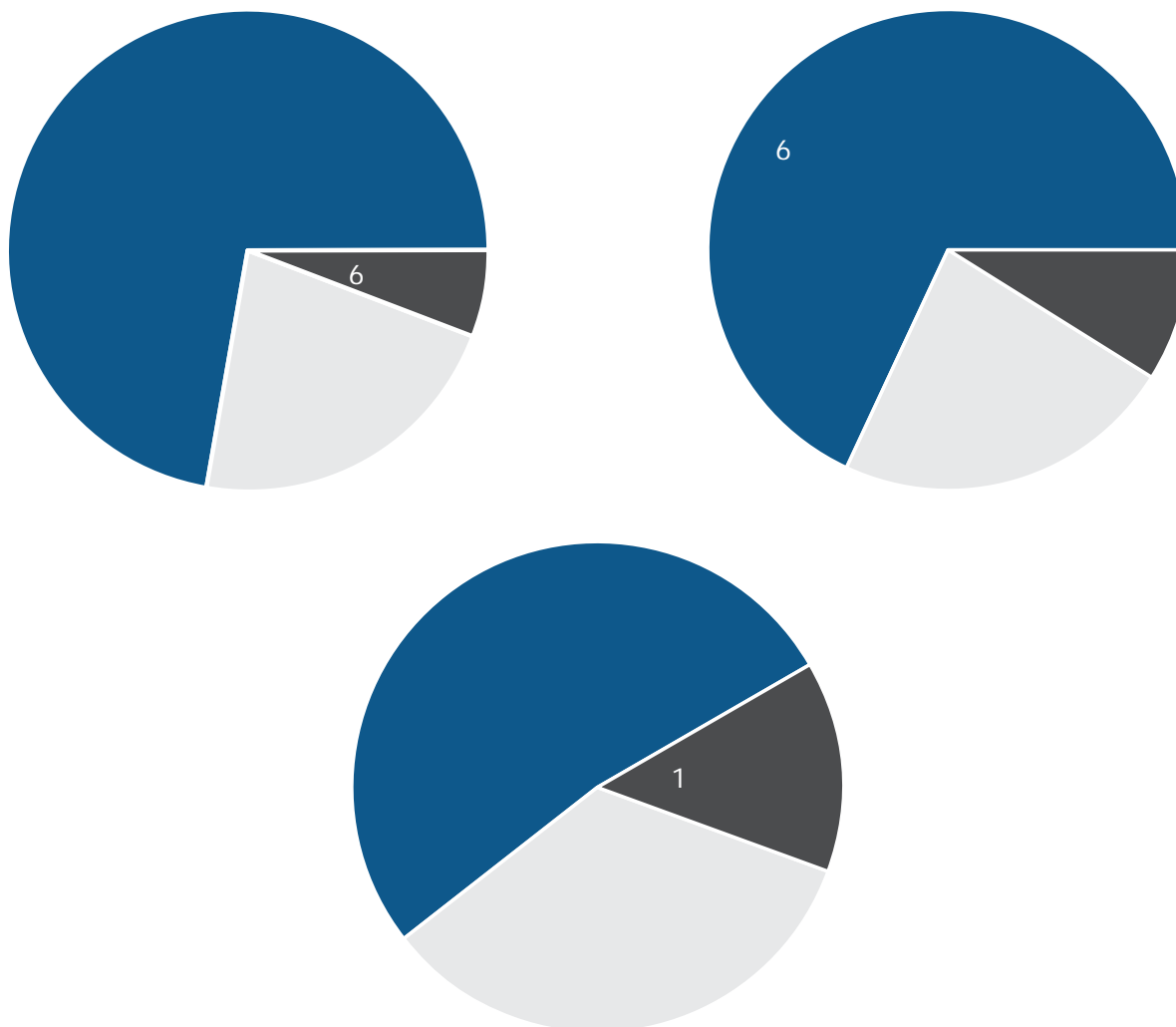
Annual variable cash and equity compensation gives the Compensation Committee the flexibility to tie NEO compensation to individual and corporate performance, which is an important element of our pay philosophy and each NEO's compensation.

The NEOs also receive standard employee benefits including healthcare, life insurance, disability and retirement savings plans. The NEOs do not generally receive any perquisites. In 2022, however, Mr. McVey received a one-time perquisite in the form of a payment of fees to the Federal Trade Commission for his required filing under the HSR Act as a result of his stock ownership of the Company. See “—Other benefits; Perquisites” for more information.

COMPENSATION DISCUSSION AND ANALYSIS

Pay mix

We believe that the balance among pay components in our compensation program design mitigates against a focus on short-term results and decreases the potential for excessive or inappropriate risk-taking (see “Executive compensation practices and governance — Compensation risk assessment” above). An overview of the elements of pay provided to Messrs. McVey and Concannon and, on average, to the other NEOs for fiscal year 2022 is as follows:



Base salary

Base salary is the only fixed component of our NEOs’ total cash consideration and is intended to provide a minimum consistent level of compensation throughout the year at a cost-effective level for the Company. We avoid automatic base salary increases and any historical increases have been infrequent. For example, Mr. McVey’s base salary remained unchanged from 2011 through 2022.

While most of the NEOs’ base salaries were at or below the market median for base salaries, we did not adjust base salaries in 2022. Instead, we provided our NEOs with increased compensation opportunities through variable and long-term incentive awards, as described below.

Change to base salaries for 2023

For 2023, the Board approved with respect to Messrs. McVey and Concannon, and the Compensation Committee approved with respect to the other NEOs, base salary increases. For 2023 the base salary of each of Messrs. McVey and Concannon is \$650,000 and the base salary of each of Messrs. Gerosa, McPherson and Panchal is \$450,000. The base salary increase for Mr. McVey was offset by a commensurate decrease in his 2023 cash incentive target for the portion of the year that Mr. McVey served as Chief Executive Officer in 2023. The base salary increases for Messrs. McPherson and Panchal were also offset by commensurate decreases in their 2023 cash incentive targets. The base salary increases for Messrs. Concannon and Gerosa were not offset by commensurate decreases in cash incentive targets in light of their recent promotions to Chief Executive Officer and Chief Financial Officer, respectively. The Board and the Compensation Committee believe that these changes were warranted to position base salaries closer to market median. For a discussion of our leadership structure, including the roles of Executive Chairman and Chief Executive Officer, see “Corporate governance – Board leadership structure.”

Annual cash incentives

The NEO’s annual cash incentives are designed to reward short-term performance in a framework that discourages excessive risk-taking.

The chart below summarizes each NEO’s target annual cash incentive, along with the funding as a percentage of target for both the adjusted operating income and individual performance portions and the actual payout amounts for the year ended December 31, 2022.

2022 Cash Incentive Summary (000's)					
	Target Cash Incentive	Funding as a Percentage of Target			2022 Cash Incentive
		Adjusted Operating Income ¹	Individual	Total ²	
Richard M. McVey	\$2,025	87%	86%	86%	\$1,750
Christopher R. Concannon	\$1,350	87%	110%	96%	\$1,300
Christopher N. Gerosa	\$600	87%	113%	100%	\$600
Kevin M. McPherson	\$1,000	87%	93%	90%	\$900
Naineshkumar S. Panchal	\$920	87%	109%	98%	\$900

- (1) Adjusted operating income excludes unplanned inorganic activity and the impact of cash incentives. See “Appendix A – Reconciliation of Non-GAAP Amounts” for a reconciliation of adjusted operating income to operating income.
- (2) Funding as a percentage of target is weighted (i) for Messrs. McVey and Concannon, between adjusted operating income (60%) and their respective individual performance and contributions to strategic corporate objectives (40%); and (ii) for the other NEOs, between adjusted operating income (50%) and the NEO’s respective individual performance and contributions to strategic corporate objectives (50%).

In 2022, 60% of Messrs. McVey’s and Concannon’s annual cash incentive, and 50% of the other NEO’s respective annual cash incentives, was directly linked to the Company’s adjusted operating income results. This performance metric is different than the performance metrics used for the Company’s annual long-term equity incentive awards. The other 40% or 50%, as applicable, of the annual cash incentive for our NEOs was based on the executive’s individual performance (see “2022 individual performance” below). For 2022, the NEOs’ cash incentives were paid out of the 2009 Employee Performance Incentive Plan (the “Employee Cash Incentive Plan”).

COMPENSATION DISCUSSION AND ANALYSIS

2022 adjusted operating income performance

As detailed in the table below, our adjusted operating income was \$370.4 million and resulted in funding of 87% for the portion of each executive officer's cash award payable based on adjusted operating income results. The Committee established a target of \$426.0 million, approximately 12% above last year's result of \$379.6 million, to ensure a rigorous performance objective for the management team.

Adjusted Operating Income Performance Grid (millions)		
Performance	Adjusted Operating Income ¹	Payout
150% of Target or Higher	≥ \$639.1	150%
125% of Target	\$532.5	125%
100% of Target	\$426.0	100%
2022 Actual	\$370.4	87%
75% of Target	\$319.5	75%
50% of Target	\$213.0	50%
Less Than 50% of Target	< \$213.0	0%

(1) Adjusted operating income excludes unplanned inorganic activity and the impact of cash incentives. See "Appendix A – Reconciliation of Non-GAAP Amounts" for a reconciliation of adjusted operating income to operating income.

2022 individual performance

In connection with the determination of each NEO's annual cash incentive award, the Compensation Committee assessed individual performance. Individual performance is reflective of an individual's attainment of quantitative and qualitative performance criteria, which include contributions to the Company's growth strategy as well as progress on diversity and human capital objectives. The Compensation Committee believes this component provides an opportunity to evaluate the quality of individual results on an annual basis and that the inclusion of diversity and human capital goals reinforces the achievement of such objectives.

The Compensation Committee assessed contributions to the Company's growth strategy of our NEOs based on our strategic corporate objectives:

Strategic Corporate Objectives	
Growth through Market Share Gains in Core Products	Best in Post Trade and Regulatory Reporting
Growth through Product Expansion and Innovation	Growth through Corporate Development and M&A
Growth through Global Client/Dealer Relationships	Build a Scalable and Resilient Business
Growth through International Expansion	Best Place to Work

These goals are intended to ensure the long-term stability of the Company and alignment between NEO's compensation and the Company's long-term strategic goals. Specifically, the NEOs were credited with the following contributions to our key imperatives:

2022 Individual Performance Considerations

- | | |
|------------------|--|
| Richard M. McVey | <ul style="list-style-type: none"> • Lead CEO transition planning and mentored CEO-elect • Delivered growth in most product areas and trading protocols as well as increased geographic expansion • Developed deeper senior management capabilities in key business areas • Expanded our client network by growing our client base and began to transition client relationships to CEO-elect • Continued progress in the Company's culture and diversity programs, including recruitment and retention of diverse employees, leadership development and better employee communication • Financial results driven by both controllable and non-controllable factors |
|------------------|--|

- | | |
|--------------------------|--|
| Christopher R. Concannon | <ul style="list-style-type: none"> • Grew volume across core credit products, Municipal Bonds, Emerging Market Bonds and Treasury Bonds • Helped to shape significant portions of our long-term growth strategy • Delivered record growth in trading automation • Led transformative talent acquisition and organizational development initiatives • Expanded dealer and client relationships globally • Drove strategy and execution for DE&I and ESG |
|--------------------------|--|

- | | |
|-----------------------|--|
| Christopher N. Gerosa | <ul style="list-style-type: none"> • Maintained strong track record of regulatory compliance and financial controls • Continue to modernize the finance department through system implementations that automate workflows and introduce efficiencies • Enhanced the investor relations and internal audit department workflow and processes • Enhanced and improved the budget and financial tracking processes • Leading employee engagement survey action planning efforts • Expanded the number of procurement relationships with diverse vendors |
|-----------------------|--|

- | | |
|--------------------|---|
| Kevin M. McPherson | <ul style="list-style-type: none"> • Grew Municipal Bond and Emerging Markets Business to record levels • Grew Portfolio Trading volumes more than 2X globally • Expanded Global client and dealer base network • Grew US Treasury business to record levels • Delivered US Investment Grade record volumes • Delivered record growth in trading automation • Leading employee engagement survey action planning efforts • Participating in MarketAxess' charitable outreach programs, offering career advice to diverse students interested in fintech |
|--------------------|---|

Naineshkumar S. Panchal	<ul style="list-style-type: none">• Delivered technology enhancements that led to growth across core products, Emerging Markets, Municipal and Treasury bonds• Delivered Portfolio Trading enhancements that helped to drive record portfolio trading volumes• Re-organized the Technology teams to increase delivery of product features to customers• Increased focus on financial management and discipline on technology investment• Increased the focus on risk and control, including cyber-security, disaster recovery, identity and access management, data loss prevention and data management• Leading employee engagement survey action planning efforts• Exceeded diversity targets set for talent acquisition
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Non-qualified deferred cash plan

The Company offers a voluntary non-qualified deferred cash plan that allows U.S.-based NEOs and other select participants to defer all or part of their annual cash incentive. In 2022, none of the NEOs deferred their annual cash incentive. Please see “Executive compensation — Nonqualified Deferred Compensation.”

Annual long-term equity incentives

We grant equity awards to our NEO’s annually as part of our on-going compensation program.

SEC rules require that we report all equity granted during the applicable reporting year in our executive compensation tables (see “Executive compensation” below). As such, in this CD&A, we provide an overview of all equity awards granted in January 2022 for 2021 performance. However, in calculating total direct compensation (“TDC”), which includes cash payments, annual equity awards made in relation to prior year performance (e.g., February 2023 awards for 2022 performance) and the annualized value of multi-year equity awards, for performance year 2022, we used the value of equity granted in February 2023 in recognition of performance during 2022. Accordingly, we have also included an overview of equity awards granted in 2023.

Our annual long-term equity incentives are stock-based awards that establish direct alignment with our stock price performance and stockholder interests. The amount awarded to each of the NEOs is based upon the NEO’s individual performance, which reflects the attainment of quantitative and qualitative performance criteria, inclusive of contributions to the Company’s growth strategy, as well as progress on diversity and human capital objectives, and may be further informed by benchmark data. For information on how the Compensation Committee determines the NEO’s individual performance and contributions to our growth strategy, please refer to the factors described under “2022 compensation detail – Annual Cash Incentives – 2022 individual performance.” The number of shares awarded is based on the average closing price of our Common Stock for the ten consecutive trading days leading up to and including the date of grant, helping to ensure that the timing of any award will not be subject to manipulation and reducing the impact of any significant short-term swings in stock price. The awards vest over a minimum of three years, and the first vesting date is at least one year from the date of grant.

The composition of our NEO's annual equity awards granted in January 2022 and February 2023 were as follows:

Component	Performance Link	Description
50% PSUs	U.S. credit market share (1/3 rd)	<ul style="list-style-type: none"> Financial performance targets are pre-determined by the Compensation Committee and reflect our financial and strategic long-term goals
	Revenue growth excluding U.S. credit (1/3 rd)	<ul style="list-style-type: none"> Three-year performance periods with one-year calculation periods Targets for years two and three are tied to prior year's results
	Operating margin (1/3 rd)	<ul style="list-style-type: none"> Cliff-vest after three years
50% Time vested equity (RSUs and stock options)	Stock price performance	<ul style="list-style-type: none"> Stock-based award establishes direct alignment with our stock price performance and stockholder interests Messrs. McVey and Concannon receive half of their annual long-term equity award that is time-based in RSUs and the other half in stock options Under our "Flex Share" program, the other NEOs may choose to receive this portion of their award in all RSUs or a combination of RSUs and stock options, allowing the Company to deliver more individualized awards without incurring additional expense Vest ratably over three years

The chart below shows the annual equity award value granted to our NEOs in January 2022 to reward their performance in 2021 and the value of any multi-year awards included in their TDC for 2021.

2021 Equity Incentive Summary (000's)						
	Multi-Year Attribution ¹	Granted January 2022 for 2021				2021 Equity Incentive
		PSUs	RSUs	Options	Total	
Richard M. McVey	\$2,200	\$1,625	\$813	\$813	\$3,250	\$5,450
Christopher R. Concannon	\$1,000	\$1,275	\$638	\$638	\$2,550	\$3,550
Christopher N. Gerosa	\$333	\$110	\$55	\$55	\$220	\$553
Kevin M. McPherson	-	\$675	\$675	-	\$1,350	\$1,350
Naineshkumar S. Panchal ²	-	-	-	-	-	-

(1) See "—Multi-year awards" below.

(2) Mr. Panchal became Chief Information Officer on March 1, 2022 and was not employed by the Company in 2021.

COMPENSATION DISCUSSION AND ANALYSIS

The chart below shows the annual equity award value granted to our NEOs in February 2023 to reward their performance in 2022 and the value of any multi-year awards included in their TDC for 2022.

2022 Equity Incentive Summary (000's)						
	Multi-Year Attribution ¹	Granted February 2023 for 2022				2022 Equity Incentive
		PSUs	RSUs	Options	Total	
Richard M. McVey	\$2,200	\$1,775	\$888	\$888	\$3,550	\$5,750
Christopher R. Concannon	\$1,000	\$1,400	\$700	\$700	\$2,800	\$3,800
Christopher N. Gerosa	\$333	\$233	\$117	\$117	\$467	\$800
Kevin M. McPherson	-	\$775	\$775	-	\$1,550	\$1,550
Naineshkumar S. Panchal	\$750	\$325	\$325	-	\$650	\$1,400

(1) See “—Multi-year awards” below.

Performance stock units

PSUs are intended to align our employees’ interests, including the NEOs, with those of our stockholders, with a focus on long-term financial results. PSUs are granted to the NEOs and other employees pursuant to the 2020 Equity Incentive Plan.

The Compensation Committee approved the following awards of PSUs in 2022 and 2023:

2021 and 2022 Performance Stock Unit Summary						
	Granted January 2022 for 2021			Granted February 2023 for 2022		
	Grant Date	Units Granted at Target	Grant Date Fair Value ¹	Grant Date	Units Granted at Target	Grant Date Fair Value ¹
Richard M. McVey	1/31/2022	4,601	\$1,584,952	2/15/2023	4,988	\$1,788,348
Christopher R. Concannon	1/31/2022	3,610	\$1,243,573	2/15/2023	3,934	\$1,410,457
Christopher N. Gerosa	1/31/2022	311	\$107,133	2/15/2023	656	\$235,196
Kevin M. McPherson	1/31/2022	1,911	\$658,301	2/15/2023	2,178	\$780,878
Naineshkumar S. Panchal ²	-	-	-	2/15/2023	913	\$327,338

(1) The grant date fair value listed above is calculated in accordance with FASB ASC Topic 718. The Company determines the number of PSUs to grant by dividing the target grant value by the 10-trading day average up to and including the date of grant.

(2) Mr. Panchal became Chief Information Officer on March 1, 2022 and was not employed by the Company in 2021.

The PSUs granted to the NEOs cliff-vest after three years and have three-year performance periods with one-year calculation periods. Targets for years two and three are based on prior year’s results.

For the awards granted in 2022 and 2023 the Compensation Committee established U.S. credit market share (1/3rd), revenue growth excluding U.S. credit (1/3rd), and operating margin (1/3rd) as the three financial metrics applicable to the awards. U.S. credit market share is a relative metric that captures our market share performance in U.S. high grade and U.S. high yield bonds. Revenue growth excluding U.S. credit includes our performance with respect to Eurobonds, emerging markets bonds, US treasuries, municipal bonds, information services and post-trade services, and other revenue streams. For the awards granted in 2021 for 2020 performance, the Compensation Committee established market share (50%) and operating income (50%) as the two financial metrics applicable to the PSUs. The Compensation Committee believes that the change to the metrics in 2022 and 2023 captures our full revenue stream opportunity and further emphasize long-term value creation through growth in new product areas and markets.

The performance metrics used for PSUs in 2022 and 2023 are different than the performance metric used for the Company's annual cash incentive plan. Goals were set at the beginning of the fiscal year based on prior actual results and the Company's budget. The goals and the Company's budget are each subject to review and approval by the Board. The Compensation Committee seeks to make target goals ambitious, requiring meaningful growth over the performance period, while threshold goals are expected to be achievable. The Company intends to disclose the performance metric payout results as a percentage of target, as well as the resulting payout for the PSUs as a percentage, following the Compensation Committee's certification of the Company's results against such targets at the end of each applicable three-year performance period. See "—2020 performance stock unit awards" for information regarding the payout of awards that have vested in 2023.

The PSU payout opportunity ranges from 0 to 200% of target, based on performance. The awards are subject to continued service and any applicable severance provisions set forth in a NEO's employment agreement, severance protection agreements and award agreement terms, each as applicable. The chart below summarizes the performance metrics for the PSUs held by our NEOs that are currently outstanding:

Performance Metrics for Outstanding Performance Stock Units			
Grant Date	Metrics ¹	Metric Weightings	Performance Range
1/15/2021	Market Share	1/2	0% - 200%
	Operating Margin	1/2	
1/31/2022	U.S. Credit Market Share	1/3	0% - 200%
	Revenue Growth Excluding U.S. Credit	1/3	
	Operating Margin	1/3	
2/15/2023	U.S. Credit Market Share	1/3	0% - 200%
	Revenue Growth Excluding U.S. Credit	1/3	
	Operating Margin	1/3	

- (1) In accordance with the 2020 Equity Incentive Plan, the Committee may provide for the performance goals to which an award is subject, or the manner in which performance will be measured against such performance goals, to be adjusted in such manner as it deems appropriate, including, without limitation, adjustments to reflect charges for restructurings, non-operating income, the impact of corporate transactions or discontinued operations, events that are unusual in nature or infrequent in occurrence and other non-recurring items, currency fluctuations, litigation or claim judgements, settlements, and the effects of accounting or tax law changes.

Restricted stock units and stock options

RSUs and stock options are intended to align our employees' interests, including the NEOs, with those of our stockholders, and promote retention. RSUs and stock options are granted to the NEOs and other employees pursuant to the 2020 Equity Incentive Plan.

Messrs. McVey and Concannon receive half of the portion of the annual long-term equity award that is time-based in RSUs and the other half in stock options. Under our "Flex Share" program, the other NEOs may choose to receive this portion of their award in all RSUs or a combination of RSUs and stock options, allowing the Company to deliver more individualized awards without incurring additional expense to the Company. The ratio of stock options to RSUs granted was 2.90 and 3.47 for the awards granted in February 2023 and January 2022, respectively, in each case, based on the relative accounting cost of each award component on the award date.

In addition, settlement of RSU grants may be deferred at the NEO's election, which provides an added benefit of allowing the NEO to maintain additional upside leverage in our shares of Common Stock through delayed taxation. Generally, deferring RSUs has no impact on an RSU's vesting schedule, except that the initial vesting date for an RSU deferred in the year of grant must occur at least 13 months after the grant date in accordance with Section 409A of the Internal Revenue Code of 1986, as amended (the "Code").

COMPENSATION DISCUSSION AND ANALYSIS

The Compensation Committee approved the following awards of RSUs and stock options in 2022 and 2023 for 2021 and 2022 performance, respectively:

2021 and 2022 Restricted Stock Unit Summary						
	Granted January 2022 for 2021			Granted February 2023 for 2022		
	Grant Date	Units Granted	Grant Date Fair Value ¹	Grant Date	Units Granted	Grant Date Fair Value ¹
Richard M. McVey	1/31/2022	2,300	\$792,304	2/15/2023	2,494	\$894,174
Christopher R. Concannon	1/31/2022	1,805	\$621,786	2/15/2023	1,967	\$705,229
Christopher N. Gerosa	1/31/2022	156	\$53,739	2/15/2023	328	\$117,598
Kevin M. McPherson	1/31/2022	1,911	\$658,301	2/15/2023	2,178	\$780,878
Naineshkumar S. Panchal ²	-	-	-	2/15/2023	913	\$327,338

- (1) The grant date fair value listed above is calculated in accordance with FASB ASC Topic 718. The Company determines the number of RSUs to grant by dividing the target grant value by the 10-trading day average up to and including the date of grant.
- (2) Mr. Panchal became Chief Information Officer on March 1, 2022 and was not employed by the Company in 2021.

2020 and 2021 Stock Option Summary								
	Granted January 2022 for 2021				Granted February 2023 for 2022			
	Grant Date	Units Granted	Strike Price	Grant Date Fair Value ¹	Grant Date	Units Granted	Strike Price	Grant Date Fair Value ¹
Richard M. McVey	1/31/2022	7,982	\$344.48	\$791,577	2/15/2023	7,243	\$358.53	\$894,264
Christopher R. Concannon	1/31/2022	6,263	\$344.48	\$621,103	2/15/2023	5,713	\$358.53	\$705,361
Christopher N. Gerosa	1/31/2022	540	\$344.48	\$53,552	2/15/2023	952	\$358.53	\$117,540

- (1) The grant date fair value listed above is calculated in accordance with FASB ASC Topic 718. The Company determines the number of stock options to grant by dividing the target grant value by the 10-trading day average up to and including the date of grant and multiplying by the 2.90 and 3.47 ratio for stock options granted in 2023 and 2022, respectively.

The RSUs and stock options granted to the NEOs vest ratably over three years.

The exercise price of the stock options granted to the NEOs is the closing market price of our Common Stock on the date of grant.

2020 Performance Stock Unit Awards

The PSUs granted to Messrs. McVey, Concannon and McPherson in 2020 (collectively, the “2020 PSUs”) were subject to market share and operating margin performance metrics, weighted at 50% each. The performance period of the 2020 PSUs was from January 1, 2020 to December 31, 2022. Messrs. Gerosa and Panchal were not serving in their roles in 2020 and did not receive the 2020 PSUs.

In January 2023, the Compensation Committee certified the Company's consolidated financial performance against previously determined market share and operating margin metrics, adjusting for unplanned merger and acquisition activity and currency fluctuations, in accordance with 2020 Equity Incentive Plan. As demonstrated in the chart below, as a percentage of target performance, market share and operating margin funded at 123.3% and 74.1%, respectively, with a resulting payout for the 2020 PSUs calculated at 98.7% of target.

2020 Performance Stock Unit Award Funding					
Performance Metric	Metric Weightings	Performance Periods			Three-Year Average
		2020	2021	2022	
Market Share	1/2	150.0%	70.0%	150.0%	123.3%
Operating Margin	1/2	150.0%	0.0%	72.2%	74.1%
Funding	-	150.0%	35.0%	111.1%	98.7%

Multi-year and one-time buy-out awards

One-time awards are not a regular part of the Company's annual compensation program for existing NEOs. In alignment with the feedback we received from our stockholders, we expect that the use of multi-year and other one-time equity awards will be limited to circumstances such as the hiring of new executives, promotions or the retention of key executives. In all past cases, multi-year awards granted by the Company have been attributed to three or more years of future compensation and reduce the annual compensation awarded to the NEOs for those years of attribution. Importantly, these awards act as dollar for dollar offset against future equity awards.

The multi-year awards that are currently outstanding were awarded: (a) in 2018 to Mr. McVey in relation to the extension of his employment agreement for an additional five-year term in order to secure his employment (the "CEO Multi-year Award"), (b) in 2019 to Mr. Concannon in relation to his appointment as President & Chief Operating Officer and to offset unvested, forfeited equity compensation from his previous employer and in lieu of a 2018 cash bonus payment from his previous employer (the "COO Multi-year Award"), (c) in 2021 to Mr. Gerosa in relation to his appointment as CFO (the "CFO Multi-year Award") and (d) in 2022 to Mr. Panchal in relation to his appointment as CIO (the "CIO Multi-year Award").

The CEO Multi-year Award had a grant date fair value of \$11 million. The Compensation Committee designed the CEO Multi-year Award such that the aggregate \$11 million is spread over five years of annual compensation and reduces the amount of the annual equity award that Mr. McVey receives for each of those performance years by \$2.2 million on a dollar-for-dollar basis (the first and last years are partial year attributions). The CEO Multi-year Award consists of stock options and performance shares that cliff vest in November 2023 that are contingent upon the Company meeting certain stock price thresholds and tenure requirements for Mr. McVey. The stock price performance criteria for the CEO Multi-year Award were met in 2019. Mr. McVey must remain either employed by the Company or a director of the Company throughout the vesting period, except in the event of certain involuntary termination scenarios. Mr. McVey may not dispose of the stock options or performance shares prior to their vesting to capitalize on any increase in stock price, short-term or otherwise.

The COO Multi-year Award had a grant date fair value of \$5 million. It was a portion of an overall \$11.75 million award. The Compensation Committee designed the COO Multi-year Award such that \$5 million is spread over five years of annual compensation and reduces the amount of the annual equity award that Mr. Concannon receives for each of those performance years by \$1 million on a dollar-for-dollar basis. The COO Multi-year Award consists of stock options and performance shares that cliff vest in January 2024 and are contingent upon the Company meeting certain stock price thresholds and tenure requirements for Mr. Concannon. The stock price performance criteria for the COO Multi-year Award were met in 2019.

COMPENSATION DISCUSSION AND ANALYSIS

The CFO Multi-year Award had a grant date fair value of \$1 million. The Compensation Committee designed the CFO Multi-year Award such that \$1 million is spread over three years of annual compensation and reduces the amount of the annual equity award that Mr. Gerosa receives for each of those performance years by \$333,333 on a dollar-for-dollar basis. The CFO Multi-year Award consists of PSUs that will cliff vest in August 2024 and RSUs and stock options that will vest ratably over three years. The performance criteria for the PSUs are the same as those granted as part of the NEOs' annual awards granted in 2021 (market share and operating margin).

The CIO Multi-year Award had a grant date fair value of \$2.5 million. The CIO Multi-year Award consists of RSUs with a grant date fair value of \$1 million that will cliff-vest in March 2026 and PSUs with a grant date fair value of \$1.5 million. The Compensation Committee designed the RSUs granted as part of the CIO-Multi-year Award such that \$1 million is spread over four years of annual compensation and reduces the amount of the annual equity award that Mr. Panchal receives for each of those performance years by \$250,000 on a dollar-for-dollar basis. The Compensation Committee designed the PSUs granted as part of the CIO-Multi-year Award such that \$1.5 million is spread over three years of annual compensation and reduces the amount of the annual equity award that Mr. Panchal receives for each of those performance years by \$500,000 on a dollar-for-dollar basis. Mr. Panchal also received a cash buy-out award of \$1.5 million and a RSU buy-out award of \$1.2 million, each awarded by the Company representing forgone compensation at his prior employer.

Other benefits; Perquisites

We provide our NEOs with the same benefits offered to all other employees. The cost of these benefits constitutes a small percentage of each NEO's total compensation. In the U.S. and the U.K., key benefits include paid vacation time, premiums paid for group life insurance and disability policies, employer contributions to the NEO's retirement account, and the payment of all or some of the NEO's healthcare premiums in fiscal year 2023. We review these other benefits on an annual basis and make adjustments as warranted based on competitive practices and our performance. Comparable benefits are offered to employees in other geographic locations in which we operate.

The NEOs do not generally receive any perquisites. In 2022, however, the Board approved the payment of fees to the Federal Trade Commission for a filing required to be made by Mr. McVey under the HSR Act as a result of his stock ownership of the Company. Mr. McVey was responsible for any taxes due as a result of the Company paying the HSR Act filing fee and was not provided a tax gross-up payment for such amounts.

Total direct compensation

Our compensation decisions for year-end 2022 were a balance between the Company's financial results for the year, individual performance and positioning relative applicable benchmarking data. As described above, cash incentives were largely funded below target with additional total compensation driven by the use of long-term equity incentive awards. A summary of each NEO's 2022 TDC and year-over year change in TDC can be found below:

2022 Total Compensation Summary (000's)							
	2022 Base	2022 Incentive			Total Compensation ²		
	Salary	Cash	Equity ¹	Total	2022	vs. 2021 (\$)	vs. 2021 (%)
Richard M. McVey	\$500	\$1,750	\$5,750	\$7,500	\$8,000	\$250	3%
Christopher R. Concannon	\$500	\$1,300	\$3,800	\$5,100	\$5,600	\$350	7%
Christopher N. Gerosa ³	\$300	\$600	\$800	\$1,400	\$1,700	\$500	42%
Kevin M. McPherson	\$300	\$900	\$1,550	\$2,450	\$2,750	\$100	4%
Naineshkumar S. Panchal ⁴	\$400	\$900	\$1,400	\$2,300	\$2,700	-	-

- (1) Represents equity awards attributable to 2022 performance. Messrs. McVey's, Concannon's, Gerosa's and Panchal's equity incentive column include \$2,200,000, \$1,000,000, \$333,333 and \$750,000 in attributed multi-year compensation from previously granted multi-year equity awards. See "—Multi-Year Awards" below.
- (2) "2022 Total Compensation" differs from the figures shown in the total column of the table under "Executive compensation —Summary compensation table." The Summary Compensation Table reflects the full grant date value of any equity award received by the NEOs in the year actually granted, in accordance with FASB ASC Topic 718.
- (3) Mr. Gerosa's was promoted to CFO effective as of August 1, 2021. 2022 represents his first full year as CFO.
- (4) Mr. Panchal became CIO on March 1, 2022. The amount in the 2022 Base Salary column reflects his salary on an annualized basis. Mr. Panchal received \$333,333 in base salary in 2022.

Additional compensation information

Common Stock ownership guidelines

We believe that equity-based awards are an important factor in aligning the long-term financial interest of our NEOs and our stockholders. As such, we maintain stock ownership guidelines for our NEOs. Generally, under the guidelines, Messrs. McVey and Concannon are required to own not less than a number of shares of Common Stock equal in value to ten times their respective base salaries using a price of \$285.06 per share, which was the average of the daily closing price of our Common Stock for the twelve-month period ending March 31, 2023 (the "Calculation Price"). At their current respective base salaries of \$650,000, Messrs. McVey's and Concannon's required ownership level is not less than 22,802 shares each. Additionally, effective April 2016, for the remainder of the time Mr. McVey holds the title of CEO and for the twelve months thereafter (until April 3, 2024), he will be required to maintain beneficial ownership of at least 50% of the shares that he received as equity compensation as of the date of the guideline or thereafter. All of his vested and unvested restricted shares, vested and unvested RSUs, settled performance shares, and shares deferred under a non-qualified deferred compensation arrangement will be counted for the post-termination holding requirement; vested and unvested stock options are excluded from the requirement.

COMPENSATION DISCUSSION AND ANALYSIS

The Company's other NEOs are required to own not less than three times their base salary using the Calculation Price. At their current base salaries, the other NEOs required ownership is not less than 4,736 shares. New NEOs will be subject to the same guidelines and will be required to be in compliance within five years of becoming an NEO. Under our ownership guidelines, shares purchased and held beneficially, vested and unvested RSUs and restricted shares and settled performance shares count toward the minimum ownership requirement. Vested and unvested options and unsettled performance shares are not counted toward the ownership requirement. Compliance with the Common Stock ownership guidelines is reviewed by our Board's Nominating and Corporate Governance Committee every year or more often at the discretion of the Board or Nominating and Corporate Governance Committee. All of our NEOs are currently in compliance with the guidelines.

NEO Stock Ownership Requirements (Multiple of Base Salary)		
	Requirement	Current Holdings
Richard M. McVey	10.0x	288.4x
Christopher R. Concannon	10.0x	17.6x
Christopher N. Gerosa	3.0x	1.2x
Kevin M. McPherson	3.0x	46.8x
Naineshkumar S. Panchal	3.0x	3.9x

Incentive compensation clawback

The Board is dedicated to maintaining and enhancing a culture focused on integrity and accountability which discourages conduct detrimental to the Company's sustainable growth. Each of our incentive plans therefore contain a clawback provision that allows the Company to recoup all or part of the year-end incentive compensation paid to NEOs in the event of a misstatement of financial results (whether through mistake or wrongdoing) discovered within 12 months of December 31st of the respective performance year. The clawback provisions apply to all cash and equity incentive awards for our NEOs. In addition, Messrs. McVey's and Concannon's employment agreements provide that all compensation paid, whether in the form of cash, Common Stock or any other form of property, will be subject to any compensation recapture policies established by the Board. In light of recent SEC rulemaking regarding clawbacks, we are reviewing our policies and will make any necessary changes once the related NASDAQ listing standards have been finalized.

Prohibition of employee and Director hedging and pledging

The Company's insider trading policy prohibits directors, employees (including officers), consultants, representatives or independent contractors or other persons in a special relationship with the Company from engaging in any hedging transaction with respect to Company securities or transactions of a speculative nature at any time. Hedging includes the purchase of financial instruments (including prepaid variable forward contracts, equity swaps, collars, and exchange funds) and other transactions designed to hedge or offset, or that have the effect of hedging or offsetting, any decrease in the market value of Company securities or limit the ability to profit from an increase in the value of Company securities. All such persons are prohibited from short-selling Company securities or engaging in transactions involving Company-based derivative securities (which include options, warrants, stock appreciation rights or similar rights whose value is derived from the value of Company securities). This prohibition includes, but is not limited to, trading in Company-based put and call option contracts, transacting in straddles, and similar transactions. These individuals are also prohibited from holding Company securities in a margin account or otherwise pledging Company securities as collateral for a loan.

Severance and change in control arrangements

In hiring and retaining executive level talent, the Compensation Committee believes that providing the executive with a level of security in the event of an involuntary termination of employment or in the event of a change in control is an important and competitive part of the executive's compensation package. We entered into employment agreements with Messrs. McVey and Concannon that provide for severance payments and benefits in the event of the termination of their employment under certain circumstances. The other NEOs are entitled to severance payments and benefits in the event of termination of their employment under certain circumstances pursuant to the terms of severance protection agreements. The severance protection agreements also provide for the accelerated vesting of some or all outstanding equity awards in the event of termination of their employment under certain circumstances or upon a change in control of the Company.

While the agreements with our NEOs are designed to protect them in the event of a change in control, they do not provide for "single-trigger" protection, nor does the Company provide any 280G protection or "gross-up" for excise taxes that may be imposed under Code Section 4999. The agreements do provide that if any payments or benefits paid or provided to the executive would be subject to, or result in, the imposition of the excise tax imposed by Code Section 4999, then the amount of such payments will be automatically reduced to one dollar less than the amount that subjects such payment to the excise tax, unless they would, on a net after-tax basis, receive less compensation than if the payment were not so reduced.

See "Executive Compensation — Potential termination or change in control payments and benefits" for additional information regarding these arrangements, payments and benefits.

Impact of tax and accounting

As a general matter, the Compensation Committee reviews and considers the tax and accounting implications of using the various forms of compensation employed by the Company.

When determining the size of grants to our NEOs and other employees under the Company's 2020 Equity Incentive Plan, the Compensation Committee examines the accounting cost associated with the grants. Under FASB ASC Topic 718, grants of stock options, restricted stock, RSUs, performance shares and other stock-based payments result in an accounting charge for the Company. The accounting charge is equal to the fair value of the instruments being issued. For restricted stock, RSUs and performance shares, the cost is equal to the fair value of the Common Stock on the date of grant times the number of shares or units granted, with adjustments made proportionally for the number of performance shares and PSUs expected to vest at the end of each accounting period until final certification of the award. For stock options, the cost is equal to the fair value determined using an option pricing model. This expense is recognized over the requisite service or performance period.

Section 162(m) of the Code ("Section 162(m)") generally prohibited any publicly-held corporation from taking a Federal income tax deduction for compensation paid in excess of \$1 million in any taxable year to certain executive officers and certain other individuals. Exceptions to this rule had historically included qualified performance-based compensation. However, this performance-based exception from the deduction limit has been repealed, effective for taxable years beginning after December 31, 2017, such that compensation paid to our U.S. NEOs in excess of \$1 million is not deductible unless it qualifies for the limited transition relief applicable to certain arrangements in place as of November 2, 2017. While the Compensation Committee considers tax deductibility as one factor in determining executive compensation, the Compensation Committee also looks at other factors in making its decisions, as noted above, and retains the flexibility to award compensation that it determines to be consistent with the goals of our executive compensation program even if the awards are not deductible by us for tax purposes. There can be no assurance that any compensation will in fact be deductible.

REPORT OF THE COMPENSATION AND TALENT COMMITTEE OF THE BOARD OF DIRECTORS

The Compensation and Talent Committee (the “Compensation Committee”) has reviewed and discussed with management the Compensation Discussion and Analysis to be included in this Proxy Statement. Based on the reviews and discussions referred to above, the Compensation Committee recommended to the Board that the Compensation Discussion and Analysis be included in this Proxy Statement.

Submitted by the Compensation and Talent Committee
of the Board of Directors:

Richard L. Prager — Chair
Nancy Altobello
Kourtney Gibson

EXECUTIVE COMPENSATION

Summary compensation table

The following table sets forth all compensation received during fiscal years 2020, 2021 and 2022 by (i) Richard M. McVey, our then-CEO, (ii) Christopher M. Concannon, our then-President & COO, (iii) Christopher N. Gerosa, our CFO, (iv) Kevin M. McPherson, our Global Head of Sales, and (v) Naineshkumar S. Panchal, our Chief Information Officer. These executives are referred to as our “named executive officers” or “NEOs” elsewhere in this Proxy Statement.

On January 9, 2023, the Company announced that Mr. McVey would become Executive Chairman and Mr. Concannon, formerly the Company’s President and Chief Operating Officer, would be promoted to CEO, each effective as of April 3, 2023. This separation of the roles of Executive Chairman and CEO allows MarketAxess to continue to leverage Mr. McVey’s industry expertise and extensive knowledge of MarketAxess while transitioning full management of MarketAxess’ operations and business plans to Mr. Concannon.

2022 Summary Compensation Table								
Name and Principal Position	Year	Salary ¹ (\$)	Bonus ² (\$)	Stock Awards ^{3,4} (\$)	Option Awards ^{3,4} (\$)	Non-Equity Incentive Plan Compensation ⁵ (\$)	All Other Compensation ⁶ (\$)	Total (\$)
Richard M. McVey Chief Executive Officer	2022	500,000	—	2,377,256	791,577	1,750,000	135,000	5,553,833
	2021	500,000	—	2,575,252	856,932	1,800,000	10,000	5,742,184
	2020	500,000	—	2,532,567	854,119	2,250,000	7,000	6,143,686
Christopher R. Concannon President & COO	2022	500,000	—	1,865,359	621,103	1,300,000	10,000	4,296,462
	2021	500,000	—	1,813,764	603,606	1,200,000	10,000	4,127,370
	2020	500,000	—	2,209,599	—	1,500,000	7,000	4,216,599
Christopher N. Gerosa CFO	2022	300,000	—	160,872	53,552	600,000	10,000	1,124,424
	2021	276,667	—	1,066,021	250,098	370,000	10,000	1,972,786
Kevin M. McPherson Global Head of Sales	2022	300,000	—	1,316,603	—	900,000	10,000	2,526,603
	2021	300,000	—	1,354,570	—	1,000,000	10,000	2,664,570
	2020	300,000	—	589,032	—	1,200,000	7,000	2,096,032
Naineshkumar S. Panchal Chief Information Officer	2022	333,333	1,485,000	3,725,581	—	900,000	10,000	6,453,915

- Mr. Panchal’s 2022 salary represents a partial year of service. Mr. Gerosa’s 2021 salary reflects an August 1, 2021 base salary increase related to his promotion to CFO.
- Mr. Panchal received a one-time cash sign-on award in 2022, from the Company representing forgone compensation at his prior employer. Under the award terms, Mr. Panchal was required to pay the amount back to the Company if he terminates service prior to his one-year anniversary of employment on March 1, 2023.
- The amounts represent the aggregate grant date fair value of stock-based and option awards granted by the Company in 2020, 2021 and 2022, computed in accordance with FASB ASC Topic 718. For further information on how we account for stock-based compensation and certain assumptions made, see Note 11 to the consolidated financial statements included in the Company’s Annual Report on Form 10-K for the year ended December 31, 2022, filed with the SEC on February 22, 2023. These amounts reflect the Company’s accounting expense for these awards and do not correspond to the actual amounts, if any, that will be realized by the NEOs. The amounts reported for stock awards in 2020, 2021 and 2022 include performance shares or PSUs.

For 2022, the grant date fair value of the PSUs is \$1,584,952 \$1,243,573 \$107,133 and \$658,301 for Messrs. McVey, Concannon, Gerosa, and McPherson, respectively. The grant date fair value of the PSUs is reported based on achievement of 100% of the target performance goals, which represents the probable outcome of the performance goals as of the grant date. If the Company achieves the maximum performance goals, as measured at the end of the three-year performance period ending December 2024, then the fair value of the PSUs granted in 2022 would be \$3,169,905, \$2,487,146, \$214,267, and \$1,316,603 for Messrs. McVey, Concannon, Gerosa, and McPherson, respectively. See “2022 compensation detail – Annual long-term equity incentives – Performance stock units” in the CD&A for additional detail.
- In March 2022, Mr. Panchal was awarded a one-time equity grant that consisted of PSUs and RSUs, with an aggregate grant date value of \$3,690,000. The grant date fair value of the PSUs of \$1,514,242 is reported based on achievement of 100% of the target performance goals, which represents the probable outcome of the performance goals as of the grant date. If the Company achieves the maximum performance goals, as measured at the end of the three-year performance period ending December 2024, then the fair value of the PSUs granted in 2022 would be \$3,028,483. The PSUs will cliff vest on the third-year anniversary of the date of grant. Mr. Panchal received two RSU grants with fair values of \$1,201,592 and \$1,009,748. The RSU award with a grant date fair value of \$1,201,592 awarded by the Company to Mr. Panchal represents forgone compensation at his prior employer. The RSU awards will vest in three equal annual installments beginning on the first anniversary of the date of grant for the first award and will 100% cliff vest on the fourth anniversary of the date of grant for the second award. See “2022 compensation detail – Annual long-term equity incentives – Performance stock units” in the CD&A for additional detail.
- These amounts represent annual cash incentive compensation earned under the Employee Cash Incentive Plan. See “2022 compensation detail – Annual cash incentive” in the CD&A for additional detail.
- These amounts represent employer matching contributions to the Company’s 401(k) defined contribution plan for each NEO for each year reported and, for Mr. McVey, a \$125,000 fee paid in 2022 to the Federal Trade Commission for a filing required to be made by Mr.

EXECUTIVE COMPENSATION

McVey under the HSR Act, as a result of his stock ownership of the Company. Mr. McVey was not given a tax gross-up payment for the fees paid under the HSR Act.

Grants of plan-based awards

The following table summarizes the grants of PSUs, RSUs and stock options we made to the NEOs in 2022, as well as potential payouts pursuant to certain performance-based compensation arrangements. There can be no assurance that the grant date fair value of stock awards will ever be realized.

2022 Grants of Plan-Based Awards Table												
Name/Award Type	Grant Date	Approval Date	Estimated Possible Payouts Under Non-Equity Incentive Plan Awards			Estimated Future Payouts Under Equity Incentive Plan Awards			All Other Stock Awards: Number of Shares of Stock or Units	All Other Option Awards: Number of Securities Underlying Options	Exercise or Base Price of Option Awards	Grant Date Fair Value of Stock and Option Awards ¹
			Threshold	Target	Maximum	Threshold	Target	Maximum				
			(\$)	(\$)	(\$)	(#)	(#)	(#)	(#)	(#)	(\$ / Sh)	(\$)
Richard M. McVey												
Annual Cash Incentive ²			—	2,025,000	—							
Restricted Stock Units ³	1/31/2022	1/12/2022							2,300			792,304
Performance Stock Units ⁴	1/31/2022	1/12/2022				0	4,601	9,202				1,584,952
Stock Options ⁵	1/31/2022	1/12/2022								7,982	344.48	791,577
Christopher R. Concannon												
Annual Cash Incentive ²			—	1,350,000	—							
Restricted Stock Units ³	1/31/2022	1/12/2022							1,805			621,786
Performance Stock Units ⁴	1/31/2022	1/12/2022				0	3,610	7,220				1,243,573
Stock Options ⁵	1/31/2022	1/12/2022								6,263	344.48	621,103
Christopher N. Gerosa												
Annual Cash Incentive ²			—	600,000	—							
Restricted Stock Units ³	1/31/2022	1/12/2022							156			53,739
Performance Stock Units ⁴	1/31/2022	1/12/2022				0	311	622				107,133
Stock Options ⁵	1/31/2022	1/12/2022								540	344.48	53,552
Kevin M. McPherson												
Annual Cash Incentive ²			—	1,000,000	—							
Restricted Stock Units ³	1/31/2022	1/12/2022							1,911			658,301
Performance Stock Units ⁴	1/31/2022	1/12/2022				0	1,911	3,822				658,301
Naineshkumar S. Panchal												
Annual Cash Incentive ²			—	920,000	—							
Restricted Stock Units ⁵	3/1/2022	11/23/2021							5,821			2,211,340
Performance Stock Units ⁵	3/1/2022	11/23/2021				0	3,986	7,972				1,514,242

- (1) The value of a RSU and stock option is based on the fair value of such award, computed in accordance with FASB ASC Topic 718. The value of a PSUs is based on the grant date fair value of such award assuming 100% of target, computed in accordance with FASB ASC Topic 718. For further information on how we account for stock-based compensation, see Note 11 to the consolidated financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2022.
- (2) Amounts reflect the threshold, target, and maximum annual cash incentive compensation amounts that could have been earned during 2022 our Employee Cash Incentive Plan. The amounts of annual cash incentive compensation earned in 2022 by our NEOs were determined and paid in January 2023. The amounts paid are included in the "Non-Equity Incentive Plan Compensation" column of the Summary Compensation Table. See "Compensation discussion & analysis — 2022 compensation detail — Annual cash incentives."
- (3) Amounts reflect the number of RSUs awarded in 2022 to the NEOs. These grants of RSUs, which were made under the 2020 Equity Incentive Plan, vest in three equal installments beginning on the first anniversary of the date of grant, subject to the NEO's continued service. See "Compensation discussion & analysis — 2022 compensation detail — Annual long term equity incentives — Restricted stock units and stock options."
- (4) Reflects the threshold, target and maximum number of PSUs, that were awarded under the 2020 Equity Incentive Plan, that would vest based on the level of achievement by the Company of U.S. credit market share, revenue growth excluding U.S. credit, and operating margin targets for the three-year performance period beginning on January 1, 2022 and ending on December 31, 2024. Each PSU that is earned will cliff vest on January 31, 2025, subject to the NEO's continued service. See "Compensation discussion & analysis — 2022 compensation detail — Annual long term equity incentives — Performance stock units."

- (5) Reflects the threshold, target and maximum number of PSUs, that were awarded under the 2020 Equity Incentive Plan to Mr. Panchal under a one-time award, that would vest based on the level of achievement by the Company of U.S. credit market share, revenue growth excluding U.S. credit, and operating margin targets for the three-year performance period beginning on January 1, 2022 and ending on December 31, 2024. Each PSU that is earned will cliff vest on March 1, 2025, subject to his continued service. See “Compensation discussion & analysis — 2022 compensation detail — Annual long term equity incentives — Performance stock units.”
- (6) Amounts reflect the number of shares underlying stock options awarded to the NEOs in 2022. The grant of stock options, which was made under the 2020 Equity Incentive Plan, will vest in three equal installments beginning on the first anniversary of the date of grant, subject to the participant’s continued service. See “Compensation discussion & analysis — 2022 compensation detail — Annual long term equity incentives — Restricted stock units and stock options.”

Outstanding equity awards at fiscal year-end

The following table summarizes unexercised stock options, shares of restricted stock and RSUs that had not vested, and related information for each of our NEOs, as of December 31, 2022. The market value of restricted stock awards and RSUs is based on the closing price of the Company's Common Stock on December 31, 2022 of \$278.89.

Outstanding Equity Awards - Year End 2022								
Name	Option Awards				Stock Awards			
	Number of Securities Underlying Unexercised Options Exercisable (#)	Number of Securities Underlying Unexercised Options Unexercisable ¹ (#)	Option Exercise Price (\$)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested ² (#)	Market Value of Shares or Units of Stock That Have Not Vested (\$)	Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (#)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested (\$)
Richard M. McVey	16,037		203.72	1/15/2024				
	6,259		368.10	1/15/2026				
	2,103		523.00	1/15/2027				
		69,113	257.78	5/8/2024				
		79,411	278.40	5/8/2024				
		3,083	368.10	1/15/2026				
		4,084	523.00	1/15/2027				
		7,982	344.48	1/31/2028				
				(5)	37,742	10,525,866		
				(3)	767	213,909		
Christopher R. Concannon	1,481		523.00	1/15/2027				
		35,679	272.88	7/22/2024				
		41,189	294.71	7/22/2024				
		2,877	523.00	1/15/2027				
		6,263	344.48	1/31/2028				
				(7)	18,914	5,274,925		
				(3)	1,001	279,169		
				(4)	762	212,514		
				(6)	1,805	503,396		
				(8)			4,647	1,296,002
Christopher N. Gerosa	639		475.17	8/1/2027				
		1,276	475.17	8/1/2027				
		540	344.48	1/31/2028				
				(3)	80	22,311		
				(4)	382	106,536		
				(11)	356	99,285		
				(6)	156	43,507		
				(12)			1,070	298,412
				(10)			311	86,735
				(10)			4,601	1,283,173

Outstanding Equity Awards - Year End 2022

Name	Option Awards				Stock Awards			
	Number of Securities Underlying Unexercised Options Exercisable	Number of Securities Underlying Unexercised Options ¹	Option Exercise Price	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested ²	Market Value of Shares or Units of Stock That Have Not Vested	Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested
	(#)	(#)	(\$)		(#)	(\$)	(#)	(\$)
Kevin M. McPherson				(3)	267	74,464		
				(4)	854	238,172		
				(6)	1,911	532,959		
				(8)			808	225,343
				(9)			1,295	361,163
				(10)			1,911	532,959
Naineshkumar S. Panchal				(6)	3,163	882,129		
				(13)	2,658	741,290		
				(14)			3,986	1,111,656

- (1) The 3,083 stock options granted to Mr. McVey vested on January 31, 2023. Of the 4,084 stock options granted to Mr. McVey, 2,042 vested on January 31, 2023 and the remainder will vest on January 31, 2024, subject to time-based performance conditions. Of the 7,982 stock options granted to Mr. McVey, 2,713 vested on January 31, 2023 and the remainder will vest 50% on each of January 31, 2024 and January 31, 2025, subject to time-based performance conditions. 69,113 and 79,411 stock options granted to Mr. McVey will fully vest on November 8, 2023, subject to time-based performance conditions. 35,679 and 41,189 stock options granted to Mr. Concannon will fully vest on January 22, 2024, subject to time-based performance conditions. Of the 2,877 stock options granted to Mr. Concannon, 1,438 vested on January 31, 2023 and the remainder will vest on January 31, 2024. Of the 6,263 stock options granted to Mr. Concannon, 2,129 vested on January 31, 2023 and the remainder will vest 50% on each of January 31, 2024 and January 31, 2025, subject to time-based performance conditions. Of the 1,276 stock options granted to Mr. Gerosa, 50% will vest on each of August 1, 2023 and August 1, 2024, subject to time-based performance conditions. Of the 540 stock options granted to Mr. Gerosa, 183 vested on January 31, 2023 and the remainder will vest 50% on each of January 31, 2024 and 2025, subject to time-based performance conditions. The stock options will also vest and become exercisable in the event of certain terminations of employment. See “— Potential termination or change in control payments and benefits” for additional information.
- (2) Each share of restricted stock and each RSU represents one share of the Company's Common Stock that is subject to forfeiture if the applicable vesting requirements are not met. Generally, vesting is subject to the NEOs continued service through the vesting date, except that shares of restricted stock and RSUs will vest in the event of certain terminations of employment and, in certain circumstances, may vest upon a change in control. See “— Potential termination or change in control payments and benefits” for additional information.
- (3) These restricted shares and RSUs fully vested on January 31, 2023.
- (4) 50% of these restricted shares and RSUs vested on January 31, 2023 and the remainder will vest on January 31, 2024.
- (5) 37,742 shares for Mr. McVey outstanding as of December 31, 2022 represent 100% of the target unearned performance shares awarded on November 8, 2018. The shares were settled as the applicable performance goals were met. The shares will fully vest on November 8, 2023.
- (6) For Mr. McVey, 767 RSUs vested on March 2, 2023 and 50% of the remainder will vest on each of January 31, 2024 and 2025. For Mr. Concannon, 613 vested on January 31, 2023 and 50% of the remainder will vest on each of January 31, 2024 and 2025. For Mr. Gerosa, 53 RSUs vested on January 31, 2023 and 50% of the remainder will vest on each of January 31, 2024 and 2025. For Mr. McPherson, 649 RSUs vested on January 31, 2023 and 50% of the remainder will vest on each of January 31, 2024 and 2025. For Mr. Panchal, 1,054 RSUs vested on March 1, 2023 and 50% of the remainder will vest on each of March 1, 2024 and 2025.
- (7) 18,914 shares for Mr. Concannon outstanding as of December 31, 2022 represent 100% of the target unearned performance shares awarded on January 22, 2019. The shares were settled as the applicable performance goals were met. The shares will fully vest on January 22, 2024.
- (8) The 4,647 shares for Mr. McVey, 3,031 shares for Mr. Concannon, and 808 shares for Mr. McPherson outstanding as of December 31, 2022 represent 100% of the target performance shares awarded on January 15, 2020. The shares settled at 98.7% of target in January 2023 and 4,589, 2,993, and 798 shares vested and delivered, respectively, on January 31, 2023.
- (9) The 3,283 shares for Mr. McVey, 2,312 shares for Mr. Concannon, and 1,295 shares for Mr. McPherson outstanding as of December 31, 2022 represent 100% of the target performance shares awarded on January 15, 2021. The shares will not settle until January 2024 and will vest on January 31, 2024.
- (10) The 4,601 shares for Mr. McVey, 3,610 shares for Mr. Concannon, 311 shares for Mr. Gerosa, and 1,911 shares for Mr. McPherson outstanding as of December 31, 2022 represent 100% of the target performance shares awarded on January 31, 2022. The shares will not settle until January 2025 and will vest on January 31, 2025.

EXECUTIVE COMPENSATION

- (11) 356 RSUs granted to Mr. Gerosa will vest 50% on each of August 1, 2023 and August 1, 2024.
- (12) The 1,070 shares for Mr. Gerosa outstanding as of December 31, 2022 represent 100% of the target performance shares awarded on August 1, 2021. The shares will not settle until January 2024 and will vest on August 1, 2024.
- (13) 2,658 RSUs granted to Mr. Panchal will vest on March 1, 2026.
- (14) The 3,986 shares for Mr. Panchal outstanding as of December 31, 2022 represent 100% of the target performance shares awarded on March 1, 2022. The shares will not settle until January 2025 and will vest on March 1, 2025.

Option exercises and stock vested

The following table summarizes each exercise of stock options, each vesting of restricted stock and related information for each of our NEOs on an aggregated basis during 2022.

2022 Option Exercises and Stock Vesting				
Name	Option Awards		Stock Awards	
	Number of Shares Acquired on Exercise (#)	Value Realized on Exercise ¹ (\$)	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting ² (\$)
Richard M. McVey	24,515	3,096,490	69,843	25,905,826
Christopher R. Concannon	—	—	13,759	4,988,237
Christopher N. Gerosa	—	—	566	181,573
Kevin M. McPherson	—	—	1,433	493,640
Naineshkumar S. Panchal	—	—	—	—

(1) Value realized represents the market value on the date of exercise in excess of the exercise price.

(2) Value realized represents the market value on the date of vesting.

Non-qualified deferred compensation

All U.S.-based NEOs were eligible to elect to defer the settlement of the RSUs awarded in whole or in part. The following table sets forth information with respect to vested RSUs held by Mr. McVey as of December 31, 2022, for which he has elected to defer the delivery of the underlying shares until the earlier of (i) separation of service (within the meaning of Code Section 409A), subject to the six-month delay required under Code Section 409A, (ii) a change of control of the Company and (iii) the calendar year in which the applicable anniversary following vesting occurs:

Deferral Elections				
Name	Award / Deferral Date	Amount Deferred (#)	Re-deferral Date	Deferral Period (Years)
Richard M. McVey	1/14/2011	44,855	12/1/2015 ¹	10
	1/19/2011	104,620	12/1/2015 ¹	10
	1/15/2013	14,812	N/A ²	7
	1/15/2014	26,087	11/18/2019	separation of service
	1/15/2015	8,278	N/A ²	5
	1/15/2016	5,962	N/A ²	5
	1/15/2017	6,222		separation of service
	1/15/2018	2,916	N/A ²	3
	1/15/2019	7,757		separation of service
	1/15/2020	1,557		5

(1) Mr. McVey began taking receipt of the underlying shares for his January 14, 2011 and January 19, 2011 awards in February 2022.

(2) Mr. McVey did not elect to re-defer his January 2013 and January 2015 RSU awards, and he began taking receipt of the underlying shares in February 2021. He did not elect to re-defer his January 2016 and January 2018 RSU awards, and he began taking receipt of the underlying shares in February 2022.

EXECUTIVE COMPENSATION

The table below shows (i) the contributions made by each NEO during the fiscal year ended December 31, 2022, (ii) aggregate earnings on each NEO's account balance during the fiscal year ended December 31, 2022, (iii) the aggregate amount of withdrawals or distributions made for each NEO and (iv) the aggregate balance of each of our NEOs as of December 31, 2022:

2022 Non-Qualified Deferred Compensation Table					
Name	Executive Contributions in Last Fiscal Year ¹	Registrant Contributions in Last Fiscal Year	Aggregate Earnings in Last Fiscal Year ^{2,3}	Aggregate Withdrawals/ Distributions	Aggregate Balance at Last Fiscal Year-End ⁴
	(\$)	(\$)	(\$)	(\$)	(\$)
Richard M. McVey	1,177,391	—	(32,914,419)	25,430,283	65,941,886
Christopher R. Concannon	—	—	(66,330)	—	296,399
Christopher N. Gerosa	—	—	(8,810)	—	137,161
Kevin M. McPherson	—	—	—	—	—
Naineshkumar S. Panchal	—	—	—	—	—

- (1) For Mr. McVey, reflects the market value of the Common Stock underlying 3,327 RSUs that vested on January 31, 2022 based on the closing price of our Common Stock on such date of \$344.48. In addition, it includes the value of amounts accrued and unpaid under dividend equivalent rights in 2019 through 2021 as of such vesting dates. The dividend equivalents are equal in amount to the ordinary cash dividends paid to the holders of our Common Stock in 2019 through 2021 and will be paid when Mr. McVey takes receipt of the underlying shares of the applicable RSUs.
- (2) Aggregate earnings with respect to vested and undelivered RSUs include changes in the market value of the shares of Common Stock underlying the RSUs based on the difference of the closing price of our Common Stock on December 31, 2022 of \$278.89 and the closing price of our Common Stock on the date of vesting, as well as the value of amounts accrued under a dividend equivalent right in 2022 that were unpaid as of December 31, 2022. Additionally, aggregate earnings include the difference in value of shares of Common Stock underlying the RSUs deferred by Mr. McVey in 2011, 2013, 2014, 2015, 2016, 2017, 2018, 2019 and 2020 at fiscal year-end 2022 versus fiscal year-end 2021, as well as the value of accrued but unpaid dividend equivalents. These amounts are not included in the Summary Compensation Table because plan earnings were not preferential or above market.
- (3) Amounts for Mr. Concannon and Mr. Gerosa represent losses incurred through the non-qualified deferred cash plan.
- (4) The value of the Aggregate Balance at Last Fiscal Year-End for the RSUs was determined by adding all executive contributions for fiscal year-end 2022 to any aggregate earnings for fiscal year 2022 and the Aggregate Balance at Last Fiscal Year-End as previously reported for year-end 2021, which was \$123,109,196 for Mr. McVey, \$362,729 for Mr. Concannon and \$145,971 for Mr. Gerosa.

Employment agreements and severance arrangements with our Named Executive Officers

Richard M. McVey employment agreements

Effective November 6, 2018, Mr. McVey and the Company entered into an amendment to his employment agreement (the “Prior McVey Employment Agreement”) that provided for an initial term ending on January 15, 2025 with successive one-year automatic renewals unless either party elects not to extend the term at least 90 days prior to the last day of the term.

The Prior McVey Employment Agreement provided that Mr. McVey would be employed by us as CEO and Chairman, and his employment may be terminated by him or by the Company at any time. Mr. McVey’s annual base salary under the Prior McVey Employment Agreement was a minimum of \$500,000 per year.

Under the Prior McVey Employment Agreement, Mr. McVey was eligible to receive an annual bonus in accordance with the Company’s annual performance incentive plan as is in effect from time to time and is entitled to participate in all benefit plans and programs available to our other senior executives, at a level commensurate with other senior management of the Company.

The Prior McVey Employment Agreement provided for severance payments and benefits (subject to Mr. McVey’s execution of a waiver and general release) if Mr. McVey’s employment was terminated under various conditions. See below under “— Potential termination or change in control payments and benefits” for a description of such payments and benefits.

The Company does not provide tax reimbursements to executives in the event of a Change of Control. The Prior McVey Employment Agreement provided that if any payments or benefits paid or provided to him would be subject to, or result in, the imposition of the excise tax imposed by Section 4999 of the Code, then the amount of such payments would be automatically reduced to one dollar less than the amount that subjects such payment to the excise tax, unless he would, on a net after-tax basis, receive less compensation than if the payment were not so reduced. The Prior McVey Employment Agreement further provided that any award gains and annual incentive awards received by Mr. McVey would be subject to potential clawback under policies adopted by the Company.

For purposes of the Prior McVey Employment Agreement, “Cause Event” generally meant Mr. McVey’s:

- willful misconduct or gross negligence in the performance of his duties;
- conviction of, or plea of guilty or nolo contendere to, a crime relating to us or any of our affiliates, or any felony; or
- material breach of his employment agreement or any other material written agreement with us.

For purposes of the Prior McVey Employment Agreement, “Good Reason” generally meant:

- Mr. McVey’s no longer holding the title of Chief Executive Officer, or the failure of the Board to nominate him as a director or, once elected to the Board, the failure of the Board to elect him as Chairman;
- a material diminution in his duties, authorities or responsibilities or the assignment of duties or responsibilities materially adversely inconsistent with his then-current position (other than as a result of his ceasing to be a director);
- our material breach of his employment agreement;
- a relocation of his principal place of business of more than 50 miles; or
- our failure to obtain a reasonably satisfactory written agreement from any successor to all or substantially all of our assets to assume and agree to perform our obligations under his employment agreement.

EXECUTIVE COMPENSATION

For purposes of the Prior McVey Employment Agreement, “Change in Control” generally meant:

- an acquisition representing 50% or more of the combined voting power of our then outstanding securities;
- a change in the majority of the members of our Board during any two-year period, unless such members are approved by two-thirds of the Board members who were members at the beginning of such period or members whose nominations were so approved;
- our merger or consolidation, other than (a) a transaction resulting in our voting securities outstanding immediately prior thereto continuing to represent more than 50% of the combined voting power of the voting securities of such surviving entity immediately after such transaction or (b) a transaction effected to implement a recapitalization (or similar transaction) in which no person acquires more than 50% of the combined voting power of our then outstanding securities; or
- our stockholders’ approval of a plan of complete liquidation or the consummation of the sale or disposition of all or substantially all of our assets other than (a) the sale or disposition of all or substantially all of our assets to a beneficial owner of 50% or more of the combined voting power of our outstanding voting securities at the time of the sale or (b) pursuant to a spinoff type transaction of such assets to our stockholders.

On January 6, 2023, Mr. McVey and the Company entered into an amended and restated employment agreement (the “New McVey Employment Agreement”) that provides, effective the Transition Effective Date, that Mr. McVey will be employed by the Company as its Executive Chairman for a term expiring on the date of the Company’s 2025 annual meeting of stockholders. Mr. McVey’s transition to Executive Chairman was not considered a “Good Reason” trigger under the Prior McVey Employment Agreement because, pursuant to the terms of such agreement, he ceased being Chief Executive Officer of the Company pursuant to a mutual agreement between him and the Company. The term may be extended by mutual written agreement of the parties at any time. The expected duties of Mr. McVey as Executive Chairman are set forth in the McVey Agreement and include, among other things, transitioning his prior responsibilities to the new Chief Executive Officer and managing the transition of relationships with key clients and stakeholders. It is expected that Mr. McVey will spend approximately 66% on average of his business time during the term on the performance of duties as Executive Chairman. For a discussion of our leadership structure, including the roles of Executive Chairman and Chief Executive Officer, see “Corporate governance – Board leadership structure.”

The terms of the New McVey Employment agreement are materially the same as those described above under the Prior McVey Employment Agreement, except as described in the previous paragraph and as follows:

- Mr. McVey’s annual base salary is a minimum of \$650,000 per year;
- Mr. McVey’s annual cash incentive for the 2023 calendar year, and any annual equity award made in 2024 based on the 2023 performance year, will be calculated on a pro-rata basis taking into account the award percentages that correspond to Mr. McVey’s positions before and after the Transition Effective Date;
- “Good Reason” was modified to change references to Mr. McVey’s role as Chief Executive Officer to Executive Chairman; and
- “Cause Event” was modified to include a material breach of our material written policies that are signed by Mr. McVey, such as our Code of Conduct, as well as policies related to personal trading, insider trading, workplace conduct and sexual harassment.

Mr. McVey has also executed a Proprietary Information and Non-Competition Agreement and the Company’s standard form of Indemnification Agreement.

Christopher R. Concannon employment agreements

On January 7, 2019, the Company entered into an employment letter agreement (the “Prior Concannon Employment Agreement”), effective as of January 22, 2019, with Christopher R. Concannon, pursuant to which Mr. Concannon became the Company’s President and Chief Operating Officer.

The Prior Concannon Employment Agreement provided that Mr. Concannon would be employed by the Company as the President and Chief Operating Officer for an initial five-year term with successive one-year automatic renewals unless either party elects not to extend the term at least 90 days prior to the last day of the term. Under the Prior Concannon Employment Agreement, Mr. Concannon’s minimum annual base salary was \$500,000 per year and he was eligible to receive an annual bonus in accordance with the Company’s annual performance incentive plan as in effect from time to time and annual equity grants on terms and conditions determined by the Compensation Committee in its sole discretion.

The Prior Concannon Employment Agreement provided that Mr. Concannon’s employment may be terminated by him or by the Company at any time. The Prior Concannon Employment Agreement provides for severance payments and benefits (subject to Mr. Concannon’s execution of a waiver and general release) if Mr. Concannon’s employment is terminated under various conditions. See below under “— Potential termination or change in control payments and benefits” for a description of such payments and benefits.

For purposes of the Prior Concannon Employment Agreement, the terms “Cause Event”, “Change in Control”, and “Good Reason” generally have the same meaning as defined in the Prior McVey Employment Agreement, except that (i) “Cause Event” also meant intentional failure or refusal to follow a lawful and proper direction of the Board, the Company or the CEO or any other conduct that is reasonably likely to have a material adverse effect on the business, assets or reputation of the Company, and (ii) “Good Reason” referred to Mr. Concannon no longer holding the title of President.

The Prior Concannon Employment Agreement provided that if any payments or benefits paid or provided to Mr. Concannon would be subject to, or result in, the imposition of the excise tax imposed by Code Section 4999, then the amount of such payments would be automatically reduced to one dollar less than the amount that subjects such payment to the excise tax, unless Mr. Concannon would, on a net after-tax basis, receive less compensation than if the payment were not so reduced. The Prior Concannon Employment Agreement further provided that any award gains and annual incentive awards received by Mr. Concannon would be subject to potential clawback under policies adopted by the Company.

On January 6, 2023, Mr. Concannon and the Company entered into an amended and restated employment agreement (the “New Concannon Employment Agreement”) that provides, effective the Transition Effective Date, that Mr. Concannon will be employed by the Company as its Chief Executive Officer for an initial five-year term, with successive one-year automatic renewals unless either party elects not to extend the term at least 90 days prior to the last day of the term. For a discussion of our leadership structure, including the roles of Executive Chairman and Chief Executive Officer, see “Corporate governance – Board leadership structure.”

EXECUTIVE COMPENSATION

The terms of the New Concannon Employment agreement are materially the same as those described above under the Prior Concannon Employment Agreement, except as described in the previous paragraph and as follows:

- Mr. Concannon's annual base salary is a minimum of \$650,000 per year;
- Mr. Concannon's annual cash incentive for the 2023 calendar year, and any annual equity award made in 2024 based on the 2023 performance year, will be calculated on a pro-rata basis taking into account the award percentages that correspond to Mr. Concannon's positions before and after the Transition Effective Date;
- "Good Reason" was modified to: (i) change references to Mr. Concannon's role as President to Chief Executive Officer and (ii) clarify that a material diminution of Mr. Concannon's duties does not include the performance of duties by Mr. McVey pursuant to the terms of the New McVey Employment Agreement;
- "Cause Event" was modified to include a material breach of our material written policies that are signed by Mr. Concannon, such as our Code of Conduct, as well as policies related to personal trading, insider trading, workplace conduct and sexual harassment; and
- The New Concannon Employment Agreement provides that Mr. Concannon would receive on the Transition Effective Date the following equity awards under the Company's 2020 Equity Incentive Plan: (i) RSUs with a target grant date fair value of \$1.05 million (as determined by the Committee by dividing award value by the average closing price of Company stock on the ten trading days leading up to and including the grant date, rounded to the nearest whole number); and (ii) PSUs with a target grant date fair value of \$2.45 million (as determined by the Committee based on the Monte Carlo method).

Mr. Concannon has also executed a Proprietary Information and Non-Competition Agreement and the Company's standard form of Indemnification Agreement.

Severance protection agreements

Messrs. Gerosa, McPherson and Panchal do not have employment agreements with us but are entitled to severance payments and benefits under their respective severance protection agreements (the "Severance Protection Agreements" or the "SPAs"), which provide for severance payments and benefits (subject to such executive's execution of a waiver and general release) if such executive's employment is terminated under various conditions. See below under "— Potential termination or change in control payments and benefits" for a description of such payments and benefits.

For purposes of the Severance Protection Agreements, "Cause" generally means such executive's:

- willful misconduct, gross misconduct, or gross negligence in the performance of such executive's duties;
- conviction of, or plea of guilty or nolo contendere to, a crime relating to us or any of our affiliates, or any felony;
- material breach of any material written agreement (including such executive's proprietary information and non-competition agreement) with us or on of our written policies signed by such executive;
- intentional failure or refusal to follow a lawful and proper direction of the Board or the CEO; or
- any other conduct by the executive, whether or not in the course of performing the executive's responsibilities to the Company, that has or is reasonably likely to have a material adverse effect on the business, assets or reputation of the Company.

For purposes of the Severance Protection Agreements, “Good Reason” generally means the occurrence of any of the following:

- an adverse change in such executive’s title
- a material diminution in such executive’s duties, authorities or responsibilities or the assignment of duties or responsibilities materially adversely inconsistent with such executive’s then-current position;
- a reduction in such executive’s base salary or annual target incentive bonus (as a percentage of base salary)
- a relocation of such executive’s principal place of business of more than 50 miles;
- we provide written notice of our intent not to renew the applicable Severance Protection Agreement;
- our failure to obtain a reasonably satisfactory written agreement from any successor to all or substantially all of our assets to assume and agree to perform our obligations under the Severance Protection Agreement.

For purposes of the Severance Protection Agreements, the term “Change in Control” generally has the same meaning as defined in the Prior McVey Employment Agreement.

Proprietary information and non-competition agreements

Each of our U.S.-based NEOs has entered into, and is subject to the terms of, a Proprietary Information and Non-Competition Agreement with us that contains, among other things, (i) certain provisions prohibiting disclosure of our confidential information without our prior written consent, (ii) certain non-competition provisions that restrict their engaging in certain activities that are competitive with us during their employment and for one year thereafter for Messrs. McVey, Concannon, McPherson and Panchal and six months thereafter for Mr. Gerosa, (iii) certain non-solicitation provisions that restrict their recruiting, soliciting or hiring our non-clerical employees or consultants during their employment and for two years thereafter and (iv) certain non-solicitation provisions that restrict their soliciting any person or entity to terminate, cease, reduce or diminish their relationship with us, during their employment and for two years thereafter for Messrs. McVey and Concannon and one year thereafter for Messrs. Gerosa, McPherson and Panchal.

Potential termination or change in control payments and benefits

Each of the NEOs is entitled to certain payments and benefits pursuant to their employment agreements and/or other agreements, as applicable, entered into between us and such executive upon a termination of such executive’s employment in certain circumstances or in the event of a change in control of the Company. For Messrs. McVey and Concannon, their rights upon certain termination or change in control events: (a) to base salary continuation, bonus and healthcare benefits are governed by the Prior McVey Employment Agreement and Prior Concannon Employment Agreement, respectively; and (b) to vesting of unvested equity awards are governed by their equity award agreements. For Messrs. Gerosa, McPherson and Panchal, their rights upon certain termination or change in control events are governed by their applicable Severance Protection Agreement or where more favorable, their applicable equity award agreements. The benefits described herein are subject to the applicable NEO’s, his estate’s or his legal guardian’s, as applicable, execution of a general release of claims and covenant not to sue.

The following tables estimate the payments we would be obligated to make to each of our NEOs as a result of such NEO’s termination or resignation under the circumstances shown or because of a change in control, in each case assuming such event had occurred on December 31, 2022. We have calculated these estimated payments to meet SEC disclosure requirements. The estimated payments are not necessarily indicative of the actual

EXECUTIVE COMPENSATION

amounts any of our NEOs would receive in such circumstances. The table excludes (i) compensation amounts accrued through December 31, 2022 that would be paid in the normal course of continued service, such as accrued but unpaid salary, and (ii) vested account balances under our 401(k) Plan that are generally available to all of our salaried employees. Where applicable, the information in the table uses a price per share for our Common Stock of \$278.89, the closing price on December 31, 2022.

Payments and Benefits for Mr. McVey									
	Termination for Cause or Without Good Reason	Qualified Retirement	Prior to CIC Termination ¹	Following CIC Termination ¹	CIC Trigger ¹ (No Termination)	Enhanced Non-CCPP Termination ¹	Death or Disability CCPP Termination ¹	Death or Disability Non-CCPP Termination ¹	Non- Extension Non-CCPP Termination ¹
Base Salary ²	—	—	\$ 1,000,000	\$ 1,000,000	—	\$ 1,000,000	\$ 1,000,000	\$ 500,000	\$ 500,000
Bonus ³	—	—	\$ 2,700,000	\$ 2,700,000	—	\$ 2,700,000	\$ 2,700,000	\$ 1,350,000	\$ 1,350,000
Health Benefits ⁴	—	—	\$ 73,118	\$ 73,118	—	\$ 54,838	\$ 73,118	\$ 36,559	\$ 36,559
Unvested Restricted Stock ⁵	—	—	\$ 10,525,866	\$ 10,525,866	\$ 10,525,866	\$ 5,262,933	\$ 10,525,866	\$ 10,525,866	—
Unvested Performance Shares ⁶	—	—	—	\$ 1,296,002	\$ 1,296,002	—	\$ 648,001	\$ 648,001	—
Unvested Performance Stock Units ⁷	—	\$ 915,596	—	\$ 2,198,769	\$ 2,198,769	—	\$ 2,198,769	\$ 2,198,769	—
Unvested Restricted Stock Units ⁸	—	—	—	\$ 943,485	\$ 1,157,394	—	\$ 1,050,439	\$ 1,050,439	—
Unvested Stock Options ⁹	—	—	\$ 1,497,887	\$ 1,497,887	\$ 0	\$ 1,497,887	\$ 748,943	\$ 748,943	—
Total	—	\$ 915,596	\$ 15,796,871	\$ 20,235,126	\$ 15,178,030	\$ 10,515,658	\$ 18,945,136	\$ 17,058,577	\$ 1,886,559

- (1) A "Qualified Retirement" occurs if Mr. McVey retires on December 31, 2022 and had given notice of his retirement on December 31, 2021 (he has already satisfied the age and tenure requirements applicable to such provision). A "Prior to CIC Termination" occurs if Mr. McVey resigns for Good Reason or his employment is terminated for any reason other than his resignation without Good Reason (including due to his providing a notice of non-extension of the term of the Prior McVey Employment Agreement at least 90 days prior to the end of the term (a "Non-Extension Notice")), or by us for Cause, in any case, within three months prior to a "change in control event" within the meaning of Section 409A of the Code (such period, a "Prior Change in Control Protection Period" or a "Prior CCPP"). A "Following CIC Termination" occurs if Mr. McVey resigns for Good Reason or his employment is terminated for any reason other than his resignation without Good Reason (including due to his providing a Non-Extension Notice), or by us for Cause, in any case, within (a) 18 months (for base salary, bonus and healthcare) and (b) 24 months (for equity awards), in each case, after a Change in Control as defined in the Prior McVey Employment Agreement (such period, combined with a Prior CCPP, a "CCPP"). A "CIC Trigger" occurs if, immediately prior to a Change in Control, the Compensation Committee determines that the applicable equity award will not be continued, assumed or have new rights substituted therefor in accordance with the applicable incentive plans. An "Enhanced Non-CCPP Termination" occurs if Mr. McVey's employment is terminated outside of a CCPP for any reason other than: (a) his death, (b) his voluntary resignation without Good Reason (including due to his providing a Non-Extension Notice), (c) due to our providing a Non-Extension Notice, (d) by us as a result of his having a disability or (e) for Cause. A "Death or Disability CCPP Termination" occurs if Mr. McVey's employment is terminated during a CCPP due to his death or by us as a result of his having a disability. A "Death or Disability Non-CCPP Termination" occurs if Mr. McVey's employment is terminated outside of a CCPP due to his death or by us as a result of his having a disability. A "Non-Extension Non-CCPP Termination" occurs if Mr. McVey's employment is terminated outside a CCPP due to our providing a Non-Extension Notice. An "Average Bonus" for Mr. McVey means the average of his annual bonus amounts received for the Company's three fiscal years immediately preceding the termination.
- (2) Represents the continued payment of base salary: (a) upon a Prior to CIC Termination, a Following CIC Termination, an Enhanced Non-CCPP Termination or a Death or Disability CCPP Termination for 24 months; and (b) upon a Death or Disability Non-CCPP Termination or a Non-Extension Non-CCPP Termination, for 12 months.
- (3) Represents a bonus: (a) upon a Prior to CIC Termination, a Following CIC Termination, an Enhanced Non-CCPP Termination or a Death or Disability CCPP Termination, in the amount of two times Mr. McVey's Average Bonus, payable in 24 monthly installments; and (b) upon a Death or

Disability Non-CCPP Termination or a Non-Extension Non-CCPP Termination, in the amount of one times Mr. McVey's Average Bonus, payable in 12 monthly installments.

- (4) Represents healthcare coverage: (a) upon a Prior to CIC Termination, a Following CIC Termination or a Death or Disability CCPP Termination, for 24 months; (b) for an Enhanced Non-CCPP Termination, for 18 months; and (c) upon a Death or Disability Non-CCPP Termination or a Non-Extension Non-CCPP Termination, for 12 months.
- (5) Represents the value of the unvested restricted stock issued to Mr. McVey upon the settlement of performance shares granted to him in January 2018, as part of his multi-year award (the "McVey 2018 Multi-Year"), which will vest as follows: (a) for the McVey 2018 Multi-Year, (i) upon a Prior to CIC Termination, a Following CIC Termination, a CIC Trigger, a Death or Disability CCPP Termination or a Death or Disability Non-CCPP Termination, his unvested restricted stock shall fully vest; and (ii) upon an Enhanced Non-CCPP Termination, half of his restricted stock shall vest; and (b) for the McVey 2020 Annual, (i) upon a Following CIC Termination or a CIC Trigger, his unvested restricted stock shall fully vest; and (ii) upon a Death or Disability CCPP Termination or a Death or Disability Non-CCPP Termination, half of his restricted stock shall vest.
- (6) Represents the target value of the unvested performance shares granted to Mr. McVey in January 2020 as part of his annual award (the "McVey 2020 Annual"), which will vest as follows (a) upon a Following CIC Termination or a CIC Trigger, his unvested performance shares shall fully vest; provided that, with respect to a Following CIC Termination, the performance stock would only vest if Mr. McVey is terminated without Cause in the period following a Change in Control and (b) upon a Death or Disability CCPP Termination or a Death or Disability Non-CCPP Termination, half of his unvested performance shares shall vest.
- (7) Represents the target value of the unvested PSUs granted to Mr. McVey in January 2021 (the "McVey 2021 Annual") and in January 2022 (the "McVey 2022 Annual" and together with the McVey 2020 Annual and the McVey 2021 Annual, the "McVey Annual Awards"), each as part of his annual award, which will vest as follows: (i) for the McVey 2021 Award only, upon a Qualified Retirement, continue to vest in accordance with its original vesting schedule; provided that if Mr. McVey (x) undertakes any business activity or employment in the financial services or fintech industries or undertakes any activity that could create reputational risk or a conflict of interest with the Company (in each case, as determined by the Company in its sole discretion) without the prior written consent of the Company or (y) breaches any of the terms and conditions of any restrictive covenants applicable to Mr. McVey, in either case, the McVey 2021 Award will be forfeited immediately for no consideration; and (ii) for the McVey 2021 Awards and McVey 2022 Awards, upon a Following CIC Termination, a CIC Trigger, a Death or Disability CCPP Termination or a Death or Disability Non-CCPP Termination his unvested PSUs shall fully vest; provided that, with respect to a Following CIC Termination, the PSUs would only vest if Mr. McVey is terminated without Cause in the period following a Change in Control.
- (8) Represents the value of the unvested RSUs granted to Mr. McVey as part of the McVey Annual Awards, which will vest as follows: (a) for the McVey 2020 Annual, (i) upon a CIC Trigger, his unvested RSUs shall fully vest; and (ii) upon a Death or Disability CCPP Termination or a Death or Disability Non-CCPP Termination, half of his unvested RSUs shall vest; and (b) for the McVey 2021 Annual and the McVey 2022 Annual, upon a Following CIC Termination, a CIC Trigger, a Death or Disability CCPP Termination or a Death or Disability Non-CCPP Termination, his unvested RSUs shall fully vest; provided that, with respect to a Following CIC Termination, the PSUs would only vest if Mr. McVey is terminated without Cause in the period following a Change in Control.
- (9) Represents the value of the unvested stock options granted to Mr. McVey as part of the McVey 2018 Multi-Year and the McVey Annual Awards, which will vest as follows: (a) for the McVey 2018 Multi-Year, (i) upon a Prior to CIC Termination, a Following CIC Termination, or an Enhanced Non-CIC Termination, his unvested stock options shall fully vest; and (ii) upon a Death or Disability CCPP Termination or a Death or Disability Non-CCPP Termination, half of his unvested stock options shall vest; (b) for the McVey 2020 Annual, (i) upon a CIC Trigger, his unvested stock options shall fully vest, but have no impact on the value presented in the table above because it is presented as of December 31, 2022 and the stock options had an exercise price greater than the closing market price of a share of our Common Stock on such date; and (ii) upon a Death or Disability CCPP Termination or a Death or Disability Non-CCPP Termination, half of his unvested stock options shall vest, but have no impact on the value presented in the table above because it is presented as of December 31, 2022 and the stock options had an exercise price greater than the closing market price of a share of our Common Stock on such date; and (c) for the McVey 2021 Annual and McVey 2022 Annual, upon a Following CIC Termination, a CIC Trigger, a Death or Disability CCPP Termination or a Death or Disability Non-CCPP Termination, his unvested stock options shall fully vest, but have no impact on the value presented in the table above because it is presented as of December 31, 2022 and the stock options had an exercise price greater than the closing market price of a share of our Common Stock on such date.

EXECUTIVE COMPENSATION

Payments and Benefits for Mr. Concannon							
	Termination for Cause or Without Good Reason	Death or Disability CCPP Termination ¹	Death or Disability Non-CCPP Termination ¹	CCPP Without Cause or for Good Reason Termination ¹	Non-CCPP Without Cause or for Good Reason ¹	CIC Trigger ¹ (No Termination)	Non- Extension Termination ¹
Base Salary ²	—	\$ 1,000,000	\$ 500,000	\$ 1,000,000	\$ 1,000,000	—	\$ 500,000
Bonus ³	—	\$ 2,800,000	\$ 1,400,000	\$ 2,800,000	\$ 2,800,000	—	\$ 1,400,000
Health Benefits ⁴	—	\$ 54,838	\$ 36,559	\$ 54,838	\$ 54,838	—	\$ 36,559
Unvested Restricted Stock ⁵	—	\$ 5,274,925	\$ 5,274,925	\$ 5,274,925	\$ 2,637,463	\$ 5,274,925	—
Unvested Performance Shares ⁶	—	\$ 422,658	\$ 422,658	\$ 845,316	—	\$ 845,316	—
Unvested Performance Stock Units ⁷	—	\$ 1,651,587	\$ 1,651,587	\$ 1,651,587	—	\$ 1,651,587	—
Unvested Restricted Stock Units ⁸	—	\$ 855,495	\$ 855,495	\$ 995,080	\$ 0	\$ 995,080	—
Unvested Stock Options ⁹	—	\$ 107,215	\$ 107,215	\$ 214,431	\$ 214,431	—	—
Total	—	\$ 12,166,719	\$ 10,248,439	\$ 12,836,176	\$ 6,706,732	\$ 8,766,907	\$ 1,936,559

- (1) A “Death or Disability CCPP Termination” occurs upon Mr. Concannon’s death or disability during a CCPP (as defined in footnote (1) to the “Payments and Benefits for Mr. McVey” table). A “Death or Disability Non-CCPP Termination” occurs upon Mr. Concannon’s death or disability outside of a CCPP. A “CCPP Without Cause or for Good Reason Termination” occurs upon: (i) a termination by Mr. Concannon for Good Reason during a Prior CCPP (as defined in footnote (1) to the “Payments and Benefits for Mr. McVey” table); or (ii) the Company terminates Mr. Concannon without Cause or a termination by Mr. Concannon for Good Reason during the portion of a CCPP that is not a Prior CCPP. A “Non-CCPP Without Cause or for Good Reason Termination” means a termination by the Company without Cause or by Mr. Concannon for Good Reason that is not a CCPP Without Cause or for Good Reason Termination. A “CIC Trigger” occurs if, immediately prior to a Change in Control, the Compensation Committee determines that the applicable equity award will not be continued, assumed or have new rights substituted therefor in accordance with the applicable incentive plans. A “Non-Extension Termination” occurs if Mr. Concannon’s employment is terminated due to our providing a Non-Extension Notice (as defined in footnote (1) to the “Payments and Benefits for Mr. McVey” table, except with respect to the Prior Concannon Employment Agreement). An “Average Bonus” for Mr. Concannon means the average of his annual bonus amounts received in 2019 and 2020.
- (2) Represents the continued payment of base salary: (a) upon a Death or Disability CCPP Termination, a CCPP Without Cause or for Good Reason Termination or a Non-CCPP Without Cause or for Good Reason Termination, for 24 months; and (b) upon a Death or Disability Non-CCPP Termination or a Non-Extension Termination, for 12 months.
- (3) Represents a bonus: (a) upon a Death or Disability CCPP Termination, a CCPP Without Cause or for Good Reason Termination or a Non-CCPP Without Cause or for Good Reason Termination, in the amount of two times Mr. Concannon’s Average Bonus, payable in 24 monthly installments; and (b) upon a Death or Disability Non-CCPP Termination or a Non-Extension Termination, in the amount of one times Mr. Concannon’s Average Bonus, payable in 12 monthly installments.
- (4) Represents healthcare coverage: (a) upon a Death or Disability CCPP Termination, a CCPP Without Cause or for Good Reason Termination or a Non-CCPP Without Cause or for Good Reason Termination, for 18 months; and (b) upon a Death or Disability Non-CCPP Termination or a Non-Extension Termination, for 12 months.
- (5) Represents the value of the unvested restricted stock issued to Mr. Concannon upon the settlement of performance shares granted to him in January 2019, as part of his sign on award (the “Concannon Sign On”), which will vest as follows: (a) upon a Death or Disability CCPP Termination, a Death or Disability Non-CCPP Termination, a CCPP Without Cause or For Good Reason Termination or a CIC Trigger, his unvested restricted stock shall fully vest; and (b) upon a Non-CCPP Without Cause or For Good Reason Termination, half of his restricted stock shall vest.
- (6) Represents the target value of the unvested performance shares granted to Mr. Concannon in January 2020 as part of his annual award (the “Concannon 2020 Annual”), which will vest as follows: (a) upon a CCPP Without Cause or for Good Reason Termination or a CIC Trigger, his unvested performance shares shall fully vest; provided that the unvested performance shares would not vest if his employment was terminated by him for Good Reason; and (b) upon a Death or Disability CCPP Termination or a Death or Disability Non-CCPP Termination, half of his unvested performance shares shall vest.
- (7) Represents the target value of the unvested PSUs granted to Mr. Concannon in January 2021 (the “Concannon 2021 Annual”) and in January 2022 (the “Concannon 2022 Annual,” together with the Concannon 2020 Annual and the Concannon 2021 Annual, the “Concannon Annual Awards”), each as a part of his annual award, which will fully vest upon a Death or Disability CCPP Termination, a Death or Disability Non-CCPP Termination, a CCPP Without Cause or For Good Reason Termination, or a CIC Trigger; provided that, with respect to a CCPP Without Cause or for Good Reason Termination, the unvested PSUs would not vest if his employment was terminated by him for Good Reason.
- (8) Represents the value of the unvested RSUs granted to Mr. Concannon as part of the Concannon Annual Awards, which will vest as follows: (a) for the Concannon 2020 Annual, (i) upon a CCPP Without Cause or For Good Reason Termination or a CIC Trigger, his unvested RSUs shall fully vest; provided that, with respect to a CCPP Without Cause or for Good Reason Termination, the unvested RSUs would not vest if his employment was terminated by him for Good Reason; and (ii) upon a Death or Disability CCPP Termination, a Death or Disability Non-CCPP Termination, half of his unvested RSUs shall vest; and (c) for the Concannon 2021 Annual and Concannon 2022 Annual, upon a CCPP Without Cause or For Good Reason Termination, Death or Disability CCPP Termination, a Death or Disability Non-CCPP Termination or a CIC Trigger, his unvested RSUs shall fully

vest; provided that, with respect to a CCPP Without Cause or for Good Reason Termination, the unvested RSUs would not vest if his employment was terminated by him for Good Reason.

- (9) Represents the value of the unvested stock options granted to Mr. Concannon as part of the Concannon Sign On, the Concannon 2021 Annual and the Concannon 2022 Annual, which will vest as follows: (a) for the Concannon Sign On, (i) upon a CCPP Without Cause or For Good Reason Termination or a Non-CCPP Without Cause or For Good Reason Termination, his unvested stock options shall fully vest; and (ii) upon a Death or Disability CCPP Termination, a Death or Disability Non-CCPP Termination, half of his unvested stock options shall vest; and (b) for the Concannon 2021 Annual and the Concannon 2022 Annual, upon a CCPP Without Cause or For Good Reason Termination, a Death or Disability CCPP Termination, a Death or Disability Non-CCPP Termination or a CIC Trigger, his unvested stock options shall fully vest, but have no impact on the value presented in the table above because it is presented as of December 31, 2022 and the stock options had an exercise price greater than the closing market price of a share of our Common Stock on such date; provided that, with respect to a CCPP Without Cause or for Good Reason Termination, the unvested stock options would not vest if his employment was terminated by him for Good Reason.

EXECUTIVE COMPENSATION

Payments and Benefits for Mr. Gerosa					
	Termination for Cause or Without Good Reason	CIC Termination ¹	CIC Trigger ¹ (No Termination)	Non-CIC Termination ¹	Death or Disability
Severance ²	—	\$ 1,005,000	—	\$ 631,667	\$ 315,833
Pro Rata Bonus ³	—	\$ 370,000	—	\$ 331,667	\$ 165,833
Health Benefits ⁴	—	\$ 55,349	—	\$ 36,899	\$ 36,899
Unvested Restricted Stock ⁵	—	\$ 22,311	\$ 22,311	\$ 22,311	\$ 22,311
Unvested Performance Stock Units ⁶	—	\$ 385,147	\$ 385,147	—	\$ 385,147
Unvested Restricted Stock Units ⁷	—	\$ 249,328	\$ 249,328	\$ 117,692	\$ 249,328
Unvested Stock Options ⁸	—	—	—	—	—
Total	—	\$ 2,087,135	\$ 656,786	\$ 1,140,235	\$ 1,175,352

- (1) A "CIC Termination", occurs upon termination by the Company without Cause or a termination by the applicable NEO for Good Reason during the period beginning on the effective date of a Change in Control and ending on the second anniversary following such effective date (such period, a "Protection Period"). A "CIC Trigger" occurs if, immediately prior to a Change in Control, the Compensation Committee determines that the applicable equity award will not be continued, assumed or have new rights substituted therefor in accordance with the applicable incentive plans. An "Non-CIC Termination" occurs either upon (a) a termination by the Company without Cause prior to a Change in Control, or (b) a termination by the Company without Cause or a termination by the applicable NEO for Good Reason following the expiration of a Protection Period. The applicable NEO's "Average Annual Bonus" means the average of his annual bonus amounts earned and payable for the Company's three fiscal years immediately preceding the termination, or, with respect to a CIC Termination, if greater, the bonus amount from the year preceding a Change in Control.
- (2) Represents severance: (a) upon a CIC Termination, equal to one and a half times the sum of Mr. Gerosa's base salary and his Average Annual Bonus, payable in a lump sum; (b) upon a Non-CIC Termination, equal to one times the sum of Mr. Gerosa's base salary and his Average Annual Bonus, payable in regular installments over twelve months; and (c) upon death or disability, equal to half of the sum of Mr. Gerosa's base salary and his Average Annual Bonus, payable in a lump sum.
- (3) Represents a pro rata bonus: (a) upon a CIC Termination or a Non-CIC Termination, equal to Mr. Gerosa's Average Annual Bonus, payable in a lump sum; and (b) upon death or disability, equal to half of his Average Annual Bonus, payable in a lump sum.
- (4) Represents healthcare coverage: (a) upon a CIC Termination, for eighteen months; and (b) upon a Non-CIC Termination or upon death or disability, for twelve months.
- (5) Represents the value of the unvested restricted stock granted to Mr. Gerosa in January 2020, which will vest as follows: (a) upon a CIC Termination, a CIC Trigger or upon death or disability, his restricted stock shall fully vest; and (b) upon a Non-CIC Termination, his restricted stock shall continue to vest for a year from such termination.
- (6) Represents the target value of the unvested PSUs granted to Mr. Gerosa in January 2021 and January 2022, which will vest as follows: (a) upon a CIC Termination, a CIC Trigger or death or disability, his unvested PSUs shall fully vest; and (b) upon a Non-CIC Termination, his PSUs shall continue to vest for a year from such termination (but as such shares cliff vest in January 2024 and January 2025, respectively, no PSUs shall vest).
- (7) Represents the value of the unvested RSUs granted to Mr. Gerosa in January 2021 and August 2021 and January 2022, which will vest as follows: (a) upon a CIC Termination, a CIC Trigger or death or disability, his unvested RSUs shall fully vest; and (ii) upon a Non-CIC Termination, his unvested RSUs shall continue to vest for a year from such termination.
- (8) Represents the value of the unvested stock options granted to Mr. Gerosa in August 2021 and January 2022, which will vest as follows: (a) upon a CIC Termination, a CIC Trigger or death or disability, his unvested stock options shall fully vest, but have no impact on the value presented in the table above because it is presented as of December 31, 2022 and the stock options had an exercise price greater than the closing market price of a share of our Common Stock on such date; and (b) upon a Non-CIC Termination, his unvested stock options shall continue to vest for a year from such termination, but have no impact on the value presented in the table above because it is presented as of December 31, 2022 and the stock options had an exercise price greater than the closing market price of a share of our Common Stock on such date.

Payments and Benefits for Mr. McPherson					
	Termination for Cause or Without Good Reason	CIC Termination ¹	CIC Trigger ¹ (No Termination)	Non-CIC Termination ¹	Death or Disability
Severance ²	—	\$ 2,100,000	—	\$ 1,400,000	\$ 700,000
Pro Rata Bonus ³	—	\$ 1,100,000	—	\$ 1,100,000	\$ 550,000
Health Benefits ⁴	—	\$ 55,349	—	\$ 36,899	\$ 36,899
Unvested Performance Shares ⁵	—	\$ 225,343	\$ 225,343	—	\$ 225,343
Unvested Performance Stock Units ⁶	—	\$ 894,121	\$ 894,121	—	\$ 894,121
Unvested Restricted Stock Units ⁷	—	\$ 845,594	\$ 845,594	\$ 374,549	\$ 845,594
Total	—	\$ 5,220,408	\$ 1,965,059	\$ 2,911,449	\$ 3,251,958

- (1) Refer to footnote (1) under the “Payments and Benefits Payable to Mr. Gerosa” table for applicable definitions.
- (2) Represents severance: (a) upon a CIC Termination, equal to one and a half times the sum of Mr. McPherson’s base salary and his Average Annual Bonus, payable in a lump sum; (b) upon a Non-CIC Termination, equal to one times the sum of Mr. McPherson’s base salary and his Average Annual Bonus, payable in regular installments over twelve months; and (c) upon death or disability, equal to half of the sum of Mr. McPherson’s base salary and his Average Annual Bonus, payable in a lump sum.
- (3) Represents a pro rata bonus: (a) upon a CIC Termination or a Non-CIC Termination, equal to Mr. McPherson’s Average Annual Bonus, payable in a lump sum; and (b) upon death or disability, equal to half of his Average Annual Bonus, payable in a lump sum.
- (4) Represents healthcare coverage: (a) upon a CIC Termination, for eighteen months; and (b) upon a Non-CIC Termination or upon death or disability, for twelve months.
- (5) Represents the target value of the unvested performance shares granted to Mr. McPherson in January 2020, which will vest as follows: (a) upon a CIC Termination, a CIC Trigger or death or disability, his unvested performance shares shall fully vest; and (b) upon a Non-CIC Termination, his performance shares shall continue to vest for a year from such termination.
- (6) Represents the target value of the unvested PSUs granted to Mr. McPherson in January 2021 and January 2022, which will vest as follows: (a) upon a CIC Termination, a CIC Trigger or death or disability, his unvested PSUs shall fully vest; and (b) upon a Non-CIC Termination, his PSUs shall continue to vest for a year from such termination (but as such shares cliff vest in January 2024 and January 2025, respectively, no PSUs shall vest).
- (7) Represents the value of the unvested RSUs granted to Mr. McPherson in January 2020, January 2021 and January 2022, which will vest as follows: (a) upon a CIC Termination, a CIC Trigger or death or disability, his unvested RSUs shall fully vest; and (b) upon a Non-CIC Termination, his unvested RSUs shall continue to vest for a year from such termination.

EXECUTIVE COMPENSATION

Payments and Benefits for Mr. Panchal						
	Termination for Cause or Without Good Reason	CIC Termination ¹	CIC Trigger ¹ (No Termination)	Non-CIC Without Cause Termination ¹	Non-CIC With Good Reason Termination ¹	Death or Disability
Severance ²	—	\$ 600,000	—	\$ 400,000	\$ 400,000	\$ 200,000
Pro Rata Bonus ³	—	—	—	—	—	—
Health Benefits ⁴	—	\$ 55,155	—	\$ 36,770	\$ 36,770	\$ 36,770
Unvested Performance Stock Units ⁵	—	\$ 1,111,656	\$ 1,111,656	—	—	\$ 1,111,656
Unvested Restricted Stock Units ⁶	—	\$ 1,623,419	\$ 1,623,419	\$ 882,129	\$ 293,950	\$ 1,623,419
Total	—	\$ 3,390,229	\$ 2,735,074	\$ 1,318,899	\$ 730,720	\$ 2,971,844

- (1) Refer to footnote (1) under the “Payments and Benefits Payable to Mr. Gerosa” table for applicable definitions, except as follows. A “Non-CIC without Cause Termination” occurs either upon (a) a termination by the Company without Cause prior to a Change in Control, or (b) a termination by the Company without Cause following the expiration of a Protection Period. A “Non-CIC with Good Reason Termination” occurs upon a termination by Mr. Panchal following the expiration of a Protection Period.
- (2) Represents severance: (a) upon a CIC Termination, equal to one and a half times the sum of Mr. Panchal's base salary and his Average Annual Bonus, payable in a lump sum; (b) upon a Non-CIC without Cause Termination or a Non-CIC with Good Reason Termination, equal to one times the sum of Mr. Panchal's base salary and his Average Annual Bonus, payable in regular installments over twelve months; and (c) upon death or disability, equal to half of the sum of Mr. Panchal's base salary and his Average Annual Bonus, payable in a lump sum. In each case, Mr. Panchal had not yet received a bonus on December 31, 2022, so his Average Annual Bonus was zero.
- (3) Represents a pro rata bonus: (a) upon a CIC Termination, a Non-CIC without Cause Termination or a Non-CIC with Good Reason Termination, equal to Mr. Panchal's Average Annual Bonus, payable in a lump sum; and (b) upon death or disability, equal to half of his Average Annual Bonus, payable in a lump sum. In each case, Mr. Panchal had not yet received a bonus on December 31, 2022, so his Average Annual Bonus was zero.
- (4) Represents healthcare coverage: (a) upon a CIC Termination, for eighteen months; and (b) upon a Non-CIC without Cause Termination, a Non-CIC with Good Reason Termination or upon death or disability, for twelve months.
- (5) Represents the target value of the unvested PSUs granted to Mr. Panchal in March 2021, which will vest as follows: (a) upon a CIC Termination, a CIC Trigger or death or disability, his unvested PSUs shall fully vest; and (b) upon a Non-CIC without Cause Termination or a Non-CIC with Good Reason Termination, his PSUs shall continue to vest for a year from such termination (but as such shares cliff vest in March 2025, no PSUs shall vest).
- (6) Represents the value of the unvested RSUs granted to Mr. Panchal in March 2022 as part of his buy-out award (the “Panchal Buy-out Award”) and sign-on award (the “Panchal Sign-On Award”), which will vest as follows: (a) for the Panchal Buy-out Award and for the Panchal Sign-on Award, upon a CIC Termination, a CIC Trigger or death or disability, his unvested RSUs shall fully vest; (b) upon a Non-CIC without Cause Termination, (i) for the Panchal Buy-out Award, his unvested RSUs shall fully vest and (ii) for the Panchal Sign-on Award, his unvested RSUs shall continue to vest for a year from such termination (but as such shares cliff vest in March 2026, no RSUs shall vest); and (c) upon a Non-CIC with Good Reason Termination, for the Panchal Buy-out Award and the Panchal Sign-on Award, his unvested RSUs shall continue to vest for a year from such termination.

Compensation Committee interlocks and insider participation

The Compensation Committee is composed of four independent directors: Mr. Prager (Chair), Ms. Altobello, Mr. Casper and Ms. Gibson. No member of the Compensation Committee is, or was during 2022, a current or former officer or employee of the Company or any of its subsidiaries. Additionally, during 2022, none of our executive officers served on the board of directors or compensation committee of any entity that had one or more of its executive officers serving on the Board or the Compensation Committee of the Company.

PROPOSAL 3 — ADVISORY VOTE ON EXECUTIVE COMPENSATION

In accordance with the requirements of Section 14A of the Exchange Act (which was added by the Dodd-Frank Act), the Company is providing its stockholders the opportunity to cast an advisory vote to approve the compensation of the Company's NEOs. This proposal, commonly known as a "Say-on-Pay" proposal, gives the Company's stockholders the opportunity to express their views on the NEOs' compensation. This year, we are also holding an advisory vote on the frequency of such votes. See Proposal 4 for the advisory vote on the frequency of the Say-on-Pay vote, in which the Board recommends continuing to hold an advisory vote on Say-on-Pay every year.

As described in detail in the Compensation Discussion and Analysis above, the Company's NEO compensation program is designed to attract, reward and retain the caliber of officers needed to ensure the Company's continued growth and profitability.

The Company seeks to accomplish these goals in a manner that is aligned with the long-term interests of the Company's stockholders. The Company believes that its NEO compensation program achieves this goal with its emphasis on long-term equity awards and performance-based compensation, in addition to short-term (annual) incentive awards, which has enabled the Company to successfully motivate and reward its NEOs. The Company believes that its ability to retain its current high-performing team of seasoned executive officers is critical to its continuing financial success and that its focus on the long-term interests of its NEOs aligns with the interests of its stockholders.

We urge stockholders to read the letter from the Compensation Committee found on page 32 and the Compensation, Discussion and Analysis beginning on page 33, which describe in more detail how our executive compensation policies and procedures operate and are designed to achieve our compensation objectives, as well as the Summary Compensation Table and other related compensation tables and narratives beginning on page 59, which provide detailed information on the compensation of our NEOs. For these reasons, the Board recommends a vote in favor of the following resolution:

"RESOLVED, that the compensation paid to the Company's NEOs, as disclosed in the Company's proxy statement for the 2023 Annual Meeting, pursuant to the compensation disclosure rules of the Securities and Exchange Commission, including the Compensation Discussion and Analysis, compensation tables and narrative discussion, is hereby APPROVED."

Your vote

As an advisory vote, this proposal is not binding upon the Company, our Board or our Compensation Committee. Notwithstanding the advisory nature of this vote, our Board and the Compensation Committee, which is responsible for designing and administering the Company's NEO compensation program, value the opinions expressed by stockholders in their vote on this proposal, and will consider the outcome of the vote when making future compensation decisions for NEOs. Unless proxy cards are otherwise marked, the persons named as proxies will vote FOR the approval, on an advisory basis, of the compensation of the Company's NEOs as disclosed in this Proxy Statement. The affirmative vote of the holders of a majority of the shares of Common Stock having voting power present in person or represented by proxy is required to approve this Proposal 3. Abstentions will have the same effect as a vote AGAINST this proposal and broker non-votes will have no effect on the outcome of the vote.



BOARD RECOMMENDATION

The board unanimously recommends that you vote "FOR" the approval, on an advisory basis, of the compensation of the Company's named executive officers as disclosed in this Proxy Statement.

PROPOSAL 4 — ADVISORY VOTE ON FREQUENCY OF SAY-ON-PAY VOTE

In accordance with the requirements of Section 14A of the Securities Exchange Act of 1934 (which was added by the Dodd-Frank Act), the Company is seeking the input of its stockholders on the frequency with which it will hold a non-binding, advisory vote on the compensation of its named executive officers (commonly known as a “Say-on-Frequency” proposal). In voting on this Proposal 4, stockholders are provided with four choices. Stockholders may indicate their preference as to whether the advisory vote on the compensation of the Company’s named executive officers should occur every (i) one year, (ii) two years, or (iii) three years; or the stockholders may abstain from voting on this Proposal 4.

After careful consideration, the Board of Directors believes that an annual frequency of the stockholder vote on the compensation of the Company’s named executive officers is optimal. The Board of Directors recommends an annual advisory vote on Say-on-Pay because an annual vote will allow stockholders to provide direct input on the Company’s compensation policies and practices, and the resulting compensation for the named executive officers, every year. Stockholders would have the opportunity to consider the Company’s most recent compensation decisions in the context of its pay for performance philosophy and focus on increasing long-term stockholder value, and to provide feedback to the Company in a timely way.

As an advisory vote, this proposal is not binding on the Company. Notwithstanding the advisory nature of this vote, the Board of Directors values the opinions expressed by stockholders in their vote on this proposal, and will consider the outcome of the vote when making a determination as to the frequency of future advisory votes on executive compensation.

Your vote

Unless proxy cards are otherwise marked, the persons named as proxies will vote for every “ONE YEAR”, on an advisory basis, for the frequency with which the Company will hold a non-binding, advisory vote on the compensation of its named executive officers. The affirmative vote of the holders of a majority of the shares of Common Stock having voting power present in person or represented by proxy is required to approve this Proposal 4. Because stockholders have four choices (one year, two years, three years or abstain) on the advisory approval of a frequency of future votes on the compensation of the Company’s named executive officers, it is possible that no frequency will receive a majority vote. If no frequency receives the affirmative vote of a majority of the shares of Common Stock having voting power present in person or represented by proxy, our Board intends to regard the frequency receiving the greatest number of votes as the recommendation of our stockholders. Abstentions will have the same effect as a vote AGAINST this proposal and broker non-votes will have no effect on the outcome of the vote.



BOARD RECOMMENDATION

The board unanimously recommends that you vote for every “ONE YEAR.”

CEO PAY RATIO

As required by Section 953(b) of the Dodd-Frank Act and Item 402(u) of Regulation S-K, our Company is required to calculate and disclose the total compensation paid to its median employee, as well as the ratio of the total compensation paid to such median employee as compared to the total compensation paid to the Company's CEO. The Company believes that the ratio of pay included in this information is a reasonable estimate calculated in a manner consistent with Item 402(u) of Regulation S-K.

Measurement date

We identified the median employee using our employee population on December 31, 2022. On December 31, 2022, the CEO of the Company was Mr. McVey.

Consistently Applied Compensation Measure (CACM)

We identified our median employee using a consistently applied compensation measure, consisting of the following:

- Actual base salary paid;
- Cash bonus paid in 2023 for 2022 performance;
- Other cash payments including, but not limited to, overtime, allowances and one-time awards;
- Value of equity awards granted in 2022, computed in accordance with FASB ASC Topic 718; and
- Company contributions to a pension or retirement plan, including, but not limited to, a 401(k) defined contribution plan in the U.S.

De minimis exception

As of December 31, 2022, we had 744 employees globally, including 462 U.S. employees and 282 non-U.S. employees. In determining the median employee, we did not include employees from the following countries as they represented, in aggregate, less than 5% of our employee population:

- Brazil – 3 employees
- France – 4 employees
- Germany – 3 employees
- Hong Kong – 10 employees
- Italy – 1 employee
- The Netherlands – 10 employees
- Switzerland – 3 employees

After excluding the CEO and employees located in the countries described above, we determined our median employee from a population of 709 employees, including 461 U.S. employees and 248 non-U.S. employees.

CEO pay ratio

The annual total compensation for the CEO and the median employee, as calculated using the Summary Compensation Table requirements, was \$5,553,833 and \$159,747, respectively, resulting in a ratio of 35:1.

This pay ratio information is being provided solely for compliance purposes. Neither the Compensation Committee nor management of the Company used the pay ratio measure in making compensation decisions.

PAY VERSUS PERFORMANCE

As required by Section 953(a) of the Dodd-Frank Act and Item 402(v) of Regulation S-K, we are providing the following information about the relationship between executive compensation actually paid to each of our Principal Executive Officer (“PEO”), which is our CEO, and the average of our non-PEO NEOs, and certain financial performance measures of the Company. For further information concerning the Company’s variable pay-for-performance philosophy and how the Company aligns executive compensation with the Company’s performance, refer to “Executive Compensation – Compensation Discussion and Analysis.”

Pay Versus Performance								
Year (a)	Summary Compensation Table Total for PEO ¹ (b)	Compensation Actually Paid to PEO ² (c)	Average Summary Compensation Table Total for Non-PEO NEOs ³ (d)	Average Compensation Actually Paid to Non-PEO NEOs ⁴ (e)	Value of Initial Fixed \$100 Investment Based On:			
					Total Shareholder Return ⁵ (f)	Index Total Shareholder Return ⁶ (g)	Net Income (millions) ⁷ (h)	Adjusted Operating Income ⁸ (i)
2022	5,553,833	(17,047,453)	3,600,351	1,318,174	\$75.12	\$113.64	\$250.2	\$370.4
2021	5,742,184	(23,796,801)	2,778,019	(567,512)	\$109.67	\$131.62	\$257.9	\$379.6
2020	6,143,686	46,225,725	2,563,567	12,445,573	\$151.29	\$99.47	\$299.4	\$423.6

- (1) The dollar amounts reported in column (b) are the amounts of total compensation reported for Mr. McVey (our Chief Executive Officer as of December 31, 2022) for each corresponding year in the “Total” column of the Summary Compensation Table. Refer to “Executive Compensation – Executive Compensation Tables – Summary Compensation Table.”
- (2) The dollar amounts reported in column (c) represent the amount of “compensation actually paid” to Mr. McVey, as computed in accordance with Item 402(v) of Regulation S-K. The dollar amounts do not reflect the actual amount of compensation earned by or paid to Mr. McVey during the applicable year. In accordance with the requirements of Item 402(v) of Regulation S-K, the following adjustments were made to Mr. McVey’s total compensation for each year to determine the compensation actually paid:

PEO Compensation Actually Paid				
Year	Reported Summary Compensation Total for PEO	Reported Value of Equity Awards ^a	Equity Award Adjustments ^b	Compensation Actually Paid to PEO
2022	5,553,833	3,168,833	(19,432,453)	(17,047,453)
2021	5,742,184	3,432,184	(26,106,801)	(23,796,801)
2020	6,143,686	3,386,686	43,468,725	46,225,725

- (a) The grant date fair value of equity awards represents the total of the amounts reported in the “Stock Awards” and “Option Awards” columns in the Summary Compensation Table for the applicable year.
- (b) The equity award adjustments for each applicable year include the addition (or subtraction, as applicable) of the following: (i) the year-end fair value of any equity awards granted in the applicable year that are outstanding and unvested as of the end of the year; (ii) the amount of change as of the end of the applicable year (from the end of the prior fiscal year) in fair value of any awards granted in prior years that are outstanding and unvested as of the end of the applicable year; (iii) for awards that are granted and vest in the same applicable year, the fair value as of the vesting date; (iv) for awards granted in prior years that vest in the applicable year, the amount equal to the change as of the vesting date (from the end of the prior fiscal year) in fair value; (v) for awards granted in prior years that are determined to fail to meet the applicable vesting conditions during the applicable year, a deduction for the amount equal to the fair value at the end of the prior fiscal year; and (vi) the dollar value of any dividends or other earnings paid on stock or option awards in the applicable year prior to the vesting date that are not otherwise reflected in the fair value of such award or included in any other component of total compensation for the applicable year. The valuation assumptions used to calculate fair values did not materially differ from those disclosed at the time of grant.
- (3) The dollar amounts reported in column (d) represent the average of the amounts reported for the Company’s named executive officers (NEOs) as a group (excluding Mr. McVey, who has served as our CEO as of December 31, 2022) in the “Total” column of the Summary Compensation Table in each applicable year. The names of each of the NEOs (excluding Mr. McVey) included for purposes of calculating the average amounts in each applicable year are as follows: (i) for 2022, Christopher R. Concannon, Christopher N. Gerosa, Kevin M. McPherson and Naineshkumar Panchal; (ii) for 2021, Christopher R. Concannon, Antonio DeLise, Christopher N. Gerosa, Kevin M.

McPherson and Nicholas Themelis; and (iii) for 2020, Christopher R. Concannon, Antonio DeLise, Kevin M. McPherson and Nicholas Themelis.

- (4) The dollar amounts reported in column (e) represent the average amount of “compensation actually paid” to the NEOs as a group (excluding Mr. McVey, who has served as our CEO as of December 31, 2022), as computed in accordance with Item 402(v) of Regulation S-K. The dollar amounts do not reflect the actual average amount of compensation earned by or paid to the NEOs as a group (excluding Mr. McVey) during the applicable year. In accordance with the requirements of Item 402(v) of Regulation S-K, the following adjustments were made to average total compensation for the NEOs as a group (excluding Mr. McVey) for each year to determine the compensation actually paid, using the same methodology described above in footnote 2:

Non-PEO NEO Compensation Actually Paid				
Year	Reported Summary Compensation Average for Non-PEO NEOs	Reported Average Value of Equity Awards ^a	Equity Award Adjustments ^b	Compensation Actually Paid to Non-PEO NEOs
2022	3,600,351	1,935,768	(346,409)	1,318,174
2021	2,778,019	1,578,686	(1,766,846)	(567,512)
2020	2,563,567	1,006,567	10,888,573	12,445,573

- (a) The grant date fair value of equity awards represents the total of the amounts reported in the “Stock Awards” and “Option Awards” columns in the Summary Compensation Table for the applicable year.
- (b) The equity award adjustments for each applicable year include the addition (or subtraction, as applicable) of the following: (i) the year-end fair value of any equity awards granted in the applicable year that are outstanding and unvested as of the end of the year; (ii) the amount of change as of the end of the applicable year (from the end of the prior fiscal year) in fair value of any awards granted in prior years that are outstanding and unvested as of the end of the applicable year; (iii) for awards that are granted and vest in same applicable year, the fair value as of the vesting date; (iv) for awards granted in prior years that vest in the applicable year, the amount equal to the change as of the vesting date (from the end of the prior fiscal year) in fair value; (v) for awards granted in prior years that are determined to fail to meet the applicable vesting conditions during the applicable year, a deduction for the amount equal to the fair value at the end of the prior fiscal year; and (vi) the dollar value of any dividends or other earnings paid on stock or option awards in the applicable year prior to the vesting date that are not otherwise reflected in the fair value of such award or included in any other component of total compensation for the applicable year. The valuation assumptions used to calculate fair values did not materially differ from those disclosed at the time of grant.
- (5) Cumulative TSR is calculated by dividing the sum of the cumulative amount of dividends for the measurement period, assuming dividend reinvestment, and the difference between the Company’s share price at the end and the beginning of the measurement period by the Company’s share price at the beginning of the measurement period.
- (6) Represents the weighted peer group TSR, weighted according to the respective companies’ stock market capitalization at the beginning of each period for which a return is indicated. The peer group used for this purpose is the following published industry index: the Dow Jones U.S. Financials Index.
- (7) The dollar amounts reported represent the amount of net income reflected in the Company’s audited financial statements for the applicable year.
- (8) Adjusted Operating Income is defined as operating income before: (1) unplanned inorganic activity and (2) the impact of cash incentives.

Financial performance measures

As described in greater detail in “Executive Compensation – Compensation Discussion and Analysis,” the Company’s executive compensation program reflects a variable pay-for-performance philosophy. The metrics that the Company uses for both our long-term and short-term incentive awards are selected to incentivize our NEOs to increase the value of our enterprise for our stockholders. The most important financial performance measures used by the Company to link executive compensation actually paid to the Company’s NEOs, for the most recently completed fiscal year, to the Company’s performance are as follows:

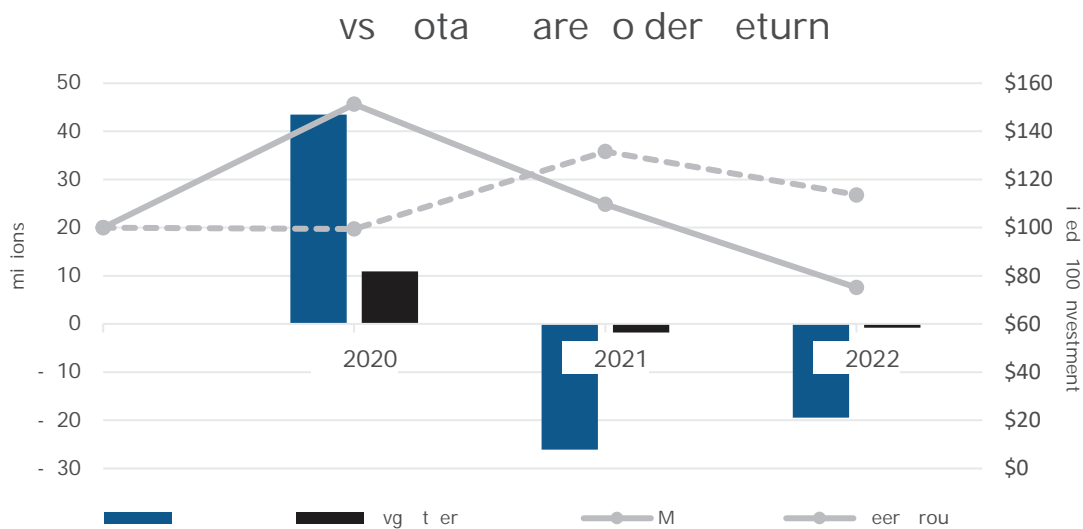
- Adjusted operating income
- Operating margin
- Revenue growth excluding U.S. credit
- U.S. credit market share

Analysis of the information presented in the Pay versus Performance table

As described in more detail in the section “Executive Compensation – Compensation Discussion and Analysis,” the Company’s executive compensation program reflects a variable pay-for-performance philosophy. While the Company utilizes several performance measures to align executive compensation with Company performance, not all of those Company measures are presented in the Pay versus Performance table. Moreover, the Company generally seeks to incentivize long-term performance, and therefore does not specifically align the Company’s performance measures with compensation that is actually paid (as computed in accordance with Item 402(v) of Regulation S-K) for a particular year. In accordance with Item 402(v) of Regulation S-K, the Company is providing the following descriptions of the relationships between information presented in the Pay versus Performance table.

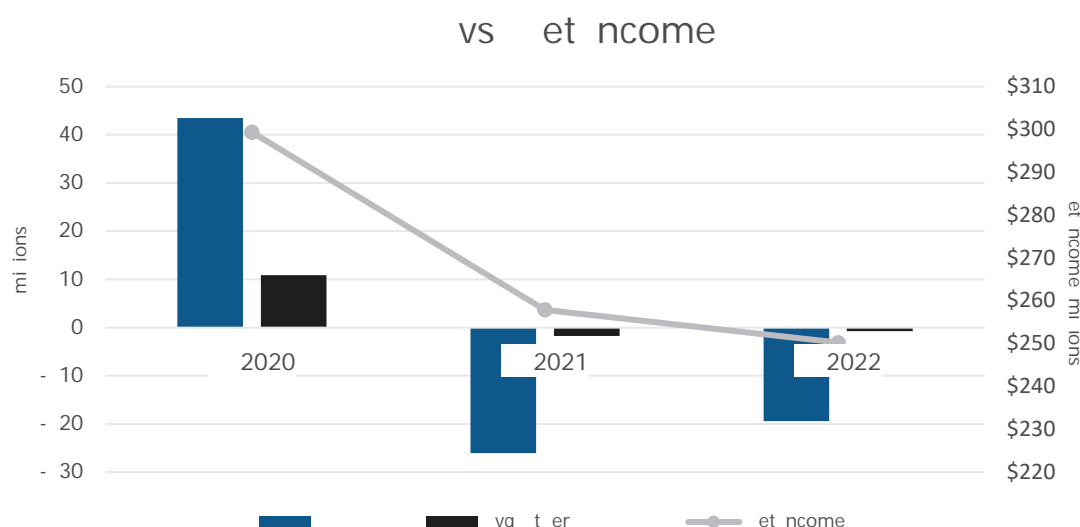
Compensation Actually Paid and Cumulative TSR

As demonstrated by the following graph, the amount of compensation actually paid to Mr. McVey and the average amount of compensation actually paid to the Company’s NEOs as a group (excluding Mr. McVey) is aligned with the Company’s cumulative TSR over the three years presented in the table. The alignment of compensation actually paid with the Company’s cumulative TSR over the period presented is because a significant portion of the compensation actually paid to Mr. McVey and to the other NEOs is comprised of equity awards.



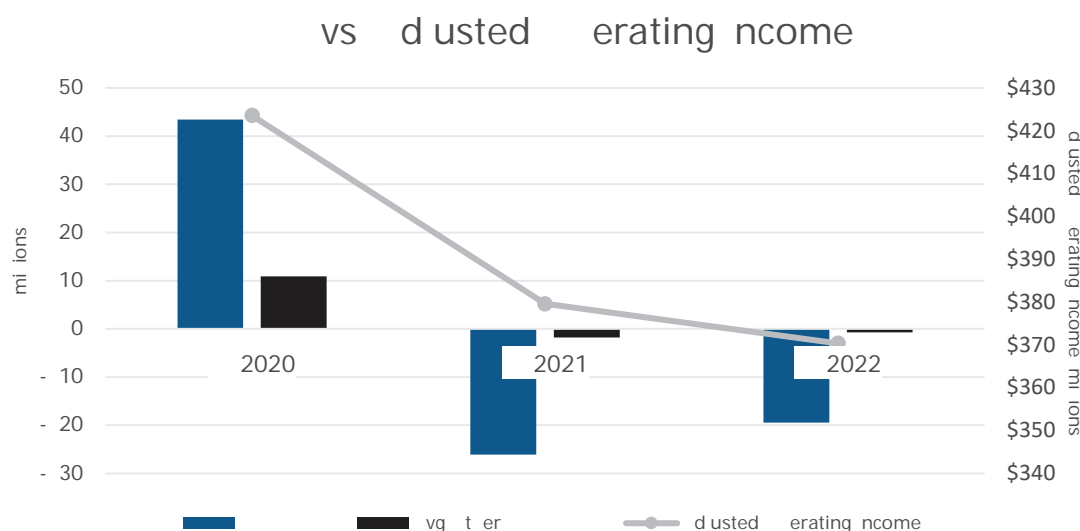
Compensation Actually Paid and Net Income

As demonstrated by the following table, the amount of compensation actually paid to Mr. McVey and the average amount of compensation actually paid to the Company's NEOs as a group (excluding Mr. McVey) is generally aligned with the Company's net income over the three years presented in the table.



Compensation Actually Paid and Adjusted Operating Income

As demonstrated by the following graph, the amount of compensation actually paid to Mr. McVey and the average amount of compensation actually paid to the Company's NEOs as a group (excluding Mr. McVey) is generally aligned with the Company's Adjusted Operating Income over the three years presented in the table. As described above, Adjusted Operating Income is defined as operating income before: (1) unplanned inorganic activity and (2) the impact of cash incentives. While the Company uses numerous financial and non-financial performance measures for the purpose of evaluating performance for the Company's compensation programs, the Company has determined that Adjusted Operating Income is the financial performance measure that, in the Company's assessment, represents the most important performance measure (that is not otherwise required to be disclosed in the pay versus performance table above) used by the Company to link compensation actually paid to the company's NEOs, for the most recently completed fiscal year, to Company performance. The Company utilizes Adjusted Operating Income as the financial component of the Company's short-term incentive compensation program. See "– Compensation Discussion and Analysis."



OTHER INFORMATION

General information

This Proxy Statement is furnished in connection with a solicitation of proxies by the Board of Directors of the Company, to be used at our Annual Meeting scheduled for Wednesday, June 7, 2023, at 9:00 a.m., Eastern Daylight Time, via live audio webcast at www.virtualshareholdermeeting.com/MKTX2023.

Holders of record of our Common Stock at the close of business on the Record Date are entitled to notice of, and to vote at, the Annual Meeting. On that date, there were 37,381,480 shares entitled to be voted.

The Annual Meeting will be held in virtual format only. You will not be able to attend the Annual Meeting physically, however you may vote and submit questions while attending the Annual Meeting online via the live audio webcast.

To participate in the Annual Meeting, you must have your 16-digit control number that is shown on your Notice of Internet Availability of Proxy Materials or on your proxy card. You will be able to submit questions during the meeting by typing in your question in the “ask a question” box on the meeting page. Should you require technical assistance, support will be available by dialing 800-586-1548 (U.S.) or 303-562-9288 (International) during the meeting. We are committed to ensuring that our stockholders will be afforded the same rights and opportunities to participate as they would at an in-person meeting.

We encourage you to vote your shares, either by voting online during the Annual Meeting or by granting a proxy (i.e., authorizing someone to vote your shares). If you vote via the Internet or telephone or execute the attached paper proxy card, the individuals designated will vote your shares according to your instructions. If any matter other than the Proposals listed in the Notice of Annual Meeting of Stockholders is presented at the Annual Meeting, the designated individuals will, to the extent permissible, vote all proxies in the manner that the Board may recommend or, in the absence of such recommendation, in the manner they perceive to be in the best interests of the Company.

If you indicate when voting via the Internet that you wish to vote as recommended by the Board or if you execute the enclosed paper proxy card but do not give instructions, your proxy will be voted as follows: (1) FOR the election of each of the nominees for director named herein, (2) FOR ratification of the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the year ending December 31, 2023, (3) FOR the approval, on an advisory basis, of the compensation of the Company's named executive officers as disclosed in this Proxy Statement, (4) every ONE YEAR on the frequency of our advisory vote on executive compensation and (5) in accordance with the best judgment of the persons appointed as proxies with respect to any other matters that properly come before the Annual Meeting. If your shares are held in a stock brokerage account or by a bank or other nominee, see “— Voting — Broker authority to vote.”

Information on how you may vote at the Annual Meeting (such as granting a proxy that directs how your shares should be voted, or attending the Annual Meeting), as well as how you can revoke a proxy, is contained in this Proxy Statement under the headings “— Solicitation of Proxies” and “— Voting.”

We are furnishing proxy materials to our stockholders primarily via the Internet. On April 26, 2023, we expect to mail beneficial owners of our Common Stock a Notice containing instructions on how to access our proxy materials, including this Proxy Statement and our Annual Report. The Notice also instructs you on how to vote via the Internet. Other stockholders, in accordance with their prior requests, received e-mail notification of how to access our proxy materials and vote via the Internet, or have been mailed paper copies of our proxy materials and a proxy card or voting form. The proxy card includes instructions on how to vote via the telephone. All beneficial owners will have the ability to access the proxy materials, including this Proxy Statement and our Annual Report, on the website referred to in the Notice.

Internet distribution of our proxy materials is designed to provide our stockholders with the information they need, while lowering costs of delivery and reducing the environmental impact of our Annual Meeting. However, if you would prefer to receive paper copies of proxy materials, please follow the instructions included in the Notice. If you have previously elected to receive our proxy materials electronically, you will continue to receive these materials via e-mail unless you elect otherwise.

Our Proxy Statement and 2022 Annual Report to Stockholders are available at
<https://materials.proxyvote.com/57060D>

Solicitation of proxies

General

The attached proxy card allows you to instruct the designated individuals how to vote your shares. You may vote in favor of, against, or abstain from voting on any proposal.

Solicitation

We will bear the entire cost of solicitation, including the preparation, assembly, printing and mailing of a Notice, this Proxy Statement, the proxy card and any additional soliciting materials furnished to stockholders. Copies of solicitation materials will be furnished to brokerage houses, fiduciaries and custodians holding shares in their names that are beneficially owned by others so that they may forward the solicitation materials to such beneficial owners. In addition, we may reimburse such persons for their costs of forwarding the solicitation materials to such beneficial owners. The original solicitation of proxies by mail may be supplemented by solicitation by telephone or other means by our directors, officers, employees or agents. No additional compensation will be paid to these individuals for any such services. Except as described above, we do not presently intend to solicit proxies other than by mail.

Voting

Stockholders entitled to vote and shares outstanding

Each stockholder is entitled to one vote for each share of Common Stock held on each matter submitted to a vote at the Annual Meeting. As of the Record Date, 37,381,480 shares of Common Stock were outstanding and entitled to be voted at the Annual Meeting.

How to vote

Submitting a proxy via mail, the Internet or telephone

You may vote by calling the toll-free telephone number listed on the proxy card or visiting the website address listed on the Notice or the proxy card. If you choose to submit your proxy with voting instructions by telephone or through the Internet, you will be required to provide your assigned control number noted on the Notice before your proxy will be accepted. In addition to the instructions that appear on the Notice, step-by-step instructions will be provided by recorded telephone message or at the designated website on the Internet. Votes submitted by telephone or via the Internet must be received by 11:59 p.m., EDT, on June 6, 2023 in order for them to be counted at the Annual Meeting.

If you are a stockholder of record, or otherwise received a printed copy of the proxy materials, in addition to the methods described above, you may also submit your proxy with voting instructions by mail by following the instructions set forth on the proxy card included with the proxy materials. Specifically, if you are a stockholder of record on the Record Date, you may vote by mailing your proxy card, with voting instructions, to the address listed on your proxy card.

OTHER INFORMATION

[Voting your shares online at the Annual Meeting](#)

For Shares Directly Registered in the Name of the Stockholder: You may vote online at the Annual Meeting at www.virtualshareholdermeeting.com/MKTX2023; however, we encourage you to vote by proxy card or the Internet even if you plan to attend the online meeting. If you plan to attend the online Annual Meeting, you will need the 16-digit control number included on your Notice or your proxy card (if you received a printed copy of the proxy materials) in order to be able to enter the meeting.

For Shares Registered in the Name of a Brokerage Firm or Bank: If your shares of Common Stock are held in street name, you will receive instructions from your broker, bank or other nominee that you must follow in order to have your shares of Common Stock voted prior to or during the online meeting, or contact your broker, bank or other nominee for such information.

[Revoking a proxy](#)

A proxy that was submitted via the Internet or by telephone may be revoked at any time before it is exercised by (1) executing a later-dated proxy card via the Internet or by telephone or (2) attending the Annual Meeting and voting online.

A proxy that was submitted by mail may be revoked at any time before it is exercised by (1) giving written notice revoking the proxy to our General Counsel and Corporate Secretary at MarketAxess Holdings Inc., 55 Hudson Yards, 15th Floor, New York, NY 10001, (2) subsequently sending another proxy bearing a later date or (3) attending the Annual Meeting and voting online.

If your shares are registered in the name of a brokerage firm or bank, you must contact your brokerage firm or bank to change your vote or obtain a proxy to vote your shares if you wish to cast your vote online at the meeting.

Your attendance at the Annual Meeting in and of itself will not automatically revoke a proxy that was submitted via the Internet, by telephone or by mail.

[Broker authority to vote](#)

If your shares are held in a stock brokerage account or by a bank or other nominee, you are considered to be the beneficial owner of shares held in street name. These proxy materials are being forwarded to you by your broker or nominee, who is considered to be the holder of record with respect to your shares. As the beneficial owner, you have the right to direct your broker or nominee how to vote by filling out the voting instruction form provided by your broker or nominee. Telephone and Internet voting options may also be available to beneficial owners. As a beneficial owner, you are also invited to attend the Annual Meeting, but you will need the 16-digit control number included on your Notice or your proxy card (if you received a printed copy of the proxy materials) in order to be able to enter the meeting.

If your shares are held in street name, your broker or nominee will ask you how you want your shares to be voted. If you provide voting instructions, your shares must be voted as you direct. If you do not furnish voting instructions, one of two things can happen, depending upon whether a proposal is "routine." Under the rules that govern brokers that have record ownership of shares beneficially owned by their clients, brokers have discretion to cast votes only on routine matters, such as the ratification of the appointment of independent registered public accounting firms, without voting instructions from their clients. Brokers are not permitted, however, to cast votes on "non-routine" matters without such voting instructions, such as the election of directors. A "broker non-vote" occurs when a beneficial owner has not provided voting instructions and the broker holding shares for the beneficial owner does not vote on a particular proposal because the broker does not have discretionary voting power for that proposal.

Quorum

A quorum is required for the conduct of business at the meeting. The presence at the meeting, in person or by proxy, of the holders of a majority of the stock issued and outstanding and entitled to vote at the meeting on the Record Date will constitute a quorum, permitting us to conduct the business of the meeting. Proxies received but marked as abstentions, if any, and broker non-votes (as described above) will be included in the calculation of the number of shares considered to be present at the meeting for quorum purposes. If we do not have a quorum, we will be forced to reconvene the Annual Meeting at a later date.

Votes necessary to approve each proposal

Election of Directors. Our Bylaws include a majority of votes cast voting standard for the election of directors in uncontested elections, which are generally defined as elections in which the number of nominees does not exceed the number of directors to be elected at the meeting. In the election of directors (Proposal 1), you may either vote "FOR," "AGAINST" or "ABSTAIN" as to each nominee. Cumulative voting is not permitted. Under the majority of votes cast voting standard, in uncontested elections of directors, such as this election, each director must be elected by the affirmative vote of a majority of the votes cast with respect to that nominee's election at any meeting for the election of directors at which a quorum is present. A majority of the votes cast means that the number of votes cast "FOR" a candidate for director exceeds the number of votes cast "AGAINST" that candidate for director. Abstentions will have no effect in determining whether a director nominee has received a majority of the votes cast because an abstention does not count as a vote cast. In addition, brokers do not have discretionary authority to vote for directors, therefore, broker non-votes will not count as a vote cast "FOR" or "AGAINST" a nominee's election and thus will have no effect in determining whether a director nominee has received a majority of the votes cast.

Other Items. For Proposals 2 and 3, if a quorum is present, the proposals will be decided by the affirmative vote of the holders of a majority of the shares of Common Stock having voting power present in person or represented by proxy. Abstentions will be counted as shares present having voting power on these proposals and will have the same effect as votes "AGAINST." Brokers have discretionary authority to vote on Proposal 2, the ratification of the appointment of PwC. Therefore, there will be no broker non-votes on Proposal 2. Brokers do not have discretionary authority to vote on Proposals 3 (Say-on-Pay), and any resulting broker non-votes will have no effect on the outcome of the vote.

With respect to the frequency of future advisory votes on the compensation of the Company's named executive officers (Proposal 4), approval of a frequency requires votes for that frequency from the holders of a majority of the shares of Common Stock having voting power present in person or represented by proxy. Because stockholders have four choices (every one year, two years, three years or abstain) on the advisory approval of a frequency of future votes on the compensation of the Company's named executive officers, it is possible that no frequency will receive a majority vote. If no frequency receives the affirmative vote of a majority of the shares of Common Stock having voting power present in person or represented by proxy, our Board intends to regard the frequency receiving the greatest number of votes as the recommendation of our stockholders. Abstentions will be counted as shares present and entitled to vote on this proposal and will have the same effect as a vote against each frequency. Broker non-votes will have no effect on the outcome of the vote. The Board and the Compensation Committee will consider the outcome of the vote when making their determination regarding how frequently (every one year, two years or three years) over the next six years the advisory vote will be held, after which period another frequency vote will be held.

Availability of certain documents

Householding of Annual Meeting materials

The Company and some banks, brokers and other nominee record holders may participate in the practice of “householding” proxy statements and their accompanying documents. This means that only one copy of our Proxy Statement is sent to multiple stockholders in your household. This “householding” procedure reduces our printing costs and postage fees as well as the environmental impact of the annual meeting. Stockholders who participate in householding will continue to receive separate proxy cards. We will promptly deliver a separate copy of these documents to you upon written or oral request to our Investor Relations Department at MarketAxess Holdings Inc., 55 Hudson Yards, 15th Floor, New York, NY 10001 or 212-813-6000. If you want to receive separate copies of our proxy statements in the future, or if you are receiving multiple copies and would like to receive only one copy per household, you should contact your bank, broker or other nominee record holder, or you may contact us at the above address and phone number.

Additional information

We are required to file annual, quarterly and current reports, proxy statements and other reports with the SEC. Copies of these filings are available through our Internet website at www.marketaxess.com or the SEC’s website at www.sec.gov. We will furnish copies of our SEC filings (without exhibits), including our Annual Report on Form 10-K for the year ended December 31, 2022, without charge to any stockholder upon written or oral request to our Investor Relations Department at MarketAxess Holdings Inc., 55 Hudson Yards, 15th Floor, New York, NY 10001 or 212-813-6000.

Other matters

As of the date of this Proxy Statement, the Company knows of no other matters that will be presented for consideration at the Annual Meeting. If any other matters properly come before the Annual Meeting, it is the intention of the persons named in the enclosed proxy card to vote the shares they represent as such persons deem advisable. Discretionary authority with respect to such other matters is granted by the execution of the enclosed proxy card.

Stockholder proposals for 2024 Annual Meeting

In order to be considered for inclusion in the Company’s proxy statement and proxy card relating to the 2024 Annual Meeting of Stockholders, any proposal by a stockholder submitted pursuant to Rule 14a-8 of the Exchange Act must be received by the Company at its principal executive offices in New York, New York, on or before December 28, 2023. In addition, under the Company’s bylaws, any proposal for consideration at the 2024 Annual Meeting of Stockholders submitted by a stockholder other than pursuant to Rule 14a-8 will be considered timely if it is received by the Secretary of the Company at its principal executive offices between the close of business on November 28, 2023 and the close of business on December 28, 2023 and is otherwise in compliance with the requirements set forth in the Company’s bylaws.

In addition to satisfying the foregoing requirements, to comply with the universal proxy rules, stockholders who intend to solicit proxies in support of director nominees other than the Company’s nominees must provide the Company with notice that sets forth the information required by Rule 14a-19 under the Exchange Act no later than April 8, 2024.

APPENDIX A — RECONCILIATION OF NON-GAAP AMOUNTS

The Company believes that presenting adjusted operating income, a non-GAAP measure, is meaningful, as it reflects metrics considered by the Compensation Committee in making its compensation determinations. The Company defines adjusted operating income as operating income before: (1) unplanned inorganic activity and (2) the impact of cash incentives. The Company believes adjusted operating income is an appropriate measure for evaluating the operating performance of the Company on a consolidated basis. Adjusted operating income and similar measures with similar titles are common performance measures used by investors and analysts to analyze the Company's performance. Adjusted operating income should be viewed as a supplement to and not a substitute for operating income, net income, cash flows from operating activities, and other measures of performance and/or liquidity presented in accordance with U.S. generally accepted accounting principles ("GAAP"). Since adjusted operating income is not a measure of performance calculated in accordance with GAAP, this measure may not be comparable to similar measures with similar titles used by other companies. All dollar amounts included in this Appendix A are presented in thousands, except as otherwise noted.

The following is a reconciliation of operating income (GAAP) to Adjusted Operating Income (non-GAAP):

	Twelve Months Ended December 31, 2022
Operating income	\$ 326,875
Cash incentives	\$ 42,320
Unplanned inorganic activity	\$ 1,185
Adjusted operating income	\$ <u>370,380</u>

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

Form 10-K

(Mark One)

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

For the fiscal year ended December 31, 2022

☐ **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 001-34091

MARKETAXESS HOLDINGS INC.

(Exact name of registrant as specified in its charter)

Delaware
(State of incorporation)

52-2230784
(IRS Employer
Identification No.)

55 Hudson Yards, New York, New York
(Address of principal executive offices)

10001
(Zip Code)

(212) 813-6000

(Registrant's telephone number, including area code)

SECURITIES REGISTERED PURSUANT TO SECTION 12(b) OF THE ACT:

Title of each class	Trading Symbol	Name of each exchange on which registered
Common Stock, \$0.003 par value	MKTX	NASDAQ Global Select Market

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 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 (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

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

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

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

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

Indicate by check mark whether the registrant 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 Exchange Act). Yes ☐ No ☒

The aggregate market value of the shares of common stock held by non-affiliates of the registrant as of June 30, 2022 (the last business day of the registrant's most recently completed second fiscal quarter) was approximately \$8.4 billion computed by reference to the last reported sale price on the NASDAQ Global Select Market on that date. For purposes of this calculation, affiliates are considered to be officers, directors and holders of 10% or more of the outstanding common stock of the registrant on that date. The registrant had 37,640,008 shares of common stock, 4,915,284 of which were held by affiliates, outstanding on that date.

As of February 17, 2023, the aggregate number of shares of the registrant's common stock outstanding was 37,608,554.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement for the 2023 Annual Meeting of Stockholders are incorporated by reference into Items 10, 11, 12, 13 and 14 of Part III of this Form 10-K.

MARKETAXESS HOLDINGS INC.
2022 FORM 10-K ANNUAL REPORT
TABLE OF CONTENTS

	<u>Page</u>
PART I	
Item 1: Business	3
Item 1A: Risk Factors	21
Item 1B: Unresolved Staff Comments	38
Item 2: Properties	38
Item 3: Legal Proceedings	38
Item 4: Mine Safety Disclosures	38
PART II	
Item 5: Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	39
Item 6: [Reserved]	41
Item 7: Management’s Discussion and Analysis of Financial Condition and Results of Operations	42
Item 7A: Quantitative and Qualitative Disclosures about Market Risk	55
Item 8: Financial Statements and Supplementary Data	57
Item 9: Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	90
Item 9A: Controls and Procedures	90
Item 9B: Other Information	90
Item 9C: Disclosure Regarding Foreign Jurisdictions that Prevent Inspections	90
PART III	
Item 10: Directors, Executive Officers and Corporate Governance	91
Item 11: Executive Compensation	91
Item 12: Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	91
Item 13: Certain Relationships and Related Transactions and Director Independence	91
Item 14: Principal Accounting Fees and Services	91
PART IV	
Item 15: Exhibits and Financial Statement Schedules	92
Item 16: Form 10-K Summary	98

PART I

Cautionary Note Regarding Forward-Looking Statements

This report contains certain “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements may be identified by words such as “expects,” “intends,” “anticipates,” “plans,” “believes,” “seeks,” “estimates,” “will,” or words of similar meaning and include, but are not limited to, statements regarding the outlook for our future business and financial performance and our strategy. Forward-looking statements are based on management’s current expectations and assumptions, which are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict. It is routine for our internal projections and expectations to change as the year or each quarter in the year progresses, and therefore it should be clearly understood that the internal projections and beliefs upon which we base our expectations may change prior to the end of each quarter or the year. Although these expectations may change, we are under no obligation to revise or update any forward-looking statements contained in this report. Actual future events or results may differ, perhaps materially, from those contained in the projections or forward-looking statements. Factors that could cause or contribute to such differences include those discussed below and elsewhere in this report, particularly in Item 1A. “Risk Factors.”

Item 1. *Business.*

Overview

MarketAxess Holdings Inc. (the “Company” or “MarketAxess”) operates leading electronic trading platforms delivering greater trading efficiency, a diversified pool of liquidity and significant cost savings to our clients across the global fixed-income markets. Over 2,000 institutional investor and broker-dealer firms use our patented trading technology to efficiently trade U.S. high-grade bonds, U.S. high-yield bonds, emerging market debt, Eurobonds, municipal bonds, U.S. government bonds and other fixed-income securities. Our award-winning Open Trading® marketplace is widely regarded as the preferred all-to-all trading solution in the global credit markets, creating a unique liquidity pool for a broad range of credit market participants. Drawing on a diverse set of trading protocols, including request-for-quote, live order books, sessions-based trading and portfolio trading solutions, as well as our deep data and analytical resources, we believe that we connect the most robust network of participants through an advanced full trading lifecycle solution that also includes automated trading solutions, intelligent data and index products and a range of post-trade services.

We operate in a large and rapidly growing market that provides us with a significant opportunity for future growth. Many of our largest current product areas, and areas of future growth, have relatively low levels of trading electrification, which further increases the size of our addressable market. Our platforms’ innovative technology solutions are designed to capitalize on this addressable market by increasing the number of potential trading counterparties and providing our clients with a menu of solutions to address the full lifecycle of fixed-income trading. We offer all-to-all trading (“Open Trading”) and automated trading solutions for most of our products. We believe that Open Trading drives meaningful price improvement for our clients and reduces risk in fixed-income markets by creating a global, diversified pool of liquidity whereby our institutional investor clients, dealer clients and alternative liquidity providers can all interact on an anonymous basis. Institutional investors can also send trading inquiries directly to their traditional broker-dealer counterparties on a disclosed basis (“disclosed RFQ”), while simultaneously accessing additional counterparties through our anonymous Open Trading solutions.

We also provide a number of integrated and actionable data offerings, including Composite+™ and Axess All®, to assist clients with real-time pricing and trading decisions and transaction cost analysis. We have a range of post-trade services, including straight-through processing, trade matching, trade publication, regulatory transaction reporting and market and reference data across fixed-income and other products.

In 2022, 89.3% of our revenues were derived from commissions for transactions executed on our platforms. We also derive revenues from information services, post-trade services and other income. Our expenses consist of employee compensation and benefits, depreciation and amortization, technology and communication expenses, professional and consulting fees, occupancy, marketing and advertising, clearing costs and general and administrative expenses.

Our History

MarketAxess has been an innovative leader in electronic trading since its founding in 2000. Throughout our history, our primary goals have remained the same: improve trading efficiency and deliver meaningful transaction price improvement for our clients. Prior to our founding, our institutional investor clients were able to trade bonds by telephone with a limited set of broker-dealers with which they had institutional relationships. By 2007, our platforms enabled institutional investors to trade electronically with over thirty broker-dealers. During the financial crisis, we significantly expanded the number of non-primary and regional dealers providing liquidity on our platforms, as many dealers were forced to reduce their balance sheets for market making. Today, we are an S&P 500 company that, through our Open Trading protocols, provides an expanded liquidity pool for over 1,700 global market participants to trade a wide variety of fixed-income securities with each other.



Our Competitive Strengths

We believe that we are well positioned to strengthen our market position in electronic trading in our existing products and to extend our presence into new products and services by capitalizing on our competitive strengths, including:

Significant Trading Volumes with Participation by Leading Broker-Dealers and Institutional Investors

Our electronic trading platforms provide access to the liquidity generated by the participation of our institutional investor and broker-dealer clients, including substantially all of the leading broker-dealers in global fixed-income trading. We believe these broker-dealers represent the principal source of secondary market liquidity for credit and rates products. We believe that our broker-dealer clients are incentivized to use our platforms due to the ability to efficiently transact with valuable client order flow and the ability to use our Open Trading protocols to help manage their risk, source liquidity and facilitate transactions on behalf of their clients.

Our total credit trading volume increased from approximately \$1.7 trillion in 2018 to \$2.9 trillion in 2022 and our estimated share of U.S. high-grade and high-yield corporate bond volume has increased from 18.1% and 8.9%, respectively, in 2018, to 21.3% and 17.9%, respectively, in 2022. Approximately 91.0% of credit volume on our platforms during 2022 was executed by institutional clients with the remaining 9.0% of credit volume conducted between dealers.

Open Trading is a Differentiator that Expands the Liquidity Pool and Drives Price Improvement for Broker-Dealers and Institutional Investors

Liquidity has remained a persistent concern for market participants as regulators raised bank capital requirements and adopted other measures that prompted many dealers to reduce market-making activities even as the buy-side's bond holdings have grown rapidly. In this environment, Open Trading, our fully electronic, all-to-all trading functionality, has emerged as one solution to the liquidity problem. Open Trading participants have broader and more diverse liquidity options compared to the traditional model of bilateral trading with a limited set of dealer counterparties. The expanded pool of liquidity providers includes investment managers, global dealers, regional dealers and specialist market making and proprietary trading firms. During 2022, over 1,700 firms participated in Open Trading, which improved the ability of both dealers and institutional investors to find natural and opportunistic matches, move orders more efficiently, and achieve significant increases in execution quality and price improvement.

We believe our Open Trading protocols enhance our institutional investor clients' ability to obtain a competitive price by allowing all of our Open Trading participants to interact with each other, thereby increasing the potential sources of liquidity available for each participant, as well as the likelihood of receiving a competitive price response. We estimate that Open Trading generated \$945.3 million of price improvement for our clients in 2022, consisting of an estimated \$653.2 million of liquidity taker price improvement (defined as the difference between the winning price and the best disclosed dealer cover price) and an estimated \$292.1 million of liquidity provider price improvement (defined as the difference between the winning price and then current Composite+ bid or offer level, offer if the provider is buying, bid if provider is selling) at the time of the inquiry. This Open Trading price improvement is in addition to the potential cost savings institutional investors can achieve by simultaneously requesting bids or offers from our broker-dealer clients via our traditional disclosed RFQ protocol. In addition, dealers use Open Trading as a source of liquidity to efficiently transfer risk and achieve enhanced bond inventory turnover, which may limit their credit exposure.

Growing, Comprehensive International Offering and Client Base

Our platforms provide global fixed-income market participants with trading functionality across Eurobond and emerging markets credit and rates markets, connecting clients in over 80 countries to local and global dealers. MarketAxess has over 1,000 active client firms located outside the U.S. that access our platforms through our regulated venues in Europe, Asia and Latin America. Our Open Trading functionality allows international clients to access cross-border liquidity more efficiently with few regulatory hurdles.

The MarketAxess emerging markets trading platform also offers the most comprehensive offering for local currency bond trading across the Latin America, Central & Eastern Europe, Middle East and Africa, and Asia-Pacific ("APAC") regions. Our platforms provide clients with the ability to trade emerging market local currency debt denominated in 29 local currencies with over 140 broker-dealers.

In 2021, we extended our global fixed-income trading network to China's bond market enabling global investor clients to access the China Interbank Bond Market ("CIBM") via the connection between China Foreign Exchange Trade System ("CFETS") and MarketAxess under the Bond Connect and CIBM Direct schemes. This arrangement allows clients to trade directly with onshore market makers in China, thus broadening access to liquidity in global emerging markets debt.

Robust, Scalable Technology Throughout the Full Trading Cycle

We have developed proprietary technology that is designed to be highly secure, fault tolerant and scalable for substantial growth. Our systems are designed to accommodate additional volume, products and clients with relatively little modification and low incremental costs. We have consistently used our proprietary technology to find new ways for our clients to trade more effectively and efficiently. Our core software solutions assist clients with trade execution, as well as pre- and post-trade services. We believe these technologies allow our clients to execute trades more efficiently, while simultaneously capitalizing on price improvement opportunities that can be achieved through our Open Trading functionality. To further support more efficient trade execution, we also offer several automated trading protocols, which allow clients to set eligibility criteria for their orders that our platforms will use to determine whether or not to execute a trade in accordance with the pre-defined parameters. We believe that these automated trading protocols reduce trading inefficiencies and human errors while allowing traders to focus on higher-value trades.

In addition to services directly related to the execution of trades, we also offer our clients several other pre- and post-trade services. In the pre-trade period, our platforms assist participants with price discovery by providing them with dealer pricing and real-time and historical trade data. Following the execution of a trade, our platforms support all of the essential tools and functionalities to enable our participants to achieve straight through processing ("STP") for trade settlement and to measure transaction costs to evidence best execution.

The Company is focused on investing in our resiliency, scale and risk management systems. We also prioritize continuing product delivery on current technologies, delivering approximately 710 unique new business and technical features to our clients during the year ended December 31, 2022.

Next Generation Data and Analytical Tools Supporting the Increasing Automation of Trading Workflows

Our data and analytical tools enhance the value proposition of our trading platforms and improve the trading experience of our clients. We support our clients' trading functions by offering value-added analytics that rely on machine-learning, automation and algorithms that are designed to improve the trading decisions and workflows of our clients. Our data and analytical tools are designed to help clients make better trading decisions, benefiting our current clients and attracting new market participants to our network. For example, our Auto-X and Auto-Responder solutions allow traders to execute their smaller trades more efficiently, allowing clients to focus their attention on higher-value trades.

Our Strategy

Our objective is to provide the leading global electronic trading platforms for fixed-income securities, allowing broker-dealers and institutional investors to connect, trade and achieve price improvement more easily and efficiently, while offering a broad array of information, trading and technology services to market participants across the trading cycle. The key elements of our strategy are:

Increase Penetration in Credit Markets

We believe that we have a large opportunity remaining to capture additional market share in the credit product markets in which we have already established a leadership position. For example, the estimated Composite Corporate Bond average daily trading volume on our platforms for the year ended December 31, 2022 was approximately \$9.4 billion, representing just 19.9% of the estimated addressable market of approximately \$47.5 billion. The traditional methods of bilateral trading, including the telephone, e-mail or instant messaging, continue to be one of our principal competitors in the credit markets in which we have established a leadership position. We continue to focus on capturing additional market share across our core credit markets. "Composite Corporate Bond" refers to our combined U.S. High Grade, U.S. High Yield, emerging markets and Eurobonds product areas.

Continue Expansion into New Product Areas

By leveraging our Open Trading functionality and capitalizing on our experience of building market share in markets like U.S. high-grade and U.S. high-yield bonds, we plan to increase our product footprint in newer product areas, including emerging market local currency bonds, municipal bonds, U.S. government bonds, European government bonds and Chinese government bonds. Each of these markets has unique trading protocols, market structures and settlement solutions that require a lengthy ramp-up period, but which will provide diverse revenue sources if we can obtain significant market share. For example, in 2021, we acquired MuniBrokers LLC ("MuniBrokers"), a central electronic trading venue serving municipal bond inter-dealer brokers and dealers, in order to expand our existing municipal bond trading solution. The acquisition connects our leading trading technology with the liquidity of one of the industry's largest electronic inter-dealer marketplaces, creating a compelling and diverse liquidity solution that we believe will ultimately deliver an improved execution experience.

Expand Trading Protocols and Leverage the Open Trading Network

We believe that we are the only fixed-income electronic trading platform that embraces all-to-all trading in each of our product areas. Open Trading exponentially increases the number of potential trading counterparties by allowing both our broker-dealer clients and institutional investor clients to interact in an all-to-all trading environment of over 1,700 firms. Our clients executed approximately \$939.6 billion in credit trading volume using Open Trading during 2022, representing 35.9% of total eligible credit trading volume on our platforms, and realized approximately \$945.3 million in estimated price improvement through this unique liquidity solution in 2022. We believe that the combination of Open Trading and our vast client network provides the basis for MarketAxess to enhance liquidity and improve market resiliency in global fixed-income markets.

Continue to Invest in and Grow our Business through Geographic Diversification

We are continuing to expand and diversify our business internationally. Our revenues from international clients have grown from 15.7% of total revenue in 2018 to 19.6% of total revenues for the year ended December 31, 2022. As of December 31, 2022, our institutional investor and broker-dealer clients are based in over 80 countries with over 1,000 total active international client firms and 5,528 total active international traders. We offer cross-regional electronic trading services in U.S fixed-income markets for international clients, as well as in Eurobonds and emerging market debt. By offering liquidity in both hard-currency and local currency emerging market debt, we have created an efficient emerging market trading ecosystem for our institutional investor and broker-dealer clients. In the last five years, we have seen significant growth in the Europe, Middle East and Africa ("EMEA"), Latin America and APAC regions. The average daily trading volume in the EMEA, Latin America and APAC regions on the MarketAxess platforms has grown from \$1.8 billion in 2018 to \$3.7 billion in 2022. We believe we can increase our penetration and revenue opportunities in international markets by continuing to invest in creating client relationships abroad.

Pursue Select Acquisitions and Strategic Alliances

We continually evaluate opportunities to supplement our internal growth by entering into strategic alliances, or acquiring businesses or technologies, that we believe will enable us to enter new markets, provide new client segments, new products or services, or otherwise expand our market share in the fixed-income markets that we operate in today. We believe that one of the key drivers of our success to date has been the ability to grow our current product offering. For example, in 2020, we acquired the regulatory reporting business of Deutsche Börse (“Regulatory Reporting Hub”) in order to expand the footprint of our post-trade and market data services by adding approximately 500 clients across Europe. In 2021, we acquired MuniBrokers, a central electronic venue serving municipal bond inter-dealer brokers and dealers, in order to expand our existing municipal bond trading solution. In 2022, we made a significant minority investment in RFQ-hub, a bilateral multi-asset and multi-dealer RFQ platform. We also entered into a strategic collaboration on liquid fixed-income indexes, portfolio construction solutions and environmental, social and governance (“ESG”) data with MSCI Inc. We expect these transactions to accelerate the growth of our ETF and index businesses.

The Fixed-Income Products Available on our Platform

We operate in a large and rapidly growing market, which consists of credit and rates fixed-income products. According to the Securities Industry and Financial Markets Association (“SIFMA”), as of September 30, 2022, the most recent date available, there were approximately \$10.1 trillion in principal amount of fixed-income securities outstanding in the U.S. corporate market, which reflects a five-year compound annual growth rate of 4.0%. In addition, according to SIFMA, as of December 31, 2022, there were approximately \$23.9 trillion in principal amount of fixed-income securities outstanding in the U.S. government bond market, which reflects a five-year compound annual growth rate of 10.6%. During the first nine months of 2022, global long-term new bond issuance aggregated to approximately \$1.4 trillion, a decrease of 31.0% as compared to the same period of 2021.

Our proprietary technology allows institutional investor and broker-dealer clients to access this market by trading both credit and rates products on our platforms.

Our credit products consist of the following areas:

- ∞ U.S. high-grade bonds, which refers to U.S. corporate debt rated BBB- or better by Standard & Poor’s (“S&P”) or Baa3 or better by Moody’s Investor Service (“Moody’s”);
- ∞ U.S. high-yield bonds, which refers to U.S. corporate debt rated lower than BBB- by S&P or Baa3 by Moody’s;
- ∞ Emerging market debt, which we define as U.S. dollar, Euro or local currency denominated bonds issued by sovereign entities or corporations domiciled in a developing country, typically located in Latin America, Asia, or Central and Eastern Europe;
- ∞ Eurobonds, which we define generally to consist of bonds intended to be distributed to European investors, primarily bonds issued by European corporations, excluding bonds that are issued by corporations domiciled in an emerging markets country and excluding most government bonds that trade in Europe;
- ∞ Municipal bonds, which are debt securities issued by states, cities, counties and other governmental entities in the U.S. to fund day-to-day obligations and to finance a wide variety of public projects, such as highways or water systems, and typically offer interest payments that are exempt from federal income taxation and may be exempt from state income and other taxes; and
- ∞ Other credit products, including leveraged loans, which are senior secured commercial facilities provided by a syndicate of lenders for below investment-grade companies (credit rating below BBB- or Baa3).

Our rates products consist of the following areas:

- ∞ U.S. government bonds, which are government instruments issued by the U.S. Department of the Treasury;
- ∞ Agency bonds, which are securities issued by a federal government department or by a government-sponsored enterprise, including the Federal National Mortgage Association and Federal Home Loan Mortgage Corporation; and
- ∞ Other government bonds, including European government bonds, which are bonds issued by governments of countries in the European Union (“E.U.”) and non-E.U. European countries, as well as bonds issued by other supranational organizations, agencies and sovereigns, including the European Commission.

The six largest product areas available on our platform for the year ended December 31, 2022 were U.S. high-grade, U.S. high-yield, emerging market debt, Eurobonds, municipal bonds and U.S. government bonds. In the chart below, we show the average daily trading volume and the amount of new issuance of such product areas for the years ended December 31, 2022 and 2021, except where indicated:

	Average Daily Trading Volume			Amount of New Issuance		
	2022	2021	% Change	2022	2021	% Change
	(In billions)					
U.S. high-grade ⁽¹⁾	\$ 25.7	\$ 23.6	8.9 %	\$ 1,215.7	\$ 1,379.9	(11.9) %
U.S. high-yield ⁽¹⁾	9.5	9.8	(3.1)	106.5	483.0	(78.0)
Emerging market debt ⁽²⁾	20.8	20.4	2.0	219.0	541.0	(59.5)
Eurobonds ⁽³⁾	9.4	11.0	(14.5)	460.0	487.0	(5.5)
Municipal bonds ⁽⁴⁾	8.4	4.4	90.9	386.6	481.9	(19.8)
U.S. government bonds ⁽⁵⁾	614.3	624.1	(1.6)	16,730.9	19,511.8	(14.3)

(1) For U.S. high-grade and high-yield, average daily trading volume (“ADTV”) is as measured by the Financial Industry Regulatory Authority (“FINRA”) Trade Reporting and Compliance Engine (“TRACE”) and amount of new issuance is according to J.P. Morgan Markets.

(2) For emerging markets debt, ADTV is as measured by the Emerging Markets Trade Association and amount of new issuance is according to J.P. Morgan Markets. The amount of new issuance excludes debt issued by emerging market sovereigns, which are included in our definition of emerging markets debt. ADTV is for the twelve months ended September 30, 2022 and 2021, the most recent dates available.

(3) For Eurobonds, ADTV is according to our internal estimates and amount of new issuance is according to J.P. Morgan Markets.

(4) For municipal bonds, ADTV is as measured by the Municipal Securities Rulemaking Board (the “MSRB”) and amount of new issuance is according to SIFMA.

(5) For U.S. government bonds, ADTV and the amount of new issuance is according to SIFMA.

We believe that the current level of electronic trading in our six largest product areas is generally low, creating a long runway for future market share growth. For example, we estimate that the level of electronic trading as a percentage of all means of trading (referred to as “electronic market share”) for U.S. high-grade bonds, U.S. high-yield bonds, municipal bonds, emerging market debt and Eurobonds are approximately 40%, 30%, 15%, 10% and 55%, respectively. U.S. government bonds are further down the path of electronic trading with an estimated electronic market share at approximately 65%. As a comparison, based on third party estimates, the level of electronic market share for U.S. equity options, U.S. Exchange traded cash equities and foreign exchange spots are each over 90%.

We plan to leverage our Open Trading functionality to continue to capture additional market share across our core credit markets while increasing our footprint in newer product areas. In the chart below, we show our estimated market share for the years ended December 31, 2022 and 2021, of Composite Corporate Bonds, U.S. high-grade bonds, U.S. high-yield bonds, emerging market debt, Eurobonds, municipal bonds and U.S. government bonds.

	Estimated Market Share			Bps Change
	2022	2021		
Composite Corporate Bond ⁽¹⁾	19.9 %	18.1 %		180 Bps
U.S. high-grade	21.3	21.0		30
U.S. high-yield	17.9	15.2		270
Emerging market debt ⁽²⁾	29.0	26.8		220
Eurobonds	15.4	12.1		330
Municipal bonds	4.5	2.1		240
U.S. government bonds	3.5	2.6		90

(1) Composite corporate bond estimated market share is defined as combined estimated market share across U.S. high-grade (derived from FINRA TRACE reported data), U.S. high-yield (derived from FINRA TRACE reported data), emerging markets (derived from FINRA TRACE-reportable emerging markets volume, principally U.S. dollar denominated corporates) and Eurobonds (derived from MarketAxess TRAX data which is currently estimated to represent approximately 70% of the total European market) product areas.

(2) Emerging markets estimated market share is calculated using FINRA TRACE-reportable emerging markets trading volume, principally U.S. dollar denominated corporates.

Our Full Trading Lifecycle Solutions

A key principle of our strategy is connecting the most robust network of participants through our full trading lifecycle solution. The diverse trading protocols available on our platforms are complemented by pre-trade intelligent data products and a range of post-trade services. In 2022, 89.3% of our revenues were derived from commissions for transactions executed on our platforms, 5.5% of our revenues were derived from our data products and 5.1% of our revenues were derived from our post-trade services.

Diverse Trading Protocols

Disclosed Request for Quote

Our traditional disclosed RFQ protocol allows our institutional investor clients to simultaneously request competing, executable bids or offers from our dealer clients and execute trades with the dealer of their choice from among those that choose to respond. We are not a counterparty to any of the disclosed RFQ trades that are executed on our platforms between institutional investor clients and dealer clients; rather, our platforms enable them to meet, agree on a price and then execute and settle the transaction directly with each other. The disclosed RFQ protocol is available for transactions in all our product areas and can be used for:

- ∞ multiple-dealer inquiries to over 140 dealers;
- ∞ list trading, which is the ability to request bids and offers on up to 60 bonds at the same time;
- ∞ portfolio trading, which allows our market participants to transact bond basket trades of up to 2,100 securities in an all-or-none trading protocol with one aggregate price for the portfolio transaction; and
- ∞ swap trading, which is the ability to request an offer to purchase one bond and a bid to sell another bond.

In 2022, over 60.0% of all credit volume on the MarketAxess platform was executed via a form of our disclosed RFQ protocol.

Open Trading

We offer Open Trading, our all-to-all trading solution, for most of our products and trading protocols. Open Trading complements our disclosed RFQ protocol by increasing the number of potential counterparties through allowing all participants to interact anonymously in an all-to-all trading environment of over 1,700 potential counterparties. We believe the increased liquidity drives meaningful price improvement to our clients and helps reduce liquidity risk in the fixed-income markets in which we participate. Open Trading participants are able to maintain their anonymity from trade initiation all the way through to settlement. Unlike our disclosed RFQ protocol, in connection with our Open Trading protocols, we execute bond transactions between and among institutional investor and broker-dealer clients on a matched principal basis by serving as counterparty to both the buyer and the seller in matching back-to-back trades.

We currently offer Open Trading protocols in U.S. high-grade bonds, U.S. high-yield bonds, Eurobonds, certain emerging market debt, municipal bonds, U.S. government bonds, agency bonds and other government bonds. Following the introduction of Open Trading on our platforms in 2013, we have continued to build upon the technology to develop more features and services. We now offer several Open Trading protocols, including:

- ∞ Open Trading RFQ, which provides our Open Trading participants with the ability to display requests for bids and offers anonymously to the entire MarketAxess trading community, thereby creating broad visibility of their inquiry among market participants and increasing the likelihood that the request will result in a completed trade. The Open Trading RFQ protocol is typically used simultaneously with a disclosed RFQ, providing the requestor with an increased likelihood of achieving best execution by seeking pricing from a participant's known dealer trading relationships and the Open Trading marketplace at the same time;
- ∞ Dealer RFQ, which allows dealers to initiate RFQs to all other dealers or to the entire Open Trading network, is used by our dealer clients to manage risk, source liquidity, and facilitate transactions on behalf of their clients;
- ∞ Mid-X sessions, a sessions-based mid-point matching tool that allows broker-dealers to trade against the mid-point price established by Composite+ at a given time instead of bilaterally negotiating a price, which we believe removes some of the pricing challenges inherent in other trading protocols;
- ∞ Live Markets, an order book functionality that creates a single view of two-way, actionable prices for the most active corporate bonds and U.S. government bonds, including newly issued debt, benchmark issues and news-driven securities;
- ∞ Public Axes™, which is an order book-style price discovery process that gives participants the ability to view and execute trades upon anonymous or disclosed indications of interest from the inventory posted on our platforms; and
- ∞ Diversity Dealer Initiative, which leverages the liquidity-enhancing features of Open Trading, but also allows institutional investor clients to select minority-, women- and veteran-owned broker-dealers to intermediate the resulting Open Trading transaction.

In 2022, approximately 35.9% of all eligible credit volume on the MarketAxess platform was executed via Open Trading protocols.

Automated Trading Protocols

We believe that our automated trading protocols, which allow clients to set eligibility criteria for their orders that our platforms will use to determine whether or not to execute a trade in accordance with the pre-defined parameters, increase trading efficiency and allow traders to focus on higher-value trades. We expect that bond trading velocity will grow in the years ahead due to the increased adoption of trading automation by both broker-dealer and institutional investor participants.

We support a large and growing base of dealer market making algorithms. Dealer market making algorithms enhance the liquidity available on our platforms by increasing the number of competitive responses to each RFQ, thereby increasing a participant's likelihood of completing a trade at the best price. In 2022, there were 23.7 million dealer algorithmic responses on our platforms, up 29.2% from 2021. In addition, dealers are increasingly using algorithmic responses to execute larger trades. In 2022, 57.0% of client-to-dealer inquiries for a trade of greater than \$5.0 million notional value in U.S. high grade bonds received one or more algorithmic responses, up from 6.6% in 2017.

In addition, some of our automation tools include:

- ∞ Auto-X RFQ, which allows clients to automatically execute a request-for-quote using simple variables such as trade size, price and number of respondents. In 2022, Auto-X RFQ represented 18.2% of total trade count and 7.2% of our credit trading volume. 33.0% of Auto-X RFQ trades in 2022 were "no touch," meaning such trades were initiated automatically by clients using pre-specified instructions, up from 20.4% in 2021;
- ∞ Auto-Responder, which allows clients to automatically respond to requests using either a specified response level or a mid-point price generated by one of our data products; and
- ∞ U.S. Treasury Hedging, which automatically provides a U.S. Treasury hedge for trades in credit products available on our platforms.

In 2022, there were 162 client firms using our automation trading protocols, up 15.7% from 2021.

Order and Execution Workflow Solutions

We provide order and execution workflow solutions designed to meet the specific needs of our institutional investor and broker-dealer clients. For example, LiquidityBridge®, is our execution management system offered to dealers that allows users to manage and facilitate the complex liquidity flows across multiple trading platforms, including the MarketAxess system. LiquidityBridge brings together real-time comparison and execution of bond prices across multiple sectors, allowing users to rapidly react to trading opportunities. In addition, Axess IQ™ is our order and execution workflow solution designed to meet the needs of the wealth management and private banking community by improving liquidity discovery, execution efficiency and alpha generation for firms with large numbers of individual client orders.

Integrated and Actionable Data

Timely and accurate data is particularly important in the fixed-income markets where real-time data has traditionally been scarce and transparency has been limited. We offer the following data products and index solutions:

Data Products

Traders are increasingly using data and machine-learning for pre-trade analytics, automated execution, transaction cost analysis and post-trade solutions. Our data strategy is centered on using our data offerings to support trading activity through our diverse trading protocols and growing our revenues from our commercial data offerings. We believe that our electronic trading platforms allow institutional investors to compile, sort and use information to discover investment opportunities that might have been difficult or impossible to identify using a manual information-gathering process or other electronic services. Our data products are based on the trading activity, completed transactions and trade reporting services that occur on or through our platforms, as well as public sources such as TRACE.

Our data products include:

- ∞ Composite+, a pricing algorithm generates near real-time prices for approximately 33,000 corporate and sovereign bonds based on a variety of data inputs, including feeds from our trading platforms, our post-trade services and TRACE. Composite+ is used by clients as a pre-trade reference price to enhance trading outcomes and transaction cost analysis. Composite+ can be combined with our auto-execution service, providing clients with an alert if a response is “off market.”
- ∞ Axess All, the first intra-day trade tape for the European fixed-income market, is sourced from approximately 71,000 bond transactions processed daily by our post-trade services business and includes aggregated volume and pricing for the most actively traded European fixed-income instruments.
- ∞ Axess All Prints®, which is an enhanced, real-time transacted price service for the most actively traded European fixed-income instruments.
- ∞ BondTicker®, which provides real-time TRACE data and enhances it with MarketAxess trade data and analytical tools in order to provide professional market participants with a comprehensive set of corporate bond price information with associated analytical tools that are not otherwise available.
- ∞ Relative Liquidity Score, a product that provides a defined measurement of the current liquidity for individual bonds and highlights the relative potential ease that a trader can expect when transacting in such instruments.

Index Solutions

To meet the increasing need for passive fixed-income investment strategies, we have also introduced liquid indices powered by real-time data. In 2022, we introduced the MarketAxess U.S. Investment Grade Corporate Bond 400 Index (the “MKTX 400 Index”), which is an index constructed to measure the performance of 400 U.S. dollar denominated investment grade corporate bonds with higher-than-average liquidity relative to the broader U.S. corporate bond market. The index utilizes Relative Liquidity Scores and Composite+ in the construction and evaluation processes. State Street Global Advisors has launched an exchange traded fund that seeks to track the MKTX 400 Index. In addition, in 2022, we also announced a strategic collaboration with MSCI Inc. to create co-branded fixed-income indices incorporating our liquidity data. The first of such indices, the MSCI MarketAxess USD HY Tradable Corporate Bond Index, which uses Relative Liquidity Scores to identify and select the liquid fixed-income securities, launched in November 2022.

Post-Trade Services

We provide trade matching and regulatory reporting services for European investment firms and market and reference data across a range of fixed-income products. In response to the requirements of the Markets in Financial Instruments Directive (“MiFID II”) in Europe, we have developed a comprehensive suite of value-add solutions, including SensAI, pre-trade transparency services, systematic internaliser (“SI”) determination and monitoring, best execution reporting, commodity position reporting, data quality analysis and peer benchmarking.

In the E.U. and United Kingdom (“U.K.”), all firms regulated as “investment firms” under MiFID II are required to submit complete and accurate details of qualifying transactions to their national regulator no later than the close of the working day following the date of the transaction. This process is known as transaction reporting. Firms may either report directly to their regulator or use an entity that is licensed as an Approved Reporting Mechanism (“ARM”), such as our subsidiaries in the U.K. and the Netherlands, to validate and submit such reports to their regulator. Our multi-asset class ARM reporting solution allows our clients to report to 23 different European regulators. We have also collaborated with Equilend on a full front-to-back Securities Financing Transactions Regulation (“SFTR”) solution to support mutual clients with their SFTR reporting requirements.

Under the Markets in Financial Instruments Regulation (“MiFIR”), all regulated investment firms in the U.K. and the E.U. are required to comply with pre- and post-trade transparency requirements pursuant to which quotes and trades must be made public subject to a system of waivers and deferrals. Firms are required to utilize an Approved Publication Arrangement (“APA”), such as our APAs in the U.K. and the Netherlands, to comply with the post-trade transparency requirement and many firms utilize a third-party provider to satisfy the pre-trade transparency requirement. The MarketAxess transparency and APA trade reporting solutions are available through our Insight™ platform, offering our clients a pre- and post-trade transparency solution, including APA trade reporting, quote publication, SI determination and instrument liquidity classification. We also offer a commodity position reporting service to assist firms in compliance with the commodity derivative position limit reporting requirements of MiFID II.

Trade matching enables counterparties to agree on the terms of a trade shortly after execution, reducing the risk of trade errors and fails during settlement. We provide a near real-time post-trade matching and exception management tool which covers a broad range of securities, including fixed-income and equities. By confirming all economic details within minutes of trade execution, we help our clients to mitigate their operational risk, improve STP and efficiency and address the complexities of MiFID II and the Central Securities Depositories Regulation.

MarketAxess has approximately 980 post-trade reporting, post-trade matching and transparency clients, including investment firms, venues and aggregators. In 2020, we acquired Regulatory Reporting Hub, which has helped us expand and improve our services across a broader European client base, predominantly in Germany, France and the Nordics regions.

Our Clients

Over 2,000 institutional investor and broker-dealer firms are active users of our platforms. Although institutional investors, specialist market-making firms, proprietary trading firms and other non-traditional liquidity providers have increasingly provided liquidity on our platforms through Open Trading, we believe traditional broker-dealers still represent the principal source of secondary market liquidity in the markets in which we operate. Secondary market liquidity refers to the ability of market participants to buy or sell a security quickly and in large volume following the original issuance of the security, without substantially affecting the price of the security.

Our Technology

Proprietary Technology

Our electronic trading platforms are based on a secure and scalable architecture that makes broad use of distributed computing to achieve speed and reliability. Our technology supports the full trading lifecycle and provides clients with end-to-end and customizable connectivity to fixed-income markets.

We support the achievement of best execution through technologies such as our all-to-all Open Trading protocols, which increase the number of potential trading counterparties by allowing participants to interact anonymously in an all-to-all trading environment of over 1,700 potential counterparties. We believe this technology enhances our institutional investor clients' ability to obtain a competitive price by allowing all Open Trading participants to interact with each other and increases the likelihood of receiving a competitive price response. We estimate that Open Trading generated approximately \$945.3 million of price improvement for our clients in 2022.

In addition, our clients have access to automated trading technologies, such as Auto-X RFQ and Auto-Responder, which allow clients to set eligibility criteria for their orders that will determine whether a trade is executed on our platforms in accordance with their pre-defined parameters. These automated trading protocols are designed to help increase trading efficiency, freeing traders to focus on more complex or higher-value trades.

In addition to services directly related to the execution of trades, MarketAxess offers clients several other pre- and post-trade services. In the pre-trade period, our platforms assist our participants by providing them with value-added services, such as real-time and historical trade price information, liquidity and turnover analytics, bond reference data and trade order matching alerts. Following the execution of a trade, our platforms enable our participants to realize the full benefits of electronic trading and demonstrate best execution, including customization, real-time trade details, STP, account allocations, automated audit trails, regulatory trade reporting, trade detail matching and transaction cost analysis.

Technology Team

The design and quality of our technology products is supported by a team of approximately 300 full-time technology professionals led by managers with deep market knowledge and fixed-income expertise. This combination of market knowledge and industry expertise allows us to address client demand and to focus on solutions that can be scaled across client sectors, fixed-income classes and trading protocols. Our technology is critical to our growth and our ability to execute our business strategy.

Our technology team is focused on:

- ∞ ***Continuing to evolve our technology platform.*** We believe that it is imperative that we continue to invest in and evolve our technology in order to continue innovating and delivering new features and protocols to our clients. For example, we increasingly utilize cloud technology to capitalize on innovative tooling, cost savings and improvements to development velocity.
- ∞ ***Investing in resiliency, scale and risk management.*** We recognize the value of investing in our capacity and risk management capabilities. The MarketAxess platforms are built on industry-standard technologies and have been designed to handle loads that exceed our current trading volume. In addition, all critical server-side components, including networks, application servers and databases, have backup solutions if the main equipment fails. This offers redundant system capacity designed to maximize uptime and minimize the potential for loss of transaction data in the event of an internal failure. We also seek to minimize the impact of external failures by automatically recovering connections in the event of a communications failure. Most of our broker-dealer clients and a significant number of our institutional investor clients have redundant dedicated high-speed communication paths to our network to provide fast data transfer. Our security measures include industry-standard communications encryption.
- ∞ ***Continuing product delivery and improvement of features.*** Our technology team is always focused on our product development cycle and the improvement of our platforms' features. During the year ended December 31, 2022, we delivered approximately 710 unique new business and technical features to our clients.

Data Security

As a global technology company, and a marketplace for fixed-income securities, we view information security as fundamental to our business. Accordingly, we are committed to appropriately securing all of our business operations, including information that we generate in the performance of our services, and data provided to us by third parties.

We prioritize security throughout our platforms, operations and software development. We use architectural, design and implementation features to structurally address security risks, such as logical and physical access controls, perimeter firewall protection and embedded security processes in our systems development lifecycle. Our cybersecurity program is based on the National Institute of Standards and Technology Cyber Security Framework (the “Framework”) and we are ISO/IEC 27001:2013 certified, which is a global standard that specifies the requirements for establishing, implementing, maintaining, and continually improving information security management systems. The Framework consists of standards, guidelines and best practices to manage cybersecurity-related risks and promote the protection and resilience of critical infrastructure. Our Global Chief Information Security Officer, who reports directly to our Chief Information Officer and Chief Risk Officer, leads a cybersecurity team in assessing, managing and reducing the relevant risks with a goal of assuring continuous delivery of service. We constantly monitor connectivity and suspect events are escalated to our global risk and management teams.

The information security team guides our response during information security incidents. The Company’s goal is to restore normal service operation as quickly as possible following an event, provide timely and accurate information to relevant stakeholders regarding such an event and minimize the impact of such an event on our business operations. In addition to the information security team, we have assembled a group of senior members of management and third-party consultants ready to react to an event, should one ever occur.

See Part I, Item 1A. – “Risk Factors — Technology, IT Systems and Cybersecurity Risks.”

Environmental, Social and Governance

We are focused on growing our business by delivering sustainable long-term value for our customers, employees, stockholders, and the communities where we live and work. At MarketAxess, our ESG strategy encompasses both corporate and commercial objectives.

Corporate ESG Objectives

As part of our vision to maximize stakeholder value, we strive to incorporate ESG principles into our business strategies and organizational culture. Our 2021 ESG Report, which can be found on our corporate website (available at <https://www.marketaxess.com/sustainability>), included the results of the Company's first comprehensive non-financial ESG materiality and prioritization assessment, which identified eighteen key ESG topics and six priority topics critical for MarketAxess to manage and drive long-term business performance and societal impact. In addition, in response to the increasing importance of climate change to the overall global economy and its effect on global credit markets, we responded to the Climate Disclosure Project's Climate Change Questionnaire in July 2022. Please also refer to “— Human Capital Resources” for additional information on our human capital management strategies.

Our ESG Reports and CDP questionnaire responses are not, and shall not be deemed to be, a part of this Form 10-K or incorporated into any of our other filings made with the U.S. Securities and Exchange Commission (the “SEC”).

Commercial ESG Objectives

In order to help our institutional investor and broker-dealer clients meet their ESG goals and strategies, we have begun to develop ESG-integrated product offerings. For example, in 2019, we launched our “Trading for Trees” program, under which five trees are planted by One Tree Planted, our partner charitable organization, for every \$1.0 million of green bond trades executed on our platforms. In 2022, \$63.3 billion in corporate and municipal green bond trading volume was executed globally on our platforms, an increase of 24.0% from 2021. In the U.S., where public data is available, MarketAxess ranks as the largest electronic corporate and municipal green bond marketplace with an estimated market share of 21.4% in TRACE-reported corporate and municipal green bond volume.

In addition, in 2021, we launched the Diversity Dealer Initiative to enable buy side firms to trade more easily with certain minority-, women- and veteran-owned broker-dealers, while still achieving best execution. The Diversity Dealer Initiative leverages our anonymous all-to-all Open Trading marketplace and provides enhanced trading connections by giving institutional investor clients the option to select a diversity dealer to intermediate an Open Trading transaction.

Sales and Marketing

We promote our products and services using a variety of direct and indirect sales and marketing strategies. Our sales force, which works closely with our product management and technology teams, is responsible for client acquisition activity and the management of ongoing client relationships. Our sales team is also responsible for training and supporting new and existing clients on their use of our platforms and post-trade solutions, including how to optimize their trading performance and efficiency through our various trading protocols. We employ various strategies, including advertising, direct marketing, digital and social media, promotional mailings, and participation in industry conferences and media engagement, to increase awareness of our brand, our trading platforms and our other solutions. For example, we work with *The Wall Street Journal* to leverage BondTicker data as the source of information for its weekly distressed debt tables.

Seasonality

Our revenue can be impacted by seasonal effects caused by increased levels of new bond issuance, which often occurs in the first quarter of a year, or slow-downs in trading activity, particularly during the customary holiday periods in August and December.

Competition

The global fixed-income securities industry generally, and the electronic financial services markets in which we engage in particular, are highly competitive, and we expect competition to intensify in the future. We compete with a broad range of market participants globally. Some of these market participants compete with us in a particular market, while select others compete against the entire spectrum of our platforms and solutions. We believe our competitive position is enhanced by the familiarity and integration of our clients with our electronic trading platforms and other systems.

We primarily compete on the basis of our client network, the liquidity provided by our broker-dealer clients, the unique liquidity and the potential for price improvement offered by our Open Trading protocols, the total transaction costs associated with our services, the breadth of products, protocols and services offered, as well as the quality, reliability, security and ease of use of our platforms. We face the following main areas of competition:

- ∞ *Bilateral Trading* — We compete with bond trading business conducted over the telephone, e-mail or instant messaging directly between broker-dealers and their institutional investor clients. Institutional investors have historically purchased fixed-income securities by telephoning or otherwise communicating via e-mail or instant messaging with bond sales professionals at one or more broker-dealers and inquiring about the price and availability of individual bonds. This remains the manner in which the majority of corporate bond volumes are still traded between institutional investors and broker-dealers.
- ∞ *Other multi-party electronic trading platforms* — There are numerous other electronic trading platforms currently in existence, including several that have only commenced operations in the last few years. We compete with Tradeweb, Bloomberg, Intercontinental Exchange, Trumid and others in the credit and municipal markets; and Tradeweb, Bloomberg, CME Group (BrokerTec), BGC Partners (Fenics UST) and others in the rates markets. In addition, some broker-dealers and institutional investors operate, or have invested in, proprietary electronic trading systems or information networks that enable institutional investors to trade directly with a broker-dealer, and/or with other institutional investors over an electronic medium. As we expand our business into new products, we will likely come into more direct competition with other electronic trading platforms or firms offering traditional services.
- ∞ *EMS and OMS Providers* — There are various providers of execution management services (“EMS”) and order management services (“OMS”) that have announced plans to offer aggregation of trading venue liquidity, as well as direct-to-dealer fully electronic trading solutions.
- ∞ *Securities and Futures Exchanges* — In recent years, exchanges have pursued acquisitions that have put them in competition with us. For example, the London Stock Exchange Group acquired a significant stake in Tradeweb and Intercontinental Exchange acquired BondPoint and TMC Bonds, retail-focused platforms, and IDC, a provider of fixed-income data, in an effort to expand its portfolio of fixed-income products and services. CME Group also operates platforms that compete with us. Exchanges also have data and analytics businesses, which increasingly put their offerings in direct competition with us.
- ∞ *Market data and information vendors* — Several large market data and information providers, such as Bloomberg, the London Stock Exchange (Refinitiv), Intercontinental Exchange and S&P Global currently have a data and analytics relationship with virtually every institutional firm. Some of these entities currently offer varying forms of electronic trading of fixed-income securities. Some of these entities have announced their intention to expand their electronic trading platforms or to develop new platforms. These entities are currently direct competitors to our information services business and already are or may in the future become direct competitors to our electronic trading platforms.
- ∞ *Other approved regulatory reporting businesses* — We compete with other approved regulatory mechanisms in Europe that have ARM and APA designations, such as the London Stock Exchange’s UnaVista and Tradeweb, to provide post-trade matching and regulatory transaction reporting and transparency services to European clients.

We face intense competition, and we expect competition to continue to intensify in the future. See Part I, Item 1A. — “Risk Factors — Risks Related to Operating in the Electronic Fixed-Income Trading Markets — We face substantial competition that could reduce our market share and harm our financial performance.”

Intellectual Property

We rely upon a combination of copyright, patent, trade secret and trademark laws, written agreements and common law to protect our proprietary technology, processes and other intellectual property. Our software code, elements of our electronic trading platforms, website and other proprietary materials are protected by copyright laws. We have been issued 13 patents covering significant trading protocols and other aspects of our trading system technology.

The written agreements upon which we rely to protect our proprietary technology, processes and intellectual property include agreements designed to protect our trade secrets. Examples of these written agreements include third party nondisclosure agreements, employee nondisclosure and inventions assignment agreements, and agreements with customers, contractors and strategic partners. Other written agreements upon which we rely to protect our proprietary technology, processes and intellectual property take many forms and contain provisions related to patent, copyright, trademark and trade secret rights.

We have registered the MarketAxess® name and logo for trademark in the U.S., Europe and in other parts of the world. We also have a number of other registered or pending trademarks and service marks globally, including Open Trading®, BondTicker®, Composite+™, Axess All® and Now You’re In The Market® among others. In addition, we own, or have filed applications for, the rights to trade names, copyrights, domain names and service marks that we use in the marketing of products and services to clients.

In addition to our efforts to register our intellectual property, we believe that factors such as the technological and creative skills of our personnel, new product and service developments, frequent enhancements and reliability with respect to our services are essential to establishing and maintaining a technology and market leadership position.

Government Regulation

The securities industry and financial markets in the U.S. and elsewhere are subject to extensive regulation. In these jurisdictions, government regulators and self-regulatory organizations oversee the conduct of our business, and have broad powers to promulgate and interpret laws, rules and regulations that may serve to restrict or limit our business. As a matter of public policy, these regulators are charged with safeguarding the integrity of the securities and other financial markets and with protecting the interests of investors participating in those markets. Our active broker-dealer and regulated venue subsidiaries fall within the scope of their regulations. Rulemaking by regulators, including resulting market structure changes, has had an impact on our business by directly affecting our method of operation and, at times, our profitability.

As registered broker-dealers, trading venues and other types of regulated entities as described below, certain of our subsidiaries are subject to laws, rules and regulations (including the rules of self-regulatory organizations) that cover all aspects of their business, including manner of operation, system integrity, anti-money laundering and financial crimes, handling of material non-public information, safeguarding data, capital requirements, reporting, record retention, market access, licensing of employees and the conduct of officers, employees and other associated persons.

Regulation can impose, and has imposed, obligations on our regulated subsidiaries, including our broker-dealer subsidiary. These increased obligations require the implementation and maintenance of internal practices, procedures and controls, which have increased our costs. Many of our regulators, as well as other governmental authorities, are empowered to bring enforcement actions and to conduct administrative proceedings, examinations, inspections and investigations, which may result in increased compliance costs, penalties, fines, enhanced oversight, increased financial and capital requirements, additional restrictions or limitations, censure, suspension or disqualification of the entity and/or its officers, employees or other associated persons, or other sanctions, such as disgorgement, restitution or the revocation or limitation of regulatory approvals. Whether or not resulting in adverse findings, regulatory proceedings, examinations, inspections and investigations can require substantial expenditures of time and money and can have an adverse impact on a firm’s reputation, client relationships and profitability. From time to time, we and our associated persons have been and are subject to routine reviews, none of which to date have had a material adverse effect on our businesses, financial condition, results of operations or prospects. As a result of such reviews, and any future actions or reviews, we may be required to, among other things, amend certain internal structures and frameworks such as our operating procedures, systems and controls.

The regulatory environment in which we operate is subject to constant change. We are unable to predict how certain new laws and proposed rules and regulations will be implemented or in what form, or whether any changes to existing laws, rules and regulations, including the interpretation, implementation or enforcement thereof or a relaxation or amendment thereof, will occur in the future. We believe that uncertainty and potential delays around the final form of certain new rules and regulations may negatively impact our clients and trading volumes in certain markets in which we transact, although a relaxation of or the amendment of existing rules and requirements could potentially have a positive impact in certain markets. For example, regulators are speaking more regularly about the benefits of all-to-all trading to promote market resiliency in fixed-income products. While we generally believe the net impact of the laws, rules and regulations may be positive for our business, it is possible that unintended consequences may materially adversely affect us in ways yet to be determined. See Part I, Item 1A. – “Risk Factors – Regulatory and Legal Risks - Our business and the trading businesses of many of our clients are subject to increasingly extensive government and other regulation, which may affect our trading volumes and increase our cost of doing business.”

U.S. Regulation

In the U.S., the SEC is the federal governmental agency primarily responsible for the administration of the federal securities laws, including adopting and enforcing rules and regulations applicable to broker-dealers. Our broker-dealer subsidiary operates an alternative trading system (“ATS”) subject to the SEC’s Regulation ATS, which includes certain specific requirements and compliance responsibilities in addition to those faced by broker-dealers generally, and an exempt ATS for U.S. government bonds. Broker-dealers are also subject to regulation by state securities administrators in those states in which they conduct business or have registered to do business. We are also subject to the various anti-fraud provisions of the Securities Act of 1933, as amended (the “Securities Act”), the Securities Exchange Act of 1934, as amended (the “Exchange Act”), the Commodity Exchange Act, certain state securities laws and the rules and regulations promulgated thereunder. We also may be subject to vicarious and controlling person liability for the activities of our subsidiaries and our officers, employees and affiliated persons.

Much of the regulation of broker-dealers’ operations in the United States has been delegated to self-regulatory organizations. These self-regulatory organizations adopt rules (which are generally subject to approval by the SEC) that govern the operations of broker-dealers and conduct periodic inspections and examinations of their operations. In the case of our U.S. broker-dealer subsidiary, the principal self-regulatory organization is FINRA. Our U.S. broker-dealer subsidiary is subject to both scheduled and unscheduled examinations by the SEC and FINRA. In addition, our broker-dealer’s municipal securities-related activities are subject to the rules of the MSRB.

The SEC recently conducted a review of the regulatory framework for fixed-income electronic trading platforms for the purpose of evaluating the potential regulatory gaps that may exist among such platforms, including ours, with respect to access to markets, system integrity, surveillance, and transparency, among other things. In January 2022, as a result of this review, the SEC proposed rules that will expand Regulation ATS and Regulation SCI to alternative trading systems (ATS) that trade government securities and amend the SEC rule regarding the definition of an “exchange” to include Communication Protocol Systems, such as our RFQ protocols. In connection with these proposed rules, we expect that we will have to operate all of our trading protocols in compliance with Regulation ATS. The fixed-income industry is also in the process of complying with Rule 15c2-11 (“Publication or submission of quotations without specified information”) of the Exchange Act, which had not previously been applied to debt securities. In November 2022, the SEC issued a no-action letter that delayed the full implementation of Rule 15c2-11 until 2025. It is unknown at this time to what extent new legislation will be passed into law or whether pending or new regulatory proposals will be adopted or modified, or what effect such passage, adoption or modification will have, whether positive or negative, on our industry, our clients or us.

Non-U.S. Regulation

Outside of the United States, we are currently directly regulated by: the Financial Conduct Authority (the “FCA”) in the U.K., De Nederlandsche Bank (“DNB”) and the Netherlands Authority for the Financial Markets (“AFM”) in the Netherlands, the European Securities and Markets Authority (“ESMA”) in the E.U., the Monetary Authority of Singapore (the “MAS”), the Investment Industry Regulatory Organization of Canada (the “IIROC”) and provincial regulators in Canada, and the Securities and Exchange Commission and Central Bank in Brazil. We also hold cross-border licenses or permissions to operate in other jurisdictions with other regulatory bodies, including the Swiss Financial Market Supervisory Authority (“FINMA”), the Securities & Futures Commission of Hong Kong, the Australian Securities and Investment Commission in Australia (“ASIC”), the Danish Financial Supervisory Authority, the German Federal Financial Supervisory Authority (“BaFin”), the Commission de Surveillance du Secteur Financier of Luxembourg, the Italian Commissione Nazionale per le Società e la Borsa (“Consob”), the Norwegian Financial Supervisory Authority and the Finnish Financial Supervisory Authority.

The FCA’s strategic objective is to ensure that the relevant markets function properly and its operational objectives are to protect consumers, to protect and enhance the integrity of the U.K. financial system and to promote effective competition in the interests of consumers. It has investigative and enforcement powers derived from the Financial Services and Markets Act 2000 (“FSMA”) and subsequent legislation and regulations. Subject to the FSMA, individuals or companies that seek to acquire or increase their control in a firm that the FCA regulates is required to obtain prior approval from the FCA.

A draft U.K. Financial Services and Markets Bill (“FSMB”) was tabled to the U.K. Parliament in July 2022, which repeals the financial services framework inherited from the E.U. The FSMB offers the FCA increased regulatory authority, including the power to reform E.U. rules and the ability to devise a new financial services regime, and establishes a new secondary objective to promote “economic growth and international competitiveness” for the U.K. In December 2022, the FCA published its proposed approach and has invited feedback from industry participants. We currently expect the FSMB to become law during 2023.

The securities industry and financial markets in the 27 member states of the E.U. are regulated by the National Competent Authorities in each member state, or with respect to Data Reporting Services Providers (“DRSPs”), such as our E.U. post-trade business, by ESMA itself. E.U. regulations provide for a cross-border “passporting regime”, which allows us to provide our regulated services throughout the E.U. in reliance upon our authorization from any E.U. member state or ESMA. As a result of the U.K.’s departure from the E.U. in 2020 (commonly referred to as “Brexit”), we obtained AFM authorizations for our subsidiaries in the Netherlands and we now provide regulated services to our clients within the E.U. in reliance on the cross-border services passport held by our Dutch subsidiaries.

The legal framework in the Netherlands for financial undertakings is predominantly included in the Dutch Financial Supervision Act (“FSA”). The AFM, like DNB, is an autonomous administrative authority with independent responsibility for fulfilling its supervisory function. Pursuant to the FSA, the AFM authorizes investment firms. The AFM is legally responsible for business supervision. DNB is responsible for prudential supervision. The purpose of prudential supervision is to ensure the solidity of financial undertakings and to contribute to the stability of the financial sector. Holders of a qualifying holding (in short, shareholdings or voting rights of 10% or more) must apply to the DNB for a declaration of no objection and satisfy the applicable requirements of the FSA.

In January 2018, the E.U. implemented enhanced rules and regulations targeted at the financial services industry, including MiFID II and MiFIR. MiFID II and MiFIR introduced significant changes to the E.U. and U.K. financial markets that were designed to facilitate more efficient markets and greater transparency for participants by: (i) enhancing pre- and post-trade transparency for fixed-income instruments, (ii) increasing and enhancing post-trade reporting obligations with a requirement to submit post-trade data to ARMs, (iii) improving technology synchronization and best execution and (iv) establishing a consolidated tape for trade data.

The effectiveness of the changes introduced pursuant to MiFID II and MiFIR are currently under review by the European Parliament, the European Council and the European Commission. The review is focused on enhancing the transparency and availability of market data, leveling the playing field between execution venues and increasing the global competitiveness of E.U. markets. As part of the MiFIR review, the European Commission has begun the process of establishing the E.U. consolidated tape for all transactions executed on E.U. trading platforms, such as our MTFs. ESMA is expected to select a single consolidated tape provider (the “CTP”) for bonds under its authorization and all trading venues will be obliged to share their trading data with the CTP. We currently expect the selection process for the E.U. CTP for bonds to be completed in 2024.

Likewise, the U.K. is also reviewing and amending the MiFID II and MiFIR regime and we expect that such review will introduce similar changes, such as repealing pre-trade transparency for quote driven protocols, simplifying the post-trade transparency regime and introducing a consolidated tape for bonds, during the next twenty-four months.

Although MiFID II and MiFIR were intended to help improve the functioning of the E.U. single market by achieving a greater consistency of regulatory standards, Brexit has introduced additional operational complexity as the regulatory standards are diverging between the U.K. and the E.U. In general, MiFID II and MiFIR continue to cause us to expend significantly more compliance, business and technology resources, to incur additional operational costs and has created additional regulatory exposure for our trading and post-trade businesses. While we generally believe the net impact of the rules and regulations, and the ongoing changes has been positive for our businesses, unintended consequences of the rules and regulations (or ongoing amendments thereto) may adversely affect us in ways yet to be determined. In particular, the divergence of the U.K. from the E.U. following Brexit in relation to the future development of MiFID II and MiFIR and other rules and regulations within the financial markets (such as the Central Securities Depository Regulation or the selection of a CTP) may further increase the complexity, operational costs and compliance requirements of our business in the U.K. and E.U. See Part I, Item 1A. — “Risk Factors — Regulatory and Legal Risks - The growing divergence of the U.K. and European Union legal and regulatory requirements following Brexit could materially adversely impact our business, clients, financial condition, results of operations and prospects.”

Capital Requirements

Certain of our subsidiaries are subject to jurisdictional specific regulatory capital requirements, designed to maintain the general financial integrity and liquidity of a regulated entity. In general, they require that at least a minimum amount of a regulated entity’s assets be kept in relatively liquid form. Failure to maintain required minimum capital may subject a regulated subsidiary to a fine, requirement to cease conducting business, suspension, revocation of registration or expulsion by the applicable regulatory authorities, and ultimately could require the relevant entity’s liquidation.

In addition, as a result of its self-clearing activities, our U.S. broker-dealer subsidiary is required to finance certain transactions, maintain deposits with various clearing organizations and clearing broker-dealers and maintain a special reserve bank account for the benefit of customers pursuant to Rule 15c3-3 of the Exchange Act. These requirements can fluctuate based on trading activity, market volatility or other factors which may impact our liquidity or require us to use our capital resources.

Regulatory Status of MarketAxess Entities

Our operations span jurisdictions across the Americas, Europe and Asia, and we operate through various regulated entities. The current regulatory status of many of our business entities is described below. We also provide our platforms in other countries pursuant to exemptions from registration under the laws of such countries.

Americas

MarketAxess Corporation is an SEC registered broker-dealer, a member of FINRA, the MSRB, and the Securities Investor Protection Corporation (“SIPC”). MarketAxess Corporation is registered as a clearing broker with FINRA.

MarketAxess Canada Company is registered as an Alternative Trading System with the Ontario Securities Commission (“OSC”), the Autorité des Marchés Financiers (“AMF”), the British Columbia Securities Commission (“BCSC”) and the Alberta Securities Commission (“ASC”) and is a member of IIROC.

MarketAxess Plataforma de Negociacao Ltda. is authorized through its parent (MarketAxess Holdings Inc.) by Comissão de Valores Mobiliários (“CVM”) and BACEN (Central Bank of Brazil) to provide a system in Brazil for the trading of fixed-income securities by sophisticated institutional investors.

MarketAxess Colombia Corporation is registered with the Superintendence of Finance of Colombia (“SOF”) as an Information System.

U.K. and Europe

MarketAxess Capital Limited is authorized and regulated by the FCA as a MiFID investment firm and acts as a matched principal counterparty for Open Trading transactions.

MarketAxess Europe Limited is authorized and regulated by the FCA to operate a multilateral trading facility (“MTF”), licensed by ASIC to have an Australian Markets License, recognized by FINMA as a foreign trading venue, licensed by BaFin under the German Securities Trading Act, licensed by the Securities & Futures Commission of Hong Kong as an Automated Trading Service and licensed by the Monetary Authority of Singapore as a Recognized Market Operator. In addition, following Brexit, MarketAxess Europe Limited is recognized or licensed on a cross-border basis to provide its services in Italy and Finland and on a temporary cross-border basis in each of Luxembourg, Denmark and Norway.

MarketAxess NL B.V. is authorized and regulated by the AFM in the Netherlands as an MTF. MarketAxess NL B.V. may provide cross-border services throughout the 27 member states of the E.U. and EEA countries under the MiFID passport and is approved by FINMA to provide cross-border services into Switzerland as a foreign trading venue, and has a MiFID branch in Germany.

MarketAxess Post-Trade NL B.V. is established in the Netherlands and holds a license to operate as a DRSP under the supervision of ESMA, specifically to act as an ARM and APA. MarketAxess Post-Trade NL B.V. may provide cross border services throughout the 27 member states of the E.U. and EEA countries under the MiFID passport, and has a MiFID branch in Germany.

MarketAxess Post Trade Limited is authorized and regulated by the FCA as a DRSP for ARM and APA services and as a service company.

Asia and Pacific

MarketAxess Singapore Pte. Limited is approved by the Monetary Authority of Singapore as a Recognized Market Operator. Additionally, MarketAxess Singapore Pte. Limited is approved on a cross-border basis by FINMA in Switzerland as a foreign trading venue, by Hong Kong as an ATS, by Germany as a foreign market operator, and holds an Australian Markets License from ASIC.

Human Capital Resources

As of December 31, 2022, we had 744 employees, 462 of whom were based in the U.S. and 282 of whom were based outside of the U.S., principally in the U.K. During fiscal year 2022, we increased our number of employees by 68 or 10.1% compared to an increase of 70 or 11.6%, in 2021. None of our employees is represented by a labor union. We consider our relationships with our employees to be good and have not experienced any interruptions of operations due to labor disagreements.

Diversity, Equity and Inclusion

We believe that a workforce that reflects our society as a whole better serves our clients. As such, we are committed to fostering an equitable environment that attracts and retains a diverse workforce. We continually strive to make our workforce more diverse, inclusive and supportive of all and the Company is committed to improving our diversity at all levels of the organization. As of December 31, 2022, (i) our global workforce was approximately 72.3% men and 27.7% women, and of our U.S. employees, our workforce was approximately 29.9% Asian, 5.2% Black or African American, 7.6% Hispanic or Latinx, 55.4% White and 1.9% identified with another race or ethnicity; (ii) our global management team was approximately 76.9% men and 23.1% women and was approximately 15.4% Asian and 84.6% White; and (iii) our Board of Directors (the “Board”) was approximately 69.2% men and 30.8% women and was approximately 7.7% Asian, 7.7% Black or African American and 84.6% White.

We use diverse hiring sources to broaden our candidate pools, including employee referrals, recruitment vendors, postings on diversity job boards, partnering with diverse professional organizations and underrepresented student organizations, and attending various recruiting events. We also focus our diversity recruiting efforts on university campuses. We have been able to further diversify our workforce through our summer intern and graduate hire programs, which represent a spectrum of schools, fields of study, interests and socio-economic backgrounds. During the spring and fall 2022 recruiting season, we hosted MarketAxess informational sessions, coffee chats, networking events, mock interviews, hackathons, and sponsorships focused on women and underrepresented students. We also hosted two pre-identification sophomore programs that serve as an early talent pipeline for internships the following year. These two programs, one focused on women and the other on underrepresented students, are geared towards sophomores interested in the financial technology sector.

Human Capital Development

Our talent management strategy is focused on attracting, developing and retaining top talent within the Company. The market for qualified staff, especially technology professionals, has become increasingly competitive in our talent markets. Many companies, including both our competitors and firms outside of our industry, are interested in hiring our experienced personnel. We believe that one of the ways we have successfully retained staff at a better rate than the market is through our hybrid work environment and remote opportunities for various technology-related positions.

We are committed to positioning MarketAxess for further growth through ongoing talent management, succession planning and the deepening of our leadership bench. In 2022, we identified critical roles throughout the organization and built short- and long-term succession plans for our executive leadership team. We also evaluated the Company’s formal learning and development and talent acquisition initiatives in order to ensure that our employees have the skills, capabilities and experience to effectively lead our existing, and future, global business. We believe that these plans will enable us to grow talent from within the Company.

In 2022, we increased the level of investment in learning and development for all of our employees. Currently, we offer a customized management training program for new managers and an accelerated leadership program for our more seasoned leaders who we believe may assume broader or more complex roles within the Company in the future. We offer a range of live and on-demand technical, markets-related, product management and professional skills development to all employees globally to enable employees to develop a broad spectrum of skills and continue their career growth at MarketAxess.

In 2022, MarketAxess completed our second firm-wide employee engagement survey, in which 86% of our employees participated. Based on their responses, our overall employee engagement measured at 81%, which is consistent with the global averages for financial services and mid-size financial and technology companies as reported by Willis Towers Watson.

Employee Health & Wellbeing

Throughout 2022, the COVID-19 pandemic (the “Pandemic”) had less of an impact on how we manage our business than in the prior two years. Most of our employees have transitioned to a hybrid employment model with an emphasis on safety and employee wellbeing. We continue to monitor the impact of the Pandemic on our communities, including the spread of any variants, and we remain confident that we could continue to maintain business continuity and serve our clients if a return to an all-virtual environment becomes necessary to promote employee and public safety.

Company Information

MarketAxess was incorporated in Delaware in April 2000. Our internet website address is www.marketaxess.com. Through our internet website, we will make available, free of charge, the following reports as soon as reasonably practicable after electronically filing them with, or furnishing them to, the SEC: our annual report on Form 10-K; our quarterly reports on Form 10-Q; our current reports on Form 8-K; and amendments to those reports filed or furnished pursuant to Section 13(a) of the Securities Exchange Act of 1934, as amended. Our Proxy Statements for our Annual Meetings are also available through our internet website. Our internet website and the information contained therein or connected thereto are not intended to be incorporated into this Annual Report on Form 10-K. You may also obtain copies of our reports without charge by writing to:

MarketAxess Holdings Inc.
55 Hudson Yards
New York, NY 10001
Attn: Investor Relations

Our Board has standing Audit, Compensation and Talent, Nominating and Corporate Governance, Risk and Finance Committees. Each of these committees has a written charter approved by our Board and our Board has also adopted a set of Corporate Governance Guidelines. Copies of the committee charters and the Corporate Governance Guidelines are also posted on our website.

The SEC maintains an internet website that contains annual, quarterly and current reports, proxy and information statements and other information that issuers (including the Company) file electronically with the SEC. The SEC's internet website is www.sec.gov.

Item 1A. Risk Factors.

Risk Factors Summary

The following is a summary of the principal risks and uncertainties described in more detail in this annual report:

Risks Related to Global Economic and Market Conditions

- ∞ Global economic, political and market factors beyond our control could reduce demand for our services, and our profitability and business could suffer.
- ∞ Our business and our results of operations and financial condition may be materially adversely impacted by the outbreak of, and global response to, the Pandemic.
- ∞ Our operations, businesses and clients could be materially adversely affected by climate change and we are subject to other ESG risks that could adversely affect our reputation.

Risks Related to Operating in the Electronic Fixed-Income Trading Markets

- ∞ Decreases in trading volumes in the fixed-income markets generally or on our platforms would harm our business and profitability.
- ∞ The industry in which we operate is rapidly evolving. If we are unable to adapt our business effectively to keep pace with industry changes, we may not be able to compete effectively, which could have a material adverse effect on our business, financial condition and results of operations.
- ∞ We face substantial competition that could reduce our market share and harm our financial performance.
- ∞ We are exposed to potential reputational and credibility concerns related to our data products and index business.

Risks Related to our Future Levels of Business, Profitability and Growth

- ∞ Neither the sustainability of our current level of business nor any future growth can be assured. Even if we do experience growth, we cannot assure you that we will grow profitably.
- ∞ We may enter into new fee plans, the impact of which may be difficult to evaluate; past trends in commissions are not necessarily indicative of future commissions.
- ∞ As we enter new markets, we may not be able to successfully attract clients and adapt our technology and marketing strategy for use in those markets.
- ∞ We may face increasing challenges in our growing international operations that we may not be able to meet in the future.

Risks Related to our Customer Concentration

- ∞ We are dependent on our broker-dealer clients, who are not restricted from using their own proprietary or third-party platforms to transact with our institutional investor clients.
- ∞ We could lose significant sources of revenue and trading volume if we lose any of our significant institutional investor clients.

Credit and Operational Risks

- ∞ We are exposed to risks in connection with certain transactions in which we act as a matched principal intermediary.
- ∞ Self-clearing exposes us to significant operational, liquidity, financing and regulatory risks.
- ∞ Economic sanctions levied against states or individuals could expose us to significant operational and regulatory risks.

Technology, IT Systems and Cybersecurity Risks

- ∞ Rapid market or technological changes may render our technology obsolete or decrease the attractiveness of our products and services to our broker-dealer and institutional investor clients.
- ∞ We depend on third-party suppliers for key products and services.
- ∞ Our success depends on maintaining the integrity and capacity of our electronic trading platforms, systems and infrastructure.
- ∞ Systems failures, interruptions, delays in service, catastrophic events and resulting interruptions in the availability of our trading platforms could materially harm our business and reputation.
- ∞ If we experience design defects, errors, failures or delays with our platforms, products or services, including our auto-execution technology and pricing algorithms, our business could suffer serious harm.

- ∞ Malicious cyber-attacks, attempted data security breaches, and other adverse events affecting our operational systems or infrastructure, or those of third parties, could disrupt our businesses, result in the disclosure of confidential information, damage our reputation and cause losses or regulatory penalties.
- ∞ Our actual or perceived failure to comply with privacy, data protection and information security laws, regulations, and obligations could harm our business.

Intellectual Property Risks

- ∞ We may not be able to protect our intellectual property rights or technology effectively, which would allow competitors to duplicate or replicate our electronic trading platforms or any of our other current or future functionalities, products or services. This could adversely affect our ability to compete.
- ∞ Defending against intellectual property infringement or other claims could be expensive and disruptive to our business. If we are found to infringe the proprietary rights of others, we could be required to redesign our technology, pay royalties or enter into license agreements with third parties.

Risks Related to Possible Transactions or Investments

- ∞ If we acquire or invest in other businesses, products or technologies, and are unable to integrate them with our business, our financial performance may be impaired or we may not realize the anticipated financial and strategic goals for any such transactions or any strategic alliances, partnerships or joint ventures, which we may enter into.

Risks Related to Key Personnel and Employees

- ∞ We are dependent on our management team, and the loss of any key member of this team may prevent us from implementing our business plan in a timely manner.
- ∞ Because competition for our employees is intense, we may not be able to attract and retain the highly skilled employees we need to support our business.

Regulatory and Legal Risks

- ∞ We operate in a highly regulated industry and we may face restrictions with respect to the way we conduct certain of our operations.
- ∞ Our business and the trading businesses of many of our clients are subject to increasingly extensive government and other regulation, which may affect our trading volumes and increase our cost of doing business.
- ∞ The growing divergence of the U.K. and European Union legal and regulatory requirements following Brexit could materially adversely impact our business, clients, financial condition, results of operations and prospects.
- ∞ The extensive regulation of our business means we have ongoing exposure to potentially significant costs and penalties.
- ∞ We are subject to the risks of litigation and securities laws liability.

Liquidity and Funding Risks

- ∞ We cannot predict our future capital needs or our ability to obtain additional financing if we need it.
- ∞ Our credit agreement contains restrictive and financial covenants that could limit our operating flexibility, and we may incur additional debt in the future that may include similar or additional restrictions.

Risks Related to Global Economic and Market Conditions

Global economic, political and market factors beyond our control could reduce demand for our services, and our profitability and business could suffer.

The global financial services business is, by its nature, risky and volatile and is directly affected by many national and international factors that are beyond our control, including the Pandemic and Russia's invasion of Ukraine (the "Russia-Ukraine War"), each of which created significant volatility in the markets we serve and increased uncertainty and economic disruption. Any one of these factors may cause a substantial decline in the U.S. and/or global financial services markets, resulting in reduced trading volume. These events could have a material adverse effect on our business, financial condition and results of operations. These factors include:

- ∞ economic and political conditions in the United States, Europe and elsewhere;
- ∞ adverse market conditions, including unforeseen market closures or other disruptions in trading;
- ∞ broad trends in business and finance;
- ∞ consolidation or contraction in the number of market participants;
- ∞ the current or anticipated impact of climate change, extreme weather events or natural disasters;
- ∞ the emergence of widespread health emergencies or pandemics, including the Pandemic;

- ∞ actual or threatened acts of war or terrorism or other armed hostilities, including the Russia-Ukraine War, as well as international sanctions levied against countries and other parties;
- ∞ actual or threatened trade war, including between the United States and China, or other governmental action related to tariffs, international trade agreements or trade policies;
- ∞ concerns over, or actual increased levels of, inflation and weakening consumer confidence levels due to a recession (in the United States or globally) or otherwise;
- ∞ the availability of cash for investment by mutual funds, exchange traded funds and other wholesale and retail investors;
- ∞ the level and volatility of interest rates, the difference between the yields on corporate securities being traded and those on related benchmark securities and foreign currency exchange rates;
- ∞ the effect of monetary policy adopted by the Federal Reserve Board or foreign banking authorities, increased capital requirements for banks and other financial institutions, and other regulatory requirements and political impasses;
- ∞ credit availability and other liquidity concerns;
- ∞ concerns over credit default or bankruptcy of one or more sovereign nations or corporate entities; and
- ∞ legislative and regulatory changes, including changes to financial industry regulations and tax laws.

There have been significant declines in trading volumes in the financial markets generally in the past and there may be similar declines in trading volumes generally or across our platforms in particular in the future. Any one or more of the above factors may contribute to reduced trading volumes. Our revenues and profitability are likely to decline significantly during periods of stagnant economic conditions, low volatility or low trading volume in the U.S. and global financial markets.

While we are expanding our businesses to new geographic areas, our business operations have historically been substantially located in the U.S. and the U.K. Due to the concentration of our operations in the U.S. and U.K. we are subject to greater regional risks than those of some of our competitors.

Our business and our results of operations and financial condition may be materially adversely impacted by the outbreak of, and global response to, the Pandemic.

The global spread of the novel coronavirus disease 2019 (COVID-19) has created significant volatility in the markets we serve and has increased uncertainty and economic disruption. The extent to which the Pandemic impacts our business, operations, and financial results is uncertain and will depend on numerous evolving factors that we may not be able to accurately predict, including:

- ∞ the duration and scope of the Pandemic and the effects of new variants;
- ∞ governmental and business actions taken in response to the Pandemic, and in response to economic disruption, and the impact of those actions on global economic activity;
- ∞ the impact of the economic and business disruptions on the trading needs of our clients and the resulting impact on their demand for our electronic trading platforms and solutions;
- ∞ adverse market conditions, including unforeseen market closures, disruptions in trading, significant declines in market and trading volumes, credit availability and other liquidity concerns; and
- ∞ our ability to provide our electronic trading platforms and other solutions, including as a result of our employees' health or our employees or our clients' employees working remotely and/or closures of offices and facilities.

As a result of the Pandemic, the global economy has been experiencing a period of significant turmoil and we have experienced significant changes in our daily operations. See "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations—Critical Factors Affecting our Industry and our Company—Economic, Political and Market Factors." Due to the uncertainty of the duration, scope and severity of the Pandemic, including the effects of new variants, the uncertainty as to what additional governmental measures may yet be taken in response to the Pandemic and the unpredictable effect on our business, our employees and our clients, we are not able to reasonably estimate the extent of any potential future impact of the Pandemic on our financial condition or results of operations, but the impact could be material. Even after the Pandemic has subsided, our business may continue to be impacted as a result of the Pandemic's global economic impact. Further, our operating and financial results may be affected in a manner that is not presently known to us or in a manner that we currently do not consider to present significant risks to our operations given the continuously evolving nature of the Pandemic.

Our operations, businesses and clients could be materially adversely affected by climate change and we are subject to other ESG risks that could adversely affect our reputation.

There is increasing concern over the risks of climate change and related environmental sustainability matters. The physical risks of climate change include rising average global temperatures, rising sea levels and an increase in the frequency and severity of extreme weather events and natural disasters, including floods, wildfires, hurricanes and tornadoes. The impact of such events could increase because of the geographical concentration of our operations and personnel in certain areas of the U.S. Any of our primary locations or those of third parties on which we rely may be vulnerable to the adverse physical effects of climate change, which could result in risk of loss incurred as a result of physical damage, power outages, or business interruption caused by such events.

In addition, governments, investors, employees, customers, and the general public are increasingly focused on ESG practices and disclosures. For example, certain investors are beginning to incorporate the business risks of climate change and the adequacy of companies' responses to climate change and other ESG matters as part of their investment theses and policies. Our reputation could be adversely impacted by our sustainability practices and ESG disclosures or investor perceptions thereof, including if we fail to establish measurable environmental goals or subsequently fail to meet any such goals. Any negative publicity we receive regarding ESG, low ESG scores or ratings, or shifts in investing priorities may adversely affect the trading price of our common stock or our business, operations and earnings if investors, employees, customers, or other stakeholders determine that we have not adequately considered or addressed ESG matters. In addition, if the Company does not adapt to or comply with new regulations or fails to meet the ESG goals under its strategy or evolving investor, industry or stakeholder expectations and standards, or if the Company is perceived to have not responded appropriately to the growing concern for ESG issues, these or other climate changes could lead to increased operating costs or capital expenses.

Risks Related to Operating in the Electronic Fixed-Income Trading Markets

Decreases in trading volumes in the fixed-income markets generally or on our platforms would harm our business and profitability.

We have experienced significant decreases in overall market volumes in the past and may experience similar decreases in market volumes in the future. Declines in the overall volume of fixed-income securities trading and in market liquidity generally, as well as declines in interest rate volatility, could result in lower revenues from commissions for trades executed on our electronic trading platforms and fees generated from related activities.

Likewise, decreases in our share of the segments of the fixed-income trading markets in which we operate, or shifts in trading volume to segments of clients which we have not penetrated, could result in lower trading volume on our platforms and, consequently, lower commissions and revenue. During periods of increased volatility in credit markets, the use of electronic trading platforms by market participants may decrease dramatically as institutional investors may seek to obtain additional information during the trade process through conversations with broker-dealers. In addition, during rapidly moving markets, broker-dealers are less likely to post prices electronically. Our market share of the fixed-income trading markets is also impacted by a variety of other factors, including the amount of new issuances of corporate debt, the level of bond fund inflows or outflows, the percentage of volumes comprised of Rule 144A transactions, the percentage of volumes comprised of larger trades known as "block trades", the level of credit spreads and credit volatility and whether the prevalent market environment is an "offer wanted" or "bid wanted" environment.

A decline in overall market volumes, trading volumes on our platforms or our platforms' market share for any reason would negatively affect our commission revenue and may have a material adverse effect on our business, financial condition and results of operations.

The industry in which we operate is rapidly evolving. If we are unable to adapt our business effectively to keep pace with industry changes, we may not be able to compete effectively, which could have a material adverse effect on our business, financial condition and results of operations.

The electronic financial services industry is characterized by rapidly changing and increasingly complex technologies and systems, changing and increasingly sophisticated client demands (including access to new technologies, functionalities and markets), frequent technology and service introductions, evolving industry standards, changing regulatory requirements and new business models. If we are not able to keep pace with changing market conditions or client demands and if our competitors release new functionality or technology before we do, our existing platforms, solutions and technologies may become obsolete or our competitive position may be materially harmed, each of which could have a material adverse effect on our business, financial condition and results of operations. Operating in a rapidly evolving industry involves a high degree of risk and our future success depends in part on our ability to:

- ∞ attract and retain market participants on our platforms on a cost-effective basis;
- ∞ expand and enhance reliable and cost-effective product and service offerings for our clients;
- ∞ develop and introduce new features to, and new versions of, our electronic trading platforms;
- ∞ respond effectively to competitive pressures;

- ∞ respond effectively to the loss of any of our significant broker-dealer or institutional investor clients, including due to merger, consolidation, bankruptcy, liquidation or other cause (including, among other things, the collection of any amounts due from such clients);
- ∞ operate, support, expand and develop our operations, technology, website, software, communications and other systems;
- ∞ defend our trading platforms and other systems from cybersecurity threats; and
- ∞ respond to regulatory changes or demands.

If we are unsuccessful in addressing these risks or in executing our business strategy, our business, financial condition and results of operations may suffer.

We face substantial competition that could reduce our market share and harm our financial performance.

The fixed-income securities industry generally, and the electronic financial services markets in which we operate in particular, are highly competitive, and we expect competition to intensify in the future. Within our markets, we compete based on our ability to provide our clients with deep liquidity, a broad network of market participants, a wide range of products and protocols, and comprehensive pre-trade, trade and post-trade functionality, as well as the reliability, security and ease of use of our electronic platforms and solutions, among other factors. We primarily compete with other electronic trading platforms and trading businesses conducted directly between broker-dealers and their institutional investor clients over the telephone, email or instant messaging. Our current and prospective competitors are numerous and include: (1) other multi-party electronic trading platforms; (2) EMS and OMS Providers; (3) securities and futures exchanges; (4) market data and information vendors; (5) technology, software, and information services or other companies that have existing commercial relationships with broker-dealers or institutional investors; and (6) other approved regulatory reporting businesses.

Many of our current and potential competitors are more established and substantially larger than we are and have substantially greater market presence, as well as greater financial, technical, marketing and other resources. These competitors may aggressively reduce their pricing to enter into, or otherwise compete in, market segments in which we provide services, potentially subsidizing any losses with profits from trading in other fixed-income or equity securities or other business operations. In addition, many of our competitors offer a wider range of services, have broader name recognition and have larger customer bases than we do. Some of them may be able to respond more quickly to new or evolving opportunities, technologies and client requirements than we can and may be able to undertake more extensive promotional activities.

Competition in the markets in which we operate has intensified due to consolidation, which has resulted in increasingly large and sophisticated competitors. In recent years, our competitors have made acquisitions and/or entered into joint ventures and consortia to improve the competitiveness of their electronic trading offerings. If, as a result of industry consolidation, our competitors are able to offer lower cost and/or a wider range of trading venues and solutions, obtain more favorable terms from third-party providers or otherwise take actions that could increase their market share, our competitive position and therefore our business, financial condition and results of operations may be materially adversely affected.

Our operations also include the sale of pre- and post-trade services, analytics and market data and index services. There is a high degree of competition among market data and information vendors in solutions for pre- and post-trade data, analytics and reporting, and such businesses may become more competitive in the future as new competitors emerge. Some of these companies are already in or may enter the electronic trading business. Accordingly, some of our competitors may be able to combine use of their electronic trading platforms with complementary access to market data and analytical tools and/or leverage relationships with existing clients to obtain additional business from such clients, which could preempt use of our platforms or solutions. For example, Bloomberg, Refinitiv and Intercontinental Exchange own trading platforms that compete with ours and also have a data and analytics relationships with the vast majority of institutional, wholesale and retail market participants. If we are not able to compete successfully in this area in the future, our revenues could be adversely impacted and, as a result, our business, financial condition and results of operations would be materially adversely affected.

We are exposed to potential reputational and credibility concerns related to our data products and index business.

To the extent that our data or index business, or the Company as a whole, suffers a reputational or credibility loss, it could have a material adverse impact on our business. Real or perceived factors that may affect our reputation or credibility include: the appearance of a conflict of interest; the independence of our index composition; the influence of third parties on our decisions; the performance of companies relative to their index inclusion; the timing and nature of changes to our indexes; disagreement with our methodologies or models, including for calculating indexes as well as our data, information and analysis; and the accuracy and completeness of our data, information and analytics. Damage to our reputation, brand or credibility could have a material adverse impact on our business, operating results and financial condition.

Risks Related to our Future Levels of Business, Profitability and Growth

Neither the sustainability of our current level of business nor any future growth can be assured. Even if we do experience growth, we cannot assure you that we will grow profitably.

The success of our business strategy depends, in part, on our ability to maintain and expand the network of market participants that use our electronic trading platforms. Our business strategy also depends on increasing the use of our platforms by these participants for a wide range of fixed-income products and trade sizes. Individuals at broker-dealers or institutional investors may have conflicting interests, which may discourage their use of our platforms. We cannot assure you that the growth rates for the use of our electronic trading services that we have experienced in recent years will continue.

Our growth may also be dependent on our ability to diversify our revenue base. We currently derive approximately 40.2% of our revenues from secondary trading in U.S. high-grade corporate bonds. Our long-term business strategy includes expanding our service offerings and increasing our revenues from other fixed-income products and other sources. We cannot assure you that our efforts will be successful or result in increased revenues or continued profitability. In recent years, we have experienced significant growth in trading volumes, revenues and profitability. We cannot assure you that our business will continue to grow at a similar rate, if at all.

We may enter into new fee plans, the impact of which may be difficult to evaluate; past trends in commissions are not necessarily indicative of future commissions.

From time to time, we may introduce new fee plans for the market segments in which we operate. Any new fee plan may include different fee structures or provide volume incentives. We cannot assure you that any new fee plans will result in an increase in the volume of transactions executed over our platforms or that our revenues will increase as a result of the implementation of any such fee plans. It is possible that our broker-dealer or institutional investor clients could respond to a new fee plan by either reducing the amount of their business conducted on our platforms or terminating their contractual relationship with us, which could have an adverse impact on our fees and otherwise have a material adverse effect on our business, financial condition and results of operations.

In addition, under certain of our fee plans, our fees are designated in basis points in yield (and, as a result, are subject to fluctuation depending on the duration of the bond traded) or our fees vary based on trade size or maturity. For example, during 2022, a significant rise in corporate bond yields contributed to a decrease in the duration of the bonds traded on our platforms, which had a negative effect on our average credit variable transaction fee per million. We anticipate that our average fees per million may continue to vary in the future due to changes in yield, years-to-maturity and nominal size of bonds traded on our platforms. Consequently, past trends in commissions are not necessarily indicative of future commissions.

As we enter new markets, we may not be able to successfully attract clients and adapt our technology and marketing strategy for use in those markets.

Our strategy includes leveraging our electronic trading platforms to enter new markets, including new asset classes, products and geographies, including markets where we have little or no operating experience. We may have difficulties identifying and entering into new markets due to established competitors, lack of recognition of our brand and lack of acceptance of our platforms and solutions, as has occurred with certain of our initiatives in the past.

Expansion, particularly in new geographic markets, may require substantial expenditures and take considerable time. In particular, we may need to make additional investments in management and new personnel, infrastructure and compliance systems. Furthermore, our expansion efforts may divert management's attention or inefficiently utilize our resources. If we are not able to manage our expansion effectively, our expansion costs could increase at a faster rate than our revenues from these new markets. If we cannot successfully implement the necessary processes to support and manage our expansion, our business, financial condition and results of operations may suffer.

We cannot assure you that we will be able to successfully adapt our proprietary software and technology for use in any new markets. Even if we do adapt our products, services and technologies, we cannot assure you that we will be able to attract clients to our platforms and compete successfully in any such new markets. We cannot assure you that our marketing efforts or our pursuit of any of these opportunities will be successful. If these efforts are not successful, we may realize less than expected earnings, which in turn could result in a decrease in the market value of our common stock.

We may face increasing challenges in our growing international operations that we may not be able to meet in the future.

We operate electronic trading platforms in Europe, Latin America and Asia and we may further expand our operations throughout these and other regions. We have invested significant resources in our foreign operations and the increasing globalization of our platforms and services. However, there are certain risks inherent in doing business in international markets. These risks include:

- ∞ difficulty in obtaining the necessary regulatory approvals for planned expansion, if at all, and the possibility that any approvals that are obtained may impose restrictions on the operation of our business;
- ∞ the inability to manage and coordinate the various regulatory requirements of multiple jurisdictions that are constantly evolving and subject to unexpected change;
- ∞ difficulties in staffing and managing foreign operations, including as a result of Brexit, our access to, and our ability to compete for and hire, skilled employees in both the U.K. and the E.U.;
- ∞ less developed technological infrastructures and generally higher costs, which could result in lower client acceptance of our services or clients having difficulty accessing our trading platforms;
- ∞ fluctuations in exchange rates;
- ∞ reduced or no protection for intellectual property rights;
- ∞ seasonal reductions in business activity; and
- ∞ potentially adverse tax consequences.

Further, we may face unexpected challenges in our international operations due to global competitors, established local markets, and economic and political instability. Our inability to manage these risks effectively could adversely affect our business and limit our ability to expand our international operations, which could have a material adverse effect on our business, financial condition and results of operations.

Risks Related to our Customer Concentration

We are dependent on our broker-dealer clients, who are not restricted from using their own proprietary or third-party platforms to transact with our institutional investor clients.

We rely on our broker-dealer clients to provide liquidity on our electronic trading platforms by posting prices for bonds in their inventory and responding to institutional investor client inquiries. The contractual obligations of our broker-dealer clients to us are minimal, non-exclusive and terminable by such clients. Our broker-dealer clients buy and sell fixed-income securities through traditional methods, including by telephone, e-mail and instant messaging, and through other electronic trading platforms. Some of our broker-dealer clients have developed electronic trading networks that compete with us or have announced their intention to explore the development of such electronic trading networks, and many of our broker-dealer and institutional investor clients are involved in other ventures, including other electronic trading platforms or other distribution channels, as trading participants and/or as investors. These competing trading platforms may offer some features that we do not currently offer. Accordingly, there can be no assurance that such broker-dealers' primary commitments will not be to one of our competitors.

If bank-affiliated entities reduce their trading activity and that activity is not replaced by other market participants, the level of liquidity and pricing available on our trading platforms would be negatively impacted, which could adversely affect our operating results. Over the past several years, there has been significant consolidation among firms in the banking and financial services industries and several of our large broker-dealer clients have reduced their sales and trading businesses in fixed-income products. Further consolidation, instability, and layoffs in the financial services industry could result in a smaller client base and heightened competition, which may lower volumes.

Any reduction in the use of our electronic trading platforms by our broker-dealer clients could reduce the volume of trading on our platforms, which could, in turn, reduce the use of our platforms by our institutional investor clients. The occurrence of any of the foregoing may have a material adverse effect on our business, financial condition and results of operations.

We could lose significant sources of revenue and trading volume if we lose any of our significant institutional investor clients.

We rely on our institutional investor clients to launch inquiries over our trading platforms and, increasingly, to provide liquidity through our Open Trading protocols. A limited number of such clients can account for a significant portion of our trading volume. The obligations of our institutional investor clients to us under our standard contractual agreements are minimal, non-exclusive and terminable by such clients. Our institutional investor clients also buy and sell fixed-income securities through traditional methods, including by telephone, e-mail and instant messaging, and through other electronic trading platforms.

There can be no assurance that we will be able to retain our major institutional investor clients or that such clients will continue to use our trading platform. The loss of a major institutional investor client or any reduction in the use of our electronic trading platforms by such clients could have a material adverse effect on our business, financial condition and results of operations.

Credit and Operational Risks

We are exposed to risks in connection with certain transactions in which we act as a matched principal intermediary.

In connection with our Open Trading protocols, we execute certain bond transactions between and among institutional investor and broker-dealer clients on a matched principal basis by serving as counterparty to both the buyer and the seller in trades which are then settled by us or through a third-party clearing broker. Settlement typically occurs within one to two trading days after the trade date. Cash settlement of the transaction occurs upon receipt or delivery of the underlying instrument that was traded.

We are exposed to credit and performance risks in our role as matched principal trading counterparty to the clients on our platforms, including the risk that counterparties that owe us money or securities will not perform their obligations. These parties may default on their obligations to us due to bankruptcy, lack of liquidity, operational failure or other reasons. Adverse movements in the prices of securities that are the subject of these transactions can increase our risk. In connection with Open Trading or other anonymous protocols, we expect that the number of transactions in which we act as a matched principal will increase.

In the process of executing matched principal transactions, miscommunications and other errors by our clients or us can arise that involve substantial risks of liability. These risks include, among others, potential liability from disputes over the terms of a trade, the settlement of the trade, or claims that we resolved an error trade dispute incorrectly or that a system malfunction or delay caused monetary loss to a client. In addition, because of the ease and speed with which trades can be executed on our electronic platforms, clients can lose substantial amounts by inadvertently entering trade instructions or by entering trade orders inaccurately. A significant error trade or a large number of error trades could result in participant dissatisfaction and a decline in participant willingness to trade on our platforms. Although we maintain error trade policies designed to protect our anonymous trading participants and enable us to manage the risks attendant in acting as a matched principal counterparty, depending on the cause, number and value of the trades that are the subject of an alleged error or dispute, such trades have the potential to have a material adverse effect on our financial condition and results of operations. In addition, if we are required to hold a securities position as a result of an error, there may also be financing costs or regulatory capital charges required to be taken by us.

We have policies, procedures and automated controls in place to identify and manage our credit risk, though there can be no assurance that they will effectively mitigate our credit risk exposure. Some of our risk management procedures are reliant upon the evaluation of information regarding the fixed-income markets, our clients or other relevant matters that are publicly available or otherwise acquired from third party sources. Such information may not be accurate, complete, up-to-date or properly assessed and interpreted by us. If our risk management procedures fail, our business, financial condition and results of operations may be adversely affected. Furthermore, our insurance policies are unlikely to provide coverage for such risks.

Self-clearing exposes us to significant operational, liquidity, financing and regulatory risks.

We self-clear substantially all of our bond transactions for our U.S. operations and we may expand self-clearing to certain of our foreign operations in the future. Self-clearing requires us to finance transactions and maintain margin deposits at clearing organizations. Self-clearing exposes our business to operational risks, including business and technology disruption; operational inefficiencies; liquidity, financing and regulatory risks; and potentially increased expenses. In connection with our conversion to self-clearing for our U.S. operations in 2020, we experienced operational inefficiencies and technology issues which, in combination with the capital and liquidity requirements that are imposed on all new self-clearing members, resulted in increased fail rates in the immediate period following the conversion. Although the initial conversion issues for our U.S. clearing operations have been resolved, in the future, we may encounter difficulties with self-clearing that lead to operating inefficiencies, technology issues, dissatisfaction amongst our client base, disruption in the infrastructure that supports the business, inadequate liquidity, increased margin requirements with clearing organizations and third-party settlement agents who provide financing with respect to transactions, reductions in available borrowing capacity and financial loss. Any such delay, disruption, expense or failure could adversely affect our ability to effect transactions and manage our exposure to risk. Moreover, any of these events could have a material adverse effect on our business, financial condition and operating results.

Economic sanctions levied against states or individuals could expose us to significant operational and regulatory risks.

In February 2022, following the onset of the Russia-Ukraine War, the U.S., the U.K., and the European Union, among others, adopted sanctions that, in various ways, prohibited transactions with numerous Russian entities, including major Russian banks, and individuals; limited transactions in Russian sovereign debt; and constrained investment, trade and financing to, from or in certain regions of Ukraine. We did not incur any material losses on trades that were unsettled at the time sanctions were imposed and our business has not otherwise been materially affected by the recent sanctions. To the extent the sanctions are further expanded or the ongoing war, sanctions, or geopolitical tensions have further adverse effects on the global economy or the participants on our platforms, our financial position and results of operations may be adversely affected.

Technology, IT Systems and Cybersecurity Risks

Rapid market or technological changes may render our technology obsolete or decrease the attractiveness of our products and services to our broker-dealer and institutional investor clients.

We must continue to enhance and improve our electronic trading platforms. The electronic financial services industry is characterized by significant structural changes, increasingly complex systems and infrastructures, changes in clients' needs and preferences, constant competition and new business models. If new industry standards and practices emerge and our competitors release new technology before us, our existing technology, systems and electronic trading platforms may become obsolete or our existing business may be harmed. Our future success will depend on our ability to: (1) enhance our existing products and services; (2) develop and/or license new products and technologies that address the increasingly sophisticated and varied needs of our broker-dealer and institutional investor clients and prospective clients; (3) continue to attract highly-skilled technology personnel; and (4) respond to technological advances and emerging industry standards and practices on a cost-effective and timely basis.

Developing our electronic trading platforms and other technology entails significant technical and business risks. We may use new technologies ineffectively or we may fail to adapt our electronic trading platforms, information databases and network infrastructure to broker-dealer or institutional investor client requirements or emerging industry or regulatory standards. If we face material delays in introducing new services, products and enhancements, our clients may forego the use of our platforms and use those of our competitors.

Further, the adoption of new internet, networking, cloud, telecommunications or blockchain technologies may require us to devote substantial resources to modify and adapt our services. We cannot assure you that we will be able to successfully implement new technologies or adapt our proprietary technology and transaction-processing systems to client requirements or emerging industry or regulatory standards. We cannot assure you that we will be able to respond in a timely manner to changing market conditions or client requirements.

We depend on third-party suppliers for key products and services.

We rely on a number of third parties to supply elements of our trading, information and other systems, as well as computers and other equipment, and related support and maintenance. We cannot assure you that any of these providers will be willing and/or able to continue to provide these services in an efficient, cost-effective manner, if at all, or that they will be able to adequately expand their services to meet our needs. If we are unable to make alternative arrangements for the supply of critical products or services in the event of a malfunction of a product or an interruption in or the cessation of service by an existing service provider, our business, financial condition and results of operations could be materially adversely affected.

In particular, we depend on third-party vendors for our bond reference databases, the clearing and settlement of certain of our Open Trading transactions and to provide the technology underpinning key portions of our MarketAxess Rates platform. We obtain essential reference data and information services from external sources, including data received from certain competitors, clients, self-regulatory organizations, rating agencies and other third-party data providers. Our reference data sources and information providers could increase the price for or withdraw their data or information services for a variety of reasons. Further, as has occurred in the past, our competitors could revise the current terms on which they provide us with data or information services or could cease providing us with data or information services altogether for a variety of reasons, including competition. Disruptions in the services provided by those third-parties to us, including as a result of their inability or unwillingness to continue to license products or provide technology services that are critical to the success of our business, could have a material adverse effect on our business, financial condition and results of operations.

We also rely, and expect in the future to continue to rely, on third parties for various computer and communications systems and services, such as telephone companies, online service providers, data processors, cloud computing and data centers, software and hardware vendors. Any interruption in these or other third-party services or deterioration in their performance could impair the quality of our service. We cannot be certain of the financial viability of all of the third parties on which we rely.

We license software from third parties, much of which is integral to our electronic trading platform and our business. We also hire contractors to assist in the development, quality assurance testing and maintenance of our electronic trading platform and other systems. Continued access to these licensors and contractors on favorable contract terms or access to alternative software and information technology contractors is important to our operations. Adverse changes in any of these relationships could have a material adverse effect on our business, financial condition and results of operations.

We attempt to negotiate favorable pricing, service, confidentiality and intellectual property ownership or licensing and other terms in our contracts with our third-party service providers. These contracts usually have multi-year terms. However, there is no guarantee that these contracts will not terminate and that we will be able to negotiate successor agreements or agreements with alternate service providers on competitive terms. Further, the existing agreements may bind us for a period of time to terms and technology that become obsolete as our industry and our competitors advance their own operations and use of technology.

Our success depends on maintaining the integrity and capacity of our electronic trading platforms, systems and infrastructure.

In order to be successful, we must provide reliable, secure, real-time access to our electronic trading platforms for our clients. If our trading platforms cannot cope, or expand to cope, with demand, or otherwise fail to perform, we could experience disruptions in service, slow delivery times and insufficient capacity. These consequences could result in our clients deciding to stop using or reduce their use of our platforms, which would have a material adverse effect on our business, financial condition and results of operations.

As our operations grow in both size and scope, we will need to continually improve and upgrade our electronic trading platforms and infrastructure to accommodate potential increases in order message volume and trading volume, the trading practices of new and existing clients, regulatory changes and the development of new and enhanced trading platform features, functionalities and ancillary products and services. The expansion of our electronic trading platforms and infrastructure has required, and will continue to require, substantial financial, operational and technical resources. These resources will typically need to be committed well in advance of any actual increase in trading volumes and order messages. We cannot assure you that our estimates of future trading volumes and order messages will be accurate or that our systems will always be able to accommodate actual trading volumes and order messages without failure or degradation of performance. Furthermore, we use new technologies to upgrade our established systems, and the development of these new technologies also entails technical, financial and business risks. We cannot assure you that we will successfully implement new technologies or adapt our existing electronic trading platforms, technology and systems to the requirements of our broker-dealer and institutional investor clients or to emerging industry standards. The inability of our electronic trading platforms to accommodate increasing trading volume and order messages would also constrain our ability to expand our business.

Systems failures, interruptions, delays in service, catastrophic events and resulting interruptions in the availability of our trading platforms could materially harm our business and reputation.

Our business depends on the efficient and uninterrupted operation of our trading platforms, systems, networks and infrastructure. We cannot assure you that we, or our third-party providers, will not experience systems failures or business interruptions, as has occurred in the past. Our systems, networks, infrastructure and other operations, in particular our trading platforms, are vulnerable to impact or interruption from a wide variety of causes, including: irregular or heavy use of our trading platforms during peak trading times or at times of increased market volatility; power, internet or telecommunications failures; hardware failures or software errors; human error, acts of vandalism or sabotage; catastrophic events, including those that are occurring with increasing frequency due to climate change such as natural disasters and extreme weather events; acts of war or terrorism; malicious cyberattacks or cyber incidents, such as unauthorized access, ransomware, loss or destruction of data, computer viruses or other malicious code; and the loss or failure of systems over which we have no control, such as loss of support services from critical third-party providers. In addition, we may also face significant increases in our use of power and data storage and may experience a shortage of capacity and/or increased costs associated with such usage.

Failures of, or significant interruptions, delays or disruptions to, or security breaches affecting, our systems, networks or infrastructure have in the past, and could in the future, result in: disruption to our operations, including disruptions in service to our clients; slower response times; distribution of untimely or inaccurate market data to clients who rely on this data for their trades; delays in trade execution; incomplete or inaccurate accounting, recording or processing of trades; significant expense to repair, replace or remediate systems, networks or infrastructure; financial losses and liabilities to clients; loss of clients; legal or regulatory claims, proceedings, penalties or fines. Any system failure or significant interruption, delay or disruption in our operations, or decreases in the responsiveness of our platforms, could materially harm our reputation and business and lead our clients to decrease or cease their use of our platforms. We internally support and maintain many of our systems and networks, including those underlying our trading platforms; however, we may not have sufficient personnel to properly respond to all systems, networks or infrastructure problems. Our failure to monitor or maintain our systems, networks and infrastructure, including those maintained or supported by our third-party providers, or to find a replacement for defective or obsolete components within our systems, networks and infrastructure in a timely and cost-effective manner when necessary, would have a material adverse effect on our business, financial condition and results of operations. While we generally have disaster recovery and business continuity plans that utilize industry standards and best practices for much of our business, including redundant systems, networks, computer software and hardware and data centers to address interruption to our normal course of business, our systems, networks and infrastructure may not always be fully redundant and our disaster recovery and business continuity plans may not always be sufficient or effective. Similarly, although some contracts with our third-party providers, such as our hosting facility providers, require adequate disaster recovery or business continuity capabilities, we cannot be certain that these will be adequate or implemented properly. Our disaster recovery and business continuity plans are heavily reliant on the availability of the internet and mobile phone technology, so any disruption of those systems would likely affect our ability to recover promptly from a crisis situation. If we are unable to execute our disaster recovery and business continuity plans, or if our plans prove insufficient for a particular situation or take longer than expected to implement in a crisis situation, it could have a material adverse effect on our business, financial condition and results of operations, and our business interruption insurance may not adequately compensate us for losses that may occur.

If we experience design defects, errors, failures or delays with our platforms, products or services, including our auto-execution technology and pricing algorithms, our business could suffer serious harm.

Our platforms, products and services, including our auto-execution technology and pricing algorithms, may and have, from time to time, contained design defects and errors when first introduced or when new updates or enhancements are released. In our development of new protocols, platform features and updates and enhancements to our existing platforms, products and services, including our auto-execution technology and pricing algorithms, we may make a design error that causes the platform, protocol or feature to operate incorrectly or less effectively. Many of our protocols also rely on data and services provided by third-party providers over which we have limited or no control and may be provided to us with defects, errors or failures. Our clients may also use our platforms, products or services together with their own software, data or products from other companies. As a result, when problems occur, it might be difficult to identify their source.

If design defects, errors or failures are discovered in our current or future platforms or protocols, we may not be able to correct or work around them in a cost-effective or timely manner or at all. The existence of design defects, errors, failures or delays that are significant, or are perceived to be significant, could also result in rejection or delay in market acceptance of our platforms or protocols, damage to our reputation, loss of clients and related revenues, diversion of resources, product liability claims, regulatory actions or increases in costs, any of which could materially adversely affect our business, financial condition or results of operations.

Malicious cyber-attacks, attempted data security breaches, and other adverse events affecting our operational systems or infrastructure, or those of third parties, could disrupt our businesses, result in the disclosure of confidential information, damage our reputation and cause losses or regulatory penalties.

The operation of our electronic trading platforms relies on the secure processing, storage and transmission of a large amount of transactional data and other confidential sensitive data (including confidential client and personal information). Our computer systems, software and networks may be vulnerable to unauthorized access, loss or destruction of data (including confidential and personal customer information), ransomware, unavailability or disruption of service, computer viruses, acts of vandalism, or other malicious code, cyber-attack and other adverse events that could have an adverse security impact.

Despite the defensive measures we have taken, we have been, and will continue to be, subject to attacks and attempted data security breaches, which may come from external factors such as governments, organized crime, hackers, and other third parties such as infrastructure-support providers and application developers, or may originate internally from an employee or service provider to whom we have granted access to our computer systems. If our security measures are breached as a result of third-party action, employee error, malfeasance or otherwise, and, as a result, someone obtains unauthorized access to trading or other confidential or personal information, our reputation could be damaged, our business would suffer and we could incur material liability. Any such breach could compromise our networks and the information stored there could be accessed, publicly disclosed, lost or stolen. Because techniques used to obtain unauthorized access or to sabotage computer systems change frequently and generally are not recognized until launched against a target, we may be unable to anticipate these techniques or to implement adequate preventive measures.

Our business also depends on the efficient and uninterrupted operation of our platforms, systems, networks and infrastructure. Any failure of, or significant interruption, delay or disruption to, our systems, networks or infrastructure due to a ransomware attack or other cyber-attack could result in: disruption to our operations, including disruptions in service to our clients; slower response times; distribution of untimely or inaccurate market data to clients who rely on this data for their trades; delays in trade execution; incomplete or inaccurate accounting, recording or processing of trades; significant expense to repair, replace or remediate systems, networks or infrastructure; financial losses and liabilities to clients; loss of clients; legal or regulatory claims, proceedings, penalties or fines. We also face the risk of operational disruption, failure or capacity constraints of any of the third-party service providers that facilitate our business activities, including clients, clearing agents and trading system software, network or data providers. Such parties could also be the source of a cyber-attack on or breach of our operational systems, data or infrastructure. In addition, despite the re-opening of our offices, the increased flexibility for our employees to continue to work remotely has amplified certain risks related to, among other things, the increased demand on our information technology resources and systems, the increased risk of phishing and other cybersecurity attacks, and the increased number of points of possible attack, such as laptops and mobile devices (both of which are now being used in increased numbers), to be secured. Any system failure or significant interruption, delay or disruption in our operations, or decreases in the responsiveness of our platforms, could materially harm our reputation and business and lead our clients to decrease or cease their use of our trading platform.

There have been an increasing number of cyber-attacks in recent years in various industries, including ours, and cybersecurity risk management has been the subject of increasing focus by our regulators. Our regulators in recent years have increased their examination and enforcement focus on matters relating to cybersecurity threats, including the assessment of firms' vulnerability to cyber-attacks. In particular, regulatory concerns have been raised about firms establishing effective cybersecurity governance and risk management policies, practices and procedures; protecting firm networks and information; identifying and addressing risks associated with clients, vendors, and other third parties; preventing and detecting unauthorized activities; adopting effective mitigation and business continuity plans to address the impact of cybersecurity breaches; and establishing protocols for reporting cybersecurity incidents. Any insurance that we may have that covers a specific cybersecurity incident would not protect us from the effects of adverse regulatory actions that may result from the incident or a finding that we had inadequate cybersecurity controls, including the reputational harm that could result from such regulatory actions.

Our remediation costs and lost revenues could be significant if we fall victim to a cyber-attack. If an actual, threatened or perceived breach of our security occurs, the market perception of the effectiveness of our security measures could be harmed and could cause our clients to reduce or stop their use of our electronic trading platforms. We may be required to expend significant resources to repair system damage, pay a ransom, protect against the threat of future security breaches or to alleviate problems, including reputational harm, loss of clients and revenues and litigation, caused by any breaches. We may be found liable to our clients for any misappropriated confidential or personal information. Although we intend to continue to implement industry-standard security measures, we cannot assure you that those measures will be sufficient.

Our actual or perceived failure to comply with privacy, data protection and information security laws, regulations, and obligations could harm our business.

Data privacy is subject to frequently changing rules and regulations in countries where we do business. For example, the E.U. adopted the General Data Protection Regulations ("GDPR"), which requires entities both in the European Economic Area and outside to comply with new regulations regarding the handling of personal data. Brexit has created additional uncertainty with regard to the regulation of data protection as the U.K. now has its own data protection laws which are separate from the E.U. GDPR. We are also subject to certain U.S. federal, state and foreign laws governing the protection of personal privacy and data in those jurisdictions. These laws and regulations are increasing in complexity and number. In addition to the increased cost of compliance, our failure to successfully implement or comply with appropriate processes to adhere to the GDPR and other laws and regulations relating to personal data could result in substantial financial penalties for non-compliance, expose us to litigation risk and could result in significant liability, increased costs or cause our clients to lose trust in us, which could have an adverse effect on our reputation and business.

Intellectual Property Risks

We may not be able to protect our intellectual property rights or technology effectively, which would allow competitors to duplicate or replicate our electronic trading platforms or any of our other current or future functionalities, products or services. This could adversely affect our ability to compete.

Intellectual property is critical to our success and ability to compete, and if we fail to protect our intellectual property rights adequately, our competitors might gain access to our technology. We rely primarily on a combination of patent, copyright, trademark and trade secret laws in the United States and other jurisdictions, as well as license agreements, third-party non-disclosure and other agreements and other contractual provisions and technical measures to protect our intellectual property rights. We attempt to negotiate beneficial intellectual property ownership provisions in our contracts and also require employees, consultants, advisors and collaborators to enter into confidentiality agreements in order to protect the confidentiality of our proprietary information. We have been issued 13 patents covering aspects of our technology and/or business, but can give no assurances that any such patents will protect our business and processes from competition or that any patents applied for in the future will be issued. Additionally, laws and our contractual terms may not be sufficient to protect our technology from use or theft by third parties. Furthermore, we cannot assure you that these protections will be adequate to prevent our competitors from independently developing technologies that are substantially equivalent or superior to our technology.

We may have legal or contractual rights that we could assert against illegal use of our intellectual property rights, but lawsuits claiming infringement or misappropriation are complex and expensive, and the outcome would not be certain. In addition, the laws of some countries in which we now or in the future provide our services may not protect software and intellectual property rights to the same extent as the laws of the United States. If our efforts to secure, protect and enforce our intellectual property rights are inadequate, or if any third party misappropriates, dilutes or infringes on our intellectual property, the value of our brand may be harmed, which could have a material adverse effect on our business.

Defending against intellectual property infringement or other claims could be expensive and disruptive to our business. If we are found to infringe the proprietary rights of others, we could be required to redesign our technology, pay royalties or enter into license agreements with third parties.

In the technology industry, there is frequent litigation based on allegations of infringement or other violations of intellectual property rights. As the number of participants in our market increases and the number of patents and other intellectual property registrations increases, the possibility of an intellectual property claim against us grows. Although we have never been the subject of a material intellectual property dispute, we cannot assure you that a third party will not assert in the future that our technology or the manner in which we operate our business violates its intellectual property rights. From time to time, in the ordinary course of our business, we may become subject to legal proceedings and claims relating to the intellectual property rights of others, and we expect that third parties may assert intellectual property claims against us, particularly as we expand the complexity and scope of our business, the number of electronic trading platforms increases and the functionality of these platforms further overlaps. Any claims, whether with or without merit, could be expensive and time-consuming to defend, make it more difficult to operate or prevent us from operating our business, or portions of our business, and result in significant monetary liability.

We cannot assure you that third parties will not assert infringement claims against us, as they have done in the past, with respect to our electronic trading platforms or any of our other current or future products or services or that any such assertion will not require us to cease providing such services or products, try to redesign our products or services, enter into royalty arrangements, if available, or engage in litigation that could be costly to us. Any of these events could have a material adverse effect on our business, financial condition and results of operations.

Risks Related to Possible Transactions or Investments

If we acquire or invest in other businesses, products or technologies, and are unable to integrate them with our business, our financial performance may be impaired or we may not realize the anticipated financial and strategic goals for any such transactions or any strategic alliances, partnerships or joint ventures, which we may enter into.

From time to time, we may pursue acquisitions, which may not be completed or, if completed, may not be as beneficial to us as expected. We have made acquisitions in the past, including the purchases of LiquidityEdge in 2019, the regulatory reporting business of Deutsche Börse in 2020 and MuniBrokers in 2021. We also may consider potential divestitures of businesses from time to time. We routinely evaluate potential acquisition and divestiture candidates and engage in discussions and negotiations regarding potential acquisitions and divestitures on an ongoing basis; however, even if we execute a definitive agreement, there can be no assurance that we will consummate the transaction within the anticipated closing timeframe, or at all. Moreover, there is significant competition for acquisition and expansion opportunities in the electronic financial services industry.

If we do succeed in acquiring or investing in a business, product or technology, such acquisitions and investments may involve a number of risks, including:

- ∞ we may find that the acquired company or assets do not further our business strategy, or that we overpaid for the company or assets, or the economic conditions underlying our acquisition decision may change;
- ∞ we may have difficulty integrating the acquired technologies or products with our existing electronic trading platforms products and services;
- ∞ we may have difficulty integrating the operations and personnel of the acquired business, or retaining the key personnel of the acquired business;
- ∞ there may be client confusion if our services overlap with those of the acquired company and we may have difficulty retaining key customers, vendors and other business partners of the acquired business;
- ∞ our ongoing business and management's attention may be disrupted or diverted by transition or integration issues and the complexity of managing geographically or culturally diverse enterprises;
- ∞ we may enter into markets in which we have limited experience and where competitors hold stronger market positions;
- ∞ potential failure of the due diligence processes to identify significant problems, liabilities or other challenges of an acquired company or product; and
- ∞ exposure to litigation or other claims in connection with, or inheritance of claims or litigation risk as a result of, an acquisition, including but not limited to, claims from terminated employees, customers, former stockholders or other third parties.

These factors could have a material adverse effect on our business, financial condition, results of operations and cash flows, particularly in the case of a larger acquisition or multiple acquisitions in a short period of time. From time to time, we may enter into negotiations for acquisitions or investments that are not ultimately consummated. Such negotiations could result in significant diversion of management time, as well as out-of-pocket costs.

The consideration paid in connection with an investment or acquisition also affects our financial results. If we were to proceed with one or more significant acquisitions in which the consideration included cash, we could be required to use a substantial portion of our available cash to consummate any acquisition. To the extent we issue shares of capital stock or other rights to purchase capital stock, including options or other rights, existing stockholders may be diluted and earnings per share may decrease. In addition, acquisitions may result in the incurrence of debt, large one-time write-offs, such as of acquired in-process research and development costs, and restructuring charges.

We may also enter into strategic alliances, partnerships or joint ventures as a means to accelerate our entry into new markets, provide new solutions or enhance our existing capabilities. For example, in 2022, we made a significant minority investment in RFQ-hub, a bilateral multi-asset and multi-dealer request for quote platform. Entering into strategic alliances, partnerships and joint ventures entails risks, including: (i) difficulties in developing or expanding the business of newly formed alliances, partnerships and joint ventures; (ii) exercising influence over the activities of joint ventures in which we do not have a controlling interest; (iii) potential conflicts with or among our partners; (iv) the possibility that our partners could take action without our approval or prevent us from taking action; and (v) the possibility that our partners become bankrupt or otherwise lack the financial resources to meet their obligations.

Risks Related to Key Personnel and Employees

We are dependent on our management team, and the loss of any key member of this team may prevent us from implementing our business plan in a timely manner.

Our success depends largely upon the continued services of our executive officers and other key personnel, including Richard M. McVey and Christopher Concannon. In January 2023, we announced that Mr. McVey, currently Chief Executive Officer and Chairman of our Board of Directors, would become Executive Chairman, and Mr. Concannon, currently President and Chief Operating Officer and a member of our Board of Directors, would become Chief Executive Officer and remain on the Board, each effective April 2023. The terms of Messrs. McVey's and Concannon's employment agreements with us do not require them to continue to work for us and allow them to terminate their respective employment at any time, subject to certain notice requirements and forfeiture of non-vested equity compensation awards. We do not maintain "key person" life insurance on any of our executive officers and other key personnel. Although we have invested in succession plans and we have short-term contingency plans in place, any loss or interruption of Mr. McVey's or Mr. Concannon's services or that of one or more of our other executive officers or key personnel for any reason, as well as any negative market or industry perception arising from such loss or interruption, could result in our inability to manage our operations effectively and/or pursue our business strategy.

Because competition for our employees is intense, we may not be able to attract and retain the highly skilled employees we need to support our business.

We strive to provide high-quality services that will allow us to establish and maintain long-term relationships with our clients. Our ability to provide these services and maintain these relationships, as well as our ability to execute our business plan generally, depends in large part upon our employees. We must attract and retain highly qualified personnel. Competition for these personnel is intense, especially for software engineers with extensive experience in designing and developing software and internet-related services, product managers and senior sales executives.

The market for qualified personnel, especially software developers, has become increasingly competitive in our talent markets. Many companies, including both our competitors and firms outside of our industry, are interested in hiring our experienced personnel. Additionally, highly innovative technology firms both in and outside our traditional geographic markets may offer attractive employment opportunities to our technology personnel through remote work opportunities. Many of these firms have greater resources than we have and are able to offer more lucrative compensation packages. We cannot assure you that we will be successful in our efforts to recruit and retain the required personnel. The failure to attract new personnel or to retain and motivate our current personnel may have a material adverse effect on our business, financial condition and results of operations.

Regulatory and Legal Risks

We operate in a highly regulated industry and we may face restrictions with respect to the way we conduct certain of our operations.

Our business is subject to increasingly extensive governmental and other regulations. These regulations are designed to protect public interests generally rather than the interests of our stockholders. The SEC, FINRA and other agencies extensively regulate the United States financial services industry, including most of our operations in the United States. Much of our international operations are subject to similar regulations in their respective jurisdictions, including regulations overseen by the FCA in the U.K., the AFM in the Netherlands, ESMA in the E.U., the Monetary Authority of Singapore, the Investment Industry Regulatory Organization of Canada and provincial regulators in Canada, and the Securities and Exchange Commission and Central Bank in Brazil. In addition, our regulatory reporting business is registered as an ARM and APA with the FCA and ESMA. We also hold several cross-border licenses and permissions with various other regulatory bodies. See Part I, Item 1 "Business – Government Regulation – Non-U.S. Regulation."

As a matter of public policy, these regulatory bodies are responsible for safeguarding the integrity of the securities and other financial markets and protecting the interests of investors in those markets. These regulatory bodies have broad powers to promulgate and interpret, investigate and sanction non-compliance with their laws, rules and regulations. Most aspects of our broker-dealer and other licensed subsidiaries are highly regulated, including the way we deal with our clients; our capital requirements; our financial and regulatory reporting practices; required record-keeping and record retention procedures; the licensing of our employees; and the conduct of our directors, officers, employees and affiliates.

We cannot assure you that we and/or our directors, officers and employees will be able to fully comply with these laws, rules and regulations. If we fail to comply with any of these laws, rules or regulations, we may be subject to censure, fines, cease-and-desist orders, suspension of our business, suspensions of personnel or other sanctions, including revocation of our membership in FINRA and registration as a broker-dealer.

Certain of our regulated subsidiaries, including our registered broker-dealer and MTFs, are subject to U.S. or foreign regulations which prohibit repayment of borrowings from us or our affiliates, paying cash dividends, making loans to us or our affiliates or otherwise entering into transactions that result in a significant reduction in regulatory net capital or financial resources, without prior notification to or approval from such subsidiary's principal regulator.

Our ability to operate our platforms in a jurisdiction may be dependent on continued registration or authorization in that jurisdiction or the maintenance of a proper exemption from such registration or authorization. Our ability to comply with all applicable laws and rules is largely dependent on our compliance, credit approval, audit and reporting systems and procedures, as well as our ability to attract and retain qualified compliance, credit approval, audit and risk management personnel. Our systems and procedures may not be sufficiently effective to prevent a violation of all applicable rules and regulations. In addition, the growth and expansion of our business may create additional strain on our compliance systems, procedures and personnel and has resulted, and we expect will continue to result, in increased costs to maintain and improve these systems.

In addition, because our industry is heavily regulated, regulatory approval may be required in order to continue or expand our business activities and we may not be able to obtain the necessary regulatory approvals on a timely or cost-effective basis, or at all. Even if approvals are obtained, they may impose restrictions on our business or we may not be able to continue to comply with the terms of the approvals or applicable regulations. The implementation of unfavorable regulations or unfavorable interpretations of existing regulations by courts or regulatory bodies could require us to incur significant compliance costs or cause the development or continuation of business activities in affected markets to be curtailed or become impractical. For a further description of the regulations which may limit our activities, see Part I, Item 1. "Business—Government Regulation."

Some of our subsidiaries are subject to regulations regarding changes in control of their ownership. These regulations generally provide that regulatory approval must be obtained in connection with any transaction resulting in a change in control of the subsidiary, which may include changes in control of MarketAxess. As a result of these regulations, our future efforts to sell shares or raise additional capital may be delayed or prohibited in circumstances in which such a transaction would give rise to a change in control as defined by the applicable regulatory body.

Our business and the trading businesses of many of our clients are subject to increasingly extensive government and other regulation, which may affect our trading volumes and increase our cost of doing business.

Our business, and the business of many of our clients, is subject to extensive regulation. Governmental and regulatory authorities periodically review legislative and regulatory initiatives, and may promulgate new or revised, or adopt changes in the interpretation and enforcement of existing, rules and regulations at any time. In addition, we must comply with the laws, regulations and registration rules of foreign governments and regulatory bodies for each country in which we conduct business. Any such changes in laws, rules or regulations or in governmental policies could create additional regulatory exposure for our business, cause us to incur significant additional costs, require us to change or cease aspects of our business or restrict or limit our ability to grow our business, any of which could have a material adverse effect on our business, financial condition or results of operations. There have been in the past, and could be in the future, significant technological, operational and compliance costs associated with the obligations that derive from compliance with evolving laws, rules and regulations.

We cannot predict whether additional changes to the laws, rules and regulations that govern our business and operations, including changes to their interpretation, implementation or enforcement, will occur in the future or the extent to which any such changes will impact our business and operations, but they may cause us to expend significantly more compliance, business and technology resources, incur additional operational costs and create additional regulatory exposure. For example, the SEC has proposed rules that will expand Regulation ATS and Regulation SCI to alternative trading systems (ATS) that trade government securities and amend the SEC rule regarding the definition of an “exchange” to include Communication Protocol Systems, such as our RFQ protocols. In connection with these proposed rules, we expect that we will have to operate all of our trading protocols in compliance with Regulation ATS. The fixed-income industry is also in the process of complying with Rule 15c2-11 (“Publication or submission of quotations without specified information”) of the Exchange Act, which had not previously been applied to debt securities. In November 2022, the SEC issued a no-action letter that delayed the full implementation of Rule 15c2-11 until 2025. The impact of any of these reform efforts on us and our operations remains uncertain. Further, we and/or our clients could become subject to future legislation and regulatory requirements beyond those currently proposed, adopted or contemplated in the U.S. or abroad. Additionally, unintended consequences of such new laws, rules and regulations may adversely affect our industry, our clients and us in ways yet to be determined. Any such legal and regulatory changes could affect us in substantial and unpredictable ways, and could have a material adverse effect on our business, financial condition and results of operations.

The growing divergence of the U.K. and European Union legal and regulatory requirements following Brexit could materially adversely impact our business, clients, financial condition, results of operations and prospects.

The exit of the U.K. has increased the operational complexity and cost of conducting business in both the E.U. and the U.K., and introduces significant new barriers to cross-border trading, including uncertainties with respect to the legal and regulatory requirements to which we and our clients are subject. Brexit has led to a growing divergence between the U.K. and E.U. financial regulations, which may impact our ability to comply with the extensive government regulation to which we are subject. In addition, the cost and complexity of operating across increasingly divergent regulatory regimes has required us to make changes to the technology underlying our trading platforms and regulatory reporting systems in the U.K. and E.U., which has resulted in new regulatory and operational costs and challenges. We expect the cost and complexity of complying with diverging E.U. and U.K. financial regulations will increase following the implementation of the FSMB in the U.K. see Part I, Item 1. “Business—Government Regulation—Non-U.S. Regulation.” In addition, as a result of Brexit, the E.U. regulatory authorities may enact regulatory changes that may affect our business by creating further market fragmentation.

Although it is not possible at this point in time to predict fully the effects of Brexit, any of the foregoing factors could have a material adverse effect on our business, financial condition and results of operations.

The extensive regulation of our business means we have ongoing exposure to potentially significant costs and penalties.

Our businesses are subject to regulation by governmental and self-regulatory organizations in the jurisdictions in which we operate around the world. Many of these regulators, including U.S. and non-U.S. government agencies and self-regulatory organizations, as well as state securities commissions in the U.S., are empowered to bring enforcement actions and to conduct administrative proceedings and examinations, inspections, and investigations, which may result in costs, penalties, fines, enhanced oversight, additional requirements, restrictions, or limitations, and censure, suspension, or expulsion. Self-regulatory organizations such as FINRA, along with statutory bodies such as the SEC and the FCA, and other international regulators, require strict compliance with their rules and regulations.

Firms in the financial services industry have experienced increased scrutiny in recent years, and penalties, fines and other sanctions sought by regulatory authorities, including the SEC, FINRA, state securities commissions and state attorney generals in the U.S., and the FCA in the U.K. and other international regulators, have increased accordingly. Accordingly, we face the risk of regulatory intervention, investigations and proceedings, any of which could involve extensive scrutiny of our activities and result in significant fines and liability. Any of these developments would require significant time and financial resources and could adversely affect our reputation, financial condition and operating results.

We are subject to the risks of litigation and securities laws liability.

Many aspects of our business, and the businesses of our clients, involve substantial risks of liability. Dissatisfied clients have in the past, and may in the future, make claims against us regarding quality of trade execution, improperly settled trades, resolution of trade error claims, system failures, failure to protect their confidential or personal information, mismanagement or even fraud. In connection with our entry into the index business, we may face with claims related to errors in our methodology or models used to calculate the indices. We may become subject to these claims as the result of delays, failures or malfunctions of our electronic trading platform and the services provided by us. We could incur significant legal expenses defending claims, even those without merit. An adverse resolution of any lawsuits or claims against us could have a material adverse effect on our business, financial condition and results of operations.

Liquidity and Funding Risks

We cannot predict our future capital needs or our ability to obtain additional financing if we need it.

Our business is dependent upon the availability of adequate funding and regulatory capital under applicable regulatory requirements. The growth of our Open Trading protocols, in particular, is dependent on the willingness of our customers and counterparties to engage in transactions with us and any perceived issues with our capital levels or access to funding could have a material adverse effect on business. As a result of our self-clearing activities, we are also required to finance certain transactions, maintain deposits with various clearing organizations and clearing broker-dealers and maintain a special reserve bank account for the benefit of customers pursuant to Rule 15c3-3 of the Exchange Act. Although we believe that our available cash resources and borrowing capacity under our credit agreement are sufficient to meet our presently anticipated liquidity needs and capital expenditure requirements for at least the next 12 months, we may in the future need to raise additional funds to, among other things: (1) support more rapid growth of our business; (2) finance transactions and maintain margin deposits at clearing organizations; (3) acquire complementary companies or technologies; (4) increase the regulatory net capital necessary to support our operations; or (5) respond to unanticipated or changing capital requirements.

In addition, our liquidity could be impaired due to circumstances that we may be unable to control, such as a general market disruption or an operational problem that affects our trading customers or counterparties, other third parties or us.

All or part of any debt financing could be pursuant to the terms of our credit agreements with third party lenders, which include restrictive covenants with respect to dividends, issuances of additional capital and other financial and operational matters related to our business.

In the future, we may not be able to obtain additional financing, if needed, in amounts or on terms acceptable to us, if at all. If sufficient funds are not available or are not available on terms acceptable to us, our ability to fund our expansion, finance transactions and maintain margin deposits at clearing organizations, take advantage of acquisition opportunities, develop or enhance our services or products, or otherwise respond to competitive pressures would be significantly limited. These limitations could have a material adverse effect on our business, financial condition and results of operations.

Our credit agreement contains restrictive and financial covenants that could limit our operating flexibility, and we may incur additional debt in the future that may include similar or additional restrictions.

We are party to a credit agreement that provides for revolving loans and letters of credit up to an aggregate of \$500.0 million. Subject to the satisfaction of certain specified conditions, we are permitted to upsize the borrowing capacity of the credit agreement by an additional \$250.0 million. Our credit agreement contains certain covenants that, among other things, may restrict our ability to take certain actions, even if we believe them to be in our best interests. These covenants may restrict or prohibit, among other things, our ability to:

- ∞ incur or guarantee additional debt;
- ∞ create or incur liens;
- ∞ change our line of business;
- ∞ sell or transfer assets;
- ∞ make certain investments or acquisitions;
- ∞ pay dividends or distributions, redeem or repurchase our equity or make certain other restricted payments;
- ∞ consummate a merger or consolidation;
- ∞ enter into certain swap, derivative or similar transactions;
- ∞ enter into certain transactions with affiliates; and
- ∞ incur restrictions on our ability to grant liens or, in the case of subsidiaries, pay dividends or other distributions.

We are also required by our credit agreement to maintain a maximum consolidated total net leverage ratio and a minimum regulatory net capital balance for certain subsidiaries. We cannot assure you that we will be able to meet these requirements or satisfy these covenants in the future. A breach of any of these covenants or the inability to comply with the required financial covenants could result in an event of default under the credit agreement. If any such event of default occurs, the lenders under the credit agreement could elect to declare all amounts outstanding and accrued and unpaid interest under the credit agreement to be immediately due and payable, and could foreclose on the assets securing the credit agreement. The lenders would also have the right in these circumstances to terminate any commitments they have to provide further credit extensions. We may incur other indebtedness in the future that may contain financial or other covenants more restrictive than those applicable to the credit agreement.

Item 1B. *Unresolved Staff Comments.*

None.

Item 2. *Properties.*

Our corporate headquarters and principal U.S. office is located at 55 Hudson Yards in New York, New York, where we lease approximately 83,000 square feet under a lease expiring in August 2034. We also collectively lease approximately 39,000 square feet for our other office locations in jurisdictions such as the U.S., United Kingdom, Brazil, the Netherlands, Hong Kong and Singapore under various leases expiring between January 2022 and January 2027.

Item 3. *Legal Proceedings.*

In the normal course of business, we and our subsidiaries included in the consolidated financial statements may be involved in various lawsuits, proceedings and regulatory examinations. We assess liabilities and contingencies in connection with outstanding legal proceedings, if any, utilizing the latest information available. Based on currently available information, the outcome of our outstanding matters is not expected to have a material adverse impact on our financial position. It is not presently possible to determine our ultimate exposure to these matters and there is no assurance that the resolution of the outstanding matters will not significantly exceed any reserves accrued by us. See Note 15 to the Consolidated Financial Statements for a discussion of our commitments and contingencies.

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.

Our common stock trades on the NASDAQ Global Select Market under the symbol "MKTX".

On February 17, 2023, the last reported closing price of our common stock on the NASDAQ Global Select Market was \$355.17.

Holders

There were 11 holders of record of our common stock as of February 17, 2023.

Recent Sales of Unregistered Securities

None.

Securities Authorized for Issuance Under Equity Compensation Plans

Please see the section entitled "Equity Compensation Plan Information" in Item 12.

Issuer Purchases of Equity Securities

During the three months ended December 31, 2022, we repurchased the following shares of common stock:

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares That May Yet Be Purchased Under the Plans and Programs
				(In thousands)
October 1, 2022 - October 31, 2022	204	\$ 222.49	—	\$ 100,016
November 1, 2022 - November 30, 2022	613	238.57	—	100,016
December 1, 2022 - December 31, 2022	19,163	283.16	—	100,016
	<u>19,980</u>	<u>\$ 281.17</u>	<u>—</u>	

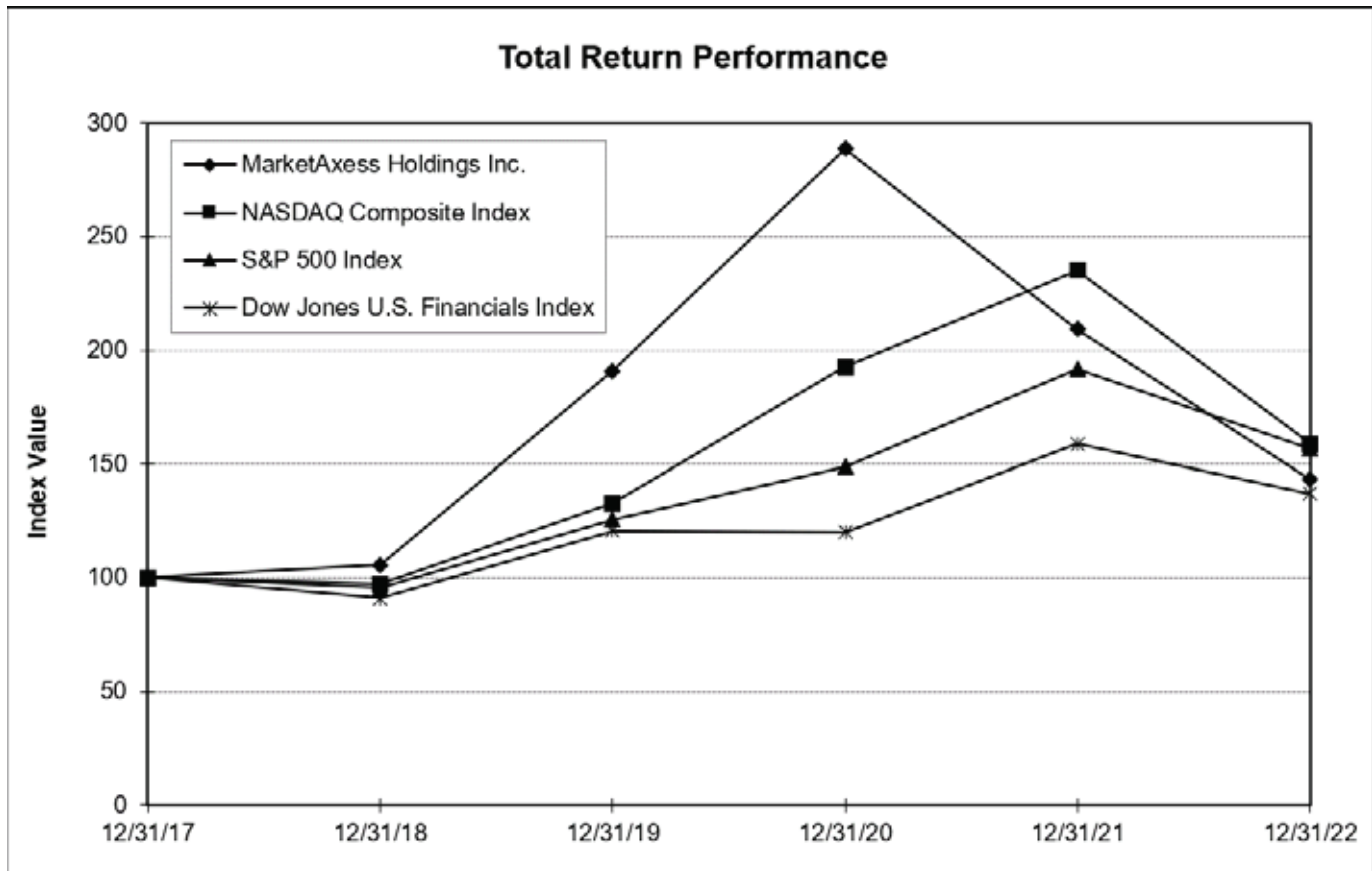
During the three months ended December 31, 2022, we repurchased 19,980 shares of common stock that were surrendered to us to satisfy withholding tax obligations upon the exercise of stock options and vesting of restricted shares and restricted stock units. There were no shares repurchased in connection with our share repurchase program during the three months ended December 31, 2022.

In January 2021, our Board of Directors authorized a new share repurchase program for up to \$100.0 million that commenced in April 2021 and was exhausted in January 2022. In January 2022, our Board of Directors authorized a new share repurchase program for up to \$150.0 million that commenced in March 2022. Shares repurchased under this program will be held in treasury for future use. As of December 31, 2022, we had \$100.0 million of remaining capacity under the program.

STOCK PERFORMANCE GRAPH

The following graph shows a comparison of the cumulative total return for (i) our common stock; (ii) the S&P 500 Index; (iii) the Dow Jones U.S. Financials Index; and (iv) the NASDAQ Composite Index, in each case for the past five years. The Company historically compared the cumulative total return on its common stock with that of the NASDAQ Composite Index, but has selected the Dow Jones U.S. Financials Index for the stock performance graph in this Annual Report on Form 10-K because management believes the performance of the Dow Jones U.S. Financials Index provides a more meaningful comparison with the Company's performance. The performance graph and related information shall not be deemed "soliciting material" or to be "filed" with the SEC, nor shall such information be incorporated by reference into any future filing under the Securities Act or the Exchange Act, except to the extent that we specifically incorporate it by reference into such filing.

The figures in this graph assume an initial investment of \$100 in our common stock and in each index on December 31, 2017, and that all dividends were reinvested. The returns illustrated below are based on historical results during the period indicated and should not be considered indicative of future stockholder returns.



Item 6. [Reserved]

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

You should read the following discussion and analysis of our financial condition and results of operations in conjunction with our consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K. In addition to historical information, this discussion and analysis contains forward-looking statements relating to future events and the future performance of MarketAxess that are based on our current expectations, assumptions, estimates and projections about us and our industry. These forward-looking statements involve risks and uncertainties. Our actual results and timing of various events could differ materially from those anticipated in such forward-looking statements as a result of a variety of factors, as more fully described in this section, in "Item 1A. Risk Factors", in "Cautionary Note Regarding Forward Looking Statements" and elsewhere in this Annual Report on Form 10-K. Except as may be required by applicable law, we undertake no obligation to update publicly any forward-looking statements for any reason, even if new information becomes available or other events occur in the future.

The following discussion includes a comparison of our Financial Results, Cash Flow Comparisons and Liquidity and Capital Resources for the years ended December 31, 2022 and 2021, respectively. A discussion of changes in our Financial Results and Cash Flow Comparisons from the year ended December 31, 2020 to December 31, 2021 may be found in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," of Part II of our Annual Report on Form 10-K for the year ended December 31, 2021.

Executive Overview

MarketAxess operates leading electronic trading platforms delivering greater trading efficiency, a diversified pool of liquidity and significant cost savings to our clients across the global fixed-income markets. Over 2,000 institutional investor and broker-dealer firms use our patented trading technology to efficiently trade U.S. high-grade bonds, U.S. high-yield bonds, emerging market debt, Eurobonds, municipal bonds, U.S. government bonds and other fixed-income securities. Our award-winning Open Trading marketplace is widely regarded as the preferred all-to-all trading solution in the global credit markets, creating a unique liquidity pool for a broad range of credit market participants. Drawing on a diverse set of trading protocols, including request-for-quote, live order books, sessions-based trading and portfolio trading solutions, as well as our deep data and analytical resources, we believe that we connect the most robust network of participants through an advanced full trading lifecycle solution that also includes automated trading solutions, intelligent data and index products and a range of post-trade services.

We operate in a large and rapidly growing market that provides us with a significant opportunity for future growth. Many of our largest current product areas, and areas of future growth, have relatively low levels of trading electrification, which further increases the size of our addressable market. Our platforms' innovative technology solutions are designed to capitalize on this addressable market by increasing the number of potential trading counterparties and providing our clients with a menu of solutions to address the full lifecycle of fixed-income trading. We offer Open Trading and automated trading solutions for most of our products. We believe that Open Trading drives meaningful price improvement for our clients and reduces risk in fixed-income markets by creating a global, diversified pool of liquidity whereby our institutional investor clients, dealer clients and alternative liquidity providers can all interact on an anonymous basis. Institutional investors can also send trading inquiries directly to their traditional broker-dealer counterparties through a disclosed RFQ, while simultaneously accessing additional counterparties through our anonymous Open Trading solutions.

We also provide a number of integrated and actionable data offerings, including Composite+ and Axess All, to assist clients with real-time pricing and trading decisions and transaction cost analysis. We have a range of post-trade services, including straight-through processing, trade matching, trade publication, regulatory transaction reporting and market and reference data across fixed-income and other products.

We derive revenue from commissions for trades executed on our platforms, information services, post-trade services and other revenues. Our expenses consist of employee compensation and benefits, depreciation and amortization, technology and communication expenses, professional and consulting fees, occupancy, marketing and advertising, clearing costs and general and administrative expenses.

Our objective is to provide the leading global electronic trading platforms for fixed-income securities, connecting broker-dealers and institutional investors more easily and efficiently, while offering a broad array of trading information and technology services to market participants across the trading cycle. The key elements of our strategy are discussed in Part I, Item 1. "Business – Our Strategy."

Critical Factors Affecting Our Industry and Our Company

Economic, Political and Market Factors

The global fixed-income securities industry is risky and volatile and is directly affected by a number of economic, political and market factors that may impact trading volume. These factors could have a material adverse or positive effect on our business, financial condition and results of operations. These factors include, among others, credit market conditions, the current interest rate environment, including the volatility of interest rates and investors' forecasts of future interest rates, the duration of bonds traded, economic and political conditions in the United States, Europe and elsewhere, and the consolidation or contraction of our broker-dealer and institutional investor clients.

We experienced improving operating conditions in the year ended December 31, 2022 as compared to 2021 with credit spreads widening, increased volatility and higher U.S. high-grade market volumes. In the year ended December 31, 2022, market volumes in U.S. high-grade corporate bonds as reported by TRACE increased 8.4% compared to the year ended December 31, 2021. Although our trading volumes increased during the year ended December 31, 2022 due mainly to increases in our estimated market share in several of our product areas, a significant rise in corporate bond yields during the year ended December 31, 2022 contributed to a decrease in the duration of the bonds traded on our platforms, which had a negative effect on our average variable transaction fee per million, principally in U.S. high-grade.

In February 2022, following the onset of the Russia-Ukraine War, the U.S., the U.K., and the European Union, among others, adopted sanctions that, in various ways, prohibited transactions with numerous Russian entities, including major Russian banks, and individuals; limited transactions in Russian sovereign debt; and constrained investment, trade and financing to, from or in certain regions of Ukraine. We did not incur any material losses on trades that were unsettled at the time sanctions were imposed and our business has not otherwise been materially affected by the recent sanctions. To the extent the sanctions are further expanded or the ongoing war, sanctions, or geopolitical tensions have further adverse effects on the global economy or the participants on our platforms, our financial position and results of operations may be adversely affected.

Throughout 2022, the Pandemic had less of an impact on how we managed our business than in the prior two years. Most of our employees have transitioned to a hybrid employment model with an emphasis on safety and employee wellbeing. We continue to monitor the impact of the Pandemic on our communities, including the spread of any variants, and we remain confident that we could continue to maintain business continuity and serve our clients if a return to an all-virtual environment becomes necessary to promote employee and public safety.

There has been increased demand for green bonds and other securities linked to environmental, social and governance factors in the fixed-income markets in which we operate. Based on the interest we are receiving from investors, we expect such increased demand to continue.

Because the majority of our assets are short-term in nature, they are not significantly affected by inflation. However, the rate of inflation may affect our expenses, such as employee compensation, technology and communications expenses, which may not be readily recoverable in the prices of our services. To the extent inflation continues to result in rising interest rates or has other adverse effects on the securities markets or the economy, it may adversely affect our financial position and results of operations.

We expect that current cash and investment balances, in combination with cash flows that are generated from operations and the ability to borrow under our 2021 Credit Agreement (as defined below), will be sufficient to meet our liquidity needs and planned capital expenditure requirements for at least the next twelve months. We ended the quarter with a strong balance sheet, no borrowings under our 2021 Credit Agreement and with capital significantly in excess of our regulatory requirements.

Competitive Landscape

The global fixed-income securities industry generally, and the electronic financial services markets in which we engage in particular, are highly competitive, and we expect competition to intensify in the future. Sources of competition for us will continue to include, among others, bond trading conducted directly between broker-dealers and their institutional investor clients over the telephone or electronically and other multi-dealer or all-to-all trading platforms. Competitors, including companies in which some of our broker-dealer clients have invested, have developed or acquired electronic trading platforms or have announced their intention to explore the development of electronic platforms or information networks that may compete with us.

We primarily compete on the basis of our client network, the liquidity provided by our dealer, and, to a growing extent, institutional investor clients, the total transaction costs associated with our services, the breadth of products, protocols and services offered, as well as the quality, reliability, security and ease of use of our platforms. We believe that our ability to grow volumes and revenues will largely depend on our performance with respect to these factors.

Our competitive position is also enhanced by the unique liquidity provided by our Open Trading functionalities and the familiarity and integration of our broker-dealer and institutional investor clients with our electronic trading platforms and other systems. We have focused on the unique aspects of the credit markets we serve in the development of our platforms, working closely with our clients to provide a system that is suited to their needs.

Regulatory Environment

Our business is subject to extensive regulations in the United States and internationally, which may expose us to significant regulatory risk and cause additional legal costs to ensure compliance. The existing legal framework that governs the financial markets is periodically reviewed and amended, resulting in the enactment and enforcement of new laws and regulations that apply to our business. For example, the SEC recently proposed rules that will expand Regulation ATS and Regulation SCI to alternative trading systems (ATS) that trade government securities and amend the SEC rule regarding the definition of an “exchange” to include Communication Protocol Systems, such as our RFQ protocols. In connection with these proposed rules, we expect that we will have to operate all of our trading protocols in compliance with Regulation ATS. The fixed-income industry is also in the process of complying with Rule 15c2-11 (“Publication or submission of quotations without specified information”) of the Exchange Act, which had not previously been applied to debt securities. The impact of any of these reform efforts on us and our operations remains uncertain.

As a result of Brexit, we obtained authorizations from the AFM for our subsidiaries in the Netherlands in 2019. We now provide regulated services to our clients within the E.U. in reliance on the cross-border services passport held by our Dutch subsidiaries. Brexit has led to an ongoing divergence between the U.K. and E.U. financial regulations, which has made it more difficult and costly to comply with the extensive government regulation to which we are subject. The cost and complexity of operating across increasingly divergent regulatory regimes has increased and is likely to continue to increase in the future.

Compliance with regulations may require us to dedicate additional financial and operational resources, which may adversely affect our profitability. However, we believe new regulations may also increase demand for our platforms and we believe we are well positioned to benefit from those regulatory changes that cause market participants to seek electronic trading platforms that meet the various regulatory requirements and help them comply with their regulatory obligations.

For further description of the regulations which govern our business, see Part I, Item 1. “Business—Government Regulation.”

Technology Environment

We must continue to enhance and improve our electronic trading platforms. The electronic financial services industry is characterized by increasingly complex systems and infrastructures and new business models. Our future success will depend on our ability to enhance our existing products and services, develop and/or license new products and technologies that address the increasingly sophisticated and varied needs of our existing and prospective broker-dealer and institutional investor clients and respond to technological advances and emerging industry and regulatory standards and practices on a cost-effective and timely basis. We plan to continue to focus on technology infrastructure initiatives and continually improve our platforms to further enhance our leading market position.

As the overall share of electronic trading grows in global credit products, we are experiencing continued demand for, and growth in, our automated trading solutions. Trading volumes in Auto-X RFQ, one of our automated trading protocols, rose to \$220.2 billion in 2022, up 31.7% from \$167.2 billion in 2021. In addition, the use of dealer algorithms is continuing to grow on our platforms, with approximately 23.7 million dealer algorithmic responses on our platforms in 2022, up 29.2% from the prior year.

We experience cyber-attacks and attempted data security breaches, however, MarketAxess has not experienced any material information security breaches over the past three years. Cybersecurity incidents could impact revenue and operating income and increase costs. We therefore continue to make investments in our cybersecurity infrastructure and training of employees, which may result in increased costs, to strengthen our cybersecurity measures.

See also Part I, Item 1A. - “Risk Factors, Technology, IT Systems and Cybersecurity Risks.”

Trends in Our Business

The majority of our revenue is derived from commissions for transactions executed on our platforms between and among our institutional investor and broker-dealer clients and monthly distribution fees. We believe that the following are the key variables that impact the notional value of such transactions on our platforms and the amount of commissions and distribution fees earned by us:

- ∞ the number of participants on our platforms and their willingness to use our platforms instead of competitors' platforms or other execution methods;
- ∞ the frequency and competitiveness of the price responses by participants on our platforms;
- ∞ the number of markets that are available for our clients to trade on our platforms;
- ∞ the overall level of activity in these markets;
- ∞ the duration of the bonds trading on our platforms; and
- ∞ the particular fee plan under which we earn commissions and distribution fees.

We believe that overall corporate bond market trading volume is affected by various factors including the absolute levels of interest rates, the direction of interest rate movements, the level of new issues of corporate bonds and the volatility of corporate bond spreads versus U.S. Treasury securities. Because a significant percentage of our revenue is tied directly to the volume of securities traded on our platforms, it is likely that a general decline in trading volumes, regardless of the cause of such decline, would reduce our revenues and have a significant negative impact on profitability.

As further described under “— Critical Factors Affecting our Industry and our Company — Economic, Political and Market Factors”, our trading volumes increased and our average variable transaction fee per million decreased in 2022.

Components of Our Results of Operations

Commission Revenue

Commissions are recognized on a trade date basis, are generally calculated as a percentage of the notional dollar volume of bonds traded on our platforms and vary based on the type, size, yield and maturity of the bond traded, as well as individual client incentives. Bonds that are more actively traded or that have shorter maturities are generally charged lower commissions, while bonds that are less actively traded or that have longer maturities generally command higher commissions.

For Open Trading trades that we execute between and among institutional investor and broker-dealer clients on a matched principal basis by serving as counterparty to both the buyer and the seller, we earn our commission through the difference in price between the two trades. For the majority of U.S. Treasury matched principal trades, commissions are invoiced and recorded on a monthly basis.

Credit Commissions. Credit includes U.S. high-grade corporate bonds, high-yield bonds, emerging markets bonds, Eurobonds, municipal bonds and leveraged loans. Our U.S. high-grade corporate bond fee plans generally incorporate variable transaction fees and fixed distribution fees billed to our broker-dealer clients on a monthly basis. Certain broker-dealers participate in fee programs that do not contain monthly distribution fees and instead incorporate additional per transaction execution fees and minimum monthly fee commitments. Under these fee plans, we electronically add the transaction fee to the spread quoted by the broker-dealer client. The U.S. high-grade transaction fee is generally designated in basis points in yield and, as a result, is subject to fluctuation depending on the duration of the bond traded.

Commissions for high-yield bonds, emerging markets bonds, Eurobonds, municipal bonds and leveraged loans generally vary based on the type of the instrument traded using standard fee schedules. Our high-yield fee plan structure is similar to our U.S. high-grade fee plans. Certain dealers participate in a high-yield fee plan that incorporates a variable transaction fee and fixed distribution fee, while other dealers participate in a plan that does not contain monthly distribution fees and instead incorporates additional per transaction execution fees and minimum monthly fee commitments.

The average credit fees per million may vary in the future due to changes in yield, years-to-maturity and nominal size of high-grade bonds traded on our platforms and changes in product mix or trading protocols.

Credit distribution fees include any unused monthly fee commitments under our variable fee plans and subscription revenues associated with the MuniBrokers platform.

Rates Commissions. Rates includes U.S. Treasury, U.S. agency and European government bonds. Commissions for rates products generally vary based on the type of the instrument traded. U.S. Treasury fee plans are typically volume tiered and can vary based on the trading protocol. The average rates fee per million may vary in the future due to changes in product mix or trading protocols.

We anticipate that average fees per million may change in the future. Consequently, past trends in commissions are not necessarily indicative of future commissions.

Information Services

We generate revenue from data licensed to our broker-dealer clients, institutional investor clients and data-only subscribers; professional and consulting services; technology software licenses; and maintenance and support services. These revenues are either for subscription-based services transferred over time, and may be net of volume-based discounts, or one-time services. Revenues for services transferred over time are recognized ratably over the contract period while revenues for services transferred at a point in time are recognized in the period the services are provided. Customers are generally billed monthly, quarterly, or annually; revenues billed in advance are deferred and recognized ratably over the contract period.

Post-trade Services

We generate revenue from regulatory transaction reporting, trade publication and trade matching services. Customers are generally billed in the current month or monthly in arrears and revenue is recognized in the period that the transactions are processed. Revenues billed in advance are deferred and recognized ratably over the contract period. We also generate one-time implementation fees for onboarding clients which are invoiced and recognized in the period the implementation is complete.

Other Revenue

Other revenue includes revenue generated from telecommunications line charges to broker-dealer clients.

Expenses

In the normal course of business, we incur the following expenses:

Employee Compensation and Benefits. Employee compensation and benefits is our most significant expense and includes employee salaries, stock-based compensation costs, other incentive compensation, employee benefits and payroll taxes.

Depreciation and Amortization. We depreciate our computer hardware and related software, office hardware and furniture and fixtures and amortize our capitalized software development costs on a straight-line basis over three to seven years. We amortize leasehold improvements on a straight-line basis over the lesser of the life of the improvement or the remaining term of the lease. Intangible assets with definite lives, including purchased technologies, customer relationships and other intangible assets, are amortized over their estimated useful lives, which range from one to 15 years, using either a straight-line or accelerated amortization method based on the pattern of economic benefit that we expect to realize from such assets. Intangible assets are assessed for impairment when events or circumstances indicate a possible impairment.

Technology and Communications. Technology and communications expense consists primarily of costs relating to maintenance on software and hardware, our internal network connections, data center hosting costs, data feeds provided by outside vendors and U.S. government bonds technology platform licensing fees. The majority of our broker-dealer clients have dedicated high-speed communication lines to our network in order to provide fast data transfer. We charge our broker-dealer clients a monthly fee for these connections, which is recovered against the relevant expenses we incur.

Professional and Consulting Fees. Professional and consulting fees consist primarily of accounting fees, legal fees and fees paid to information technology and other consultants for services provided for the maintenance of our trading platforms, information and post-trade services products and other services.

Occupancy. Occupancy costs consist primarily of office and equipment rent, utilities and commercial rent tax.

Marketing and Advertising. Marketing and advertising expense consists primarily of print and other advertising expenses we incur to promote our products and services. This expense also includes costs associated with attending or exhibiting at industry-sponsored seminars, conferences and conventions, and travel and entertainment expenses incurred by our sales force to promote our trading platforms, information services and post-trade services.

Clearing Costs. Clearing costs consist of fees that we are charged by third-party clearing brokers and depositories for the clearing and settlement of matched principal trades, regulatory reporting fees and variable transaction fees assessed by the provider of our third-party middle office system.

General and Administrative. General and administrative expense consists primarily of general travel and entertainment, board of directors' expenses, charitable contributions, provision for doubtful accounts, various state franchise and U.K. value-added taxes and other miscellaneous expenses.

Expenses may continue to grow in the future, notably in employee compensation and benefits as we increase headcount to support investment in new products, operational support and geographic expansion, depreciation and amortization due to increased investment in new products and enhancements to our trading platforms, and technology and communication costs. Expenses may also grow due to acquisitions or the continued effects of inflation.

Other Income (Expense)

Interest Income. Interest income consists of interest income earned on our cash and cash equivalents, restricted cash, deposits and investments.

Interest Expense. Interest expense consists of financing charges incurred on short-term borrowings.

Equity in Earnings of Unconsolidated Affiliate. Equity in earnings of unconsolidated affiliate represents the proportionate share of our equity method investee's net income.

Other, Net. Other, net consists of realized and unrealized gains and losses on trading security investments and foreign currency forward contracts, foreign currency transaction gains or losses, investment advisory fees, credit facility administrative fees, gains or losses on revaluations of contingent consideration payable and other miscellaneous revenues and expenses.

Critical Accounting Estimates

This Management's Discussion and Analysis of Financial Condition and Results of Operations discusses our Consolidated Financial Statements, which have been prepared in accordance with accounting principles generally accepted in the United States ("GAAP"). The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the reported amounts of income and expenses during the reporting periods. We base our estimates and judgments on historical experience and on various other factors that we believe are reasonable under the circumstances. Actual results may differ from these estimates under varying assumptions or conditions. Critical accounting estimates for us include stock-based compensation and contingent consideration payable.

Stock-based compensation

We maintain the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (the "2020 Plan") which provides for the grant of stock options, stock appreciation rights, restricted stock, performance shares, performance units, restricted stock units, performance stock units, or other stock-based awards as incentives to encourage employees, consultants and non-employee directors to participate in our long-term success. We make critical accounting estimates related to performance shares and performance stock units granted under the 2020 Plan.

In 2020, annual performance share awards ("PSAs"), and in 2021 and 2022, performance stock units (together with the PSAs, "performance equity awards") were granted to the executive officers and certain senior managers. Each performance equity award is earned or forfeited based on our level of achievement of certain predetermined metrics, including pre-tax adjusted operating margin and market share for the 2020 and 2021 awards, and pre-tax adjusted operating margin, U.S. credit market share, and revenue growth excluding U.S. credit for the 2022 awards. The vested share pay-out ranges from zero to 150% for the awards granted in 2020, and zero to 200%, for the awards granted in 2021 and 2022, of the performance equity award target. The number of performance equity awards that vest, if any, will be determined by the level of achievement of the performance metrics during the three-year performance periods, as certified by the Board following the conclusion of the performance period. In addition, participants must provide continued service through the vesting date (subject, to death, disability and, in the case of the awards granted in 2021 and 2022, qualified retirement exceptions). Compensation expense for performance equity awards is measured using the fair value of our stock at the grant date and estimates of future performance and actual share payouts. Each period, we make estimates of the current expected share payouts and adjust the life-to-date compensation expense recognized since the grant date. As of December 31, 2022, a 10% change in the expected final share payouts would increase or decrease the life-to-date compensation expense by \$1.6 million. The estimated final share payouts for the 2020 and 2021 awards as of December 31, 2022 decreased 2.9% compared to December 31, 2021.

Contingent consideration payable

In connection with our acquisitions of MuniBrokers and Regulatory Reporting Hub, we recognized contingent consideration payables with payment dates ranging from 18-24 months from the acquisition dates. These contingent consideration payables are classified as Level 3 liabilities in the fair value hierarchy and are valued using unobservable inputs and estimates of various factors, including client retention rates, electronic order flow levels, future license fees we earn and discount rates. Changes in these estimates or the final figures on the payment dates could have an impact on the contingent consideration payable liabilities we record on our balance sheet. As of December 31, 2022, a 10% change in the projected annual subscription and license fees would not have a material impact on the expected contingent consideration payable. As of December 31, 2022, the remaining outstanding contingent consideration payable was \$12.3 million. Refer to Note 4 to the Consolidated Financial Statements for more information related to the changes in contingent consideration payable during the year ended December 31, 2022.

Recent Accounting Pronouncements

See Note 2 to the Consolidated Financial Statements for a discussion of recent accounting pronouncements.

Segment Results

We operate electronic platforms for the trading of fixed-income securities and provide related data, analytics, compliance tools and post-trade services. We consider our operations to constitute a single business segment because of the highly integrated nature of these product and services, the financial markets in which we compete and our worldwide business activities. We believe that results by geographic region or client sector are not necessarily meaningful in understanding our business. See Note 16 to the Consolidated Financial Statements for certain geographic information about our business required by GAAP.

Results of Operations

Year Ended December 31, 2022 Compared to Year Ended December 31, 2021

The following table summarizes our financial results for the years ended December 31, 2022 and 2021.

	Year Ended December 31,			
	2022	2021	\$ Change	% Change
	(\$ in thousands, except per share amounts)			
Revenues	\$ 718,300	\$ 698,951	\$ 19,349	2.8 %
Expenses	391,424	361,716	29,708	8.2
Operating income	326,876	337,235	(10,359)	(3.1)
Other income (expense)	11,412	(3,312)	14,724	NM
Income before income taxes	338,288	333,923	4,365	1.3
Provision for income taxes	88,064	76,035	12,029	15.8
Net income	<u>\$ 250,224</u>	<u>\$ 257,888</u>	<u>\$ (7,664)</u>	<u>(3.0) %</u>
Net income per common share - Diluted	\$ 6.65	\$ 6.77	\$ (0.12)	(1.8) %

NM - not meaningful

Changes in average foreign currency exchange rates compared to the U.S. dollar had the effect of decreasing revenues and expenses by \$11.6 million and \$10.5 million, respectively, for the year ended December 31, 2022.

Revenues

Our revenues for the years ended December 31, 2022 and 2021, and the resulting dollar and percentage changes, were as follows:

	Year Ended December 31,					
	2022		2021			
			(\$ in thousands)			
	\$	% of Revenues	\$	% of Revenues	\$ Change	% Change
Commissions	\$ 641,183	89.3 %	\$ 621,008	88.8 %	\$ 20,175	3.2 %
Information services	39,314	5.5	38,175	5.5	1,139	3.0
Post-trade services	36,877	5.1	38,922	5.6	(2,045)	(5.3)
Other	926	0.1	846	0.1	80	9.5
Total revenues	<u>\$ 718,300</u>	100.0 %	<u>\$ 698,951</u>	100.0 %	<u>\$ 19,349</u>	2.8 %

Commissions

Our commission revenues for the years ended December 31, 2022 and 2021, and the resulting dollar and percentage changes, were as follows:

	Year Ended December 31,			
	2022	2021	\$ Change	% Change
	(\$ in thousands)			
Variable transaction fees				
Credit	\$ 491,680	\$ 485,005	\$ 6,675	1.4 %
Rates	22,341	16,572	5,769	34.8
Total variable transaction fees	514,021	501,577	12,444	2.5
Fixed distribution fees				
Credit	126,915	119,178	7,737	6.5
Rates	247	253	(6)	(2.4)
Total fixed distribution fees	127,162	119,431	7,731	6.5
Total commissions	\$ 641,183	\$ 621,008	\$ 20,175	3.2 %

Credit variable transaction fees increased \$6.7 million driven by a 12.2% increase in trading volume, partially offset by a 9.6% decrease in total credit average variable transaction fee per million. Open Trading credit volume totaled \$939.6 billion during the year ended December 31, 2022, up 11.5%, and Open Trading credit variable transaction fees represented 33.7% and 31.8% of total variable transaction fees for the year ended December 31, 2022 and 2021, respectively. The 34.8% increase in variable transaction fees for rates was mainly attributable to higher U.S. Treasury trading volume.

Credit fixed distribution fees increased \$7.7 million mainly due to the migration of certain dealers from all-variable fee plans to plans that incorporate a monthly distribution fee, certain dealers moving to plans with higher fixed distribution fees and an increase in unused monthly minimum commitment fees.

Our trading volumes for the years ended December 31, 2022 and 2021 were as follows:

	Year Ended December 31,			
	2022	2021	\$ Change	% Change
	(\$ in millions)			
Trading volume data				
Credit				
High-grade	\$ 1,364,530	\$ 1,243,180	\$ 121,350	9.8 %
High-yield	424,812	371,116	53,696	14.5
Emerging markets	693,560	649,455	44,105	6.8
Eurobonds	362,713	334,899	27,814	8.3
Other credit	99,225	26,134	73,091	279.7
Total credit	2,944,840	2,624,784	320,056	12.2
Rates				
U.S. Government Bonds	5,347,607	4,074,451	1,273,156	31.2
Agency and other government bonds	96,782	70,513	26,269	37.3
Total rates	5,444,389	4,144,964	1,299,425	31.3
Total trading volume	\$ 8,389,229	\$ 6,769,748	\$ 1,619,481	23.9
Number of U.S. Trading Days	249	250		
Number of U.K. Trading Days	250	253		

For volume reporting purposes, transactions in foreign currencies are converted to U.S. dollars at average monthly rates. The 9.8% increase in our U.S. high-grade volume was principally due to an increase in overall market volume. Estimated U.S. high-grade TRACE volume increased by 8.4% to \$6.4 trillion for the year ended December 31, 2022 from \$5.9 trillion for the year ended December 31, 2021. Our estimated market share of total U.S. high-grade corporate bond volume increased to 21.3% for the year ended December 31, 2022 from 21.0% for the year ended December 31, 2021.

High-yield, emerging markets, and Eurobond volumes increased by 14.5%, 6.8%, and 8.3%, respectively, due to increases in our estimated market share which more than offset declines in estimated market volumes. Other credit volumes increased 279.7%, driven by higher municipal bonds volume, which reflects the inclusion of MuniBrokers variable subscription related trading volume in 2022. Rates trading volume increased 31.3% primarily due to increased U.S. government bonds dealer-to-dealer estimated average daily trading volume and higher estimated market share.

Our average variable transaction fee per million for the years ended December 31, 2022 and 2021 was as follows:

	Year Ended December 31,			
	2022	2021	\$ Change	% Change
Average variable transaction fee per million				
Credit	\$ 166.96	\$ 184.78	\$ (17.8)	(9.6) %
Rates	4.10	4.00	0.1	2.5

Credit average variable transaction fee per million decreased 9.6% to \$166.96 per million for the year ended December 31, 2022 mainly due to a decrease in the duration of U.S. high-grade bonds traded on our platforms and dealer migration to fixed distribution fee plans that provide for lower transaction fees.

Information Services. Information services revenue increased \$1.1 million for the year ended December 31, 2022 mainly due to net new data contract revenue of \$3.4 million, partially offset by the negative impact of foreign currency fluctuations of \$2.3 million.

Post-Trade Services. Post-trade services revenue decreased \$2.0 million for the year ended December 31, 2022 principally due to the negative impact of foreign currency fluctuations of \$4.2 million and planned customer attrition in connection with the Regulatory Reporting Hub integration, partially offset by net new contract revenue of \$2.2 million.

Expenses

The following table summarizes our expenses for the years ended December 31, 2022 and 2021.

	Year Ended December 31,			
	2022	2021	\$ Change	% Change
	(\$ in thousands)			
Expenses				
Employee compensation and benefits	\$ 182,104	\$ 170,916	\$ 11,188	6.5 %
Depreciation and amortization	61,446	53,447	7,999	15.0
Technology and communications	52,964	42,474	10,490	24.7
Professional and consulting fees	33,949	41,925	(7,976)	(19.0)
Occupancy	14,121	13,320	801	6.0
Marketing and advertising	9,977	9,059	918	10.1
Clearing costs	17,663	16,074	1,589	9.9
General and administrative	19,200	14,501	4,699	32.4
Total expenses	<u>\$ 391,424</u>	<u>\$ 361,716</u>	<u>\$ 29,708</u>	8.2 %

Employee compensation and benefits increased by \$11.2 million primarily due increases in salaries, taxes and benefits on higher employee headcount of \$8.7 million and stock-based compensation of \$2.0 million.

Depreciation and amortization increased by \$8.0 million primarily due to higher amortization of software development costs of \$6.7 million and higher amortization of acquired intangibles of \$2.7 million, partially offset by lower depreciation of software licenses of \$1.5 million. For the years ended December 31, 2022 and 2021, \$13.1 million and \$17.5 million, respectively, of equipment purchases and leasehold improvements and \$38.7 million and \$33.1 million, respectively, of software development costs were capitalized.

Technology and communications expenses increased by \$10.5 million primarily due to higher software subscription costs of \$8.2 million and higher cloud hosting costs of \$2.1 million.

Professional and consulting fees decreased by \$8.0 million primarily due to lower acquisition-related integration consulting fees of \$3.5 million, lower recruiting fees of \$1.9 million, lower other consulting fees of \$1.4 million and lower consulting costs related to our self-clearing operations of \$1.2 million.

General and administrative expenses increased by \$4.7 million primarily due to higher litigation reserves of \$2.0 million, higher travel and entertainment costs of \$1.5 million and higher regulatory fees of \$1.0 million.

Other Income (Expense)

Our other income (expense) for the years ended December 31, 2022 and 2021, and the resulting dollar and percentage changes, were as follows:

	Year Ended December 31,			
	2022	2021	\$ Change	% Change
	(\$ in thousands)			
Interest income	\$ 5,040	\$ 401	\$ 4,639	NM
Interest expense	(700)	(842)	142	(16.9) %
Equity in earnings of unconsolidated affiliate	1,126	—	1,126	NM
Other, net	5,946	(2,871)	8,817	NM
Total other income (expense)	<u>\$ 11,412</u>	<u>\$ (3,312)</u>	<u>\$ 14,724</u>	NM

NM - not meaningful

Interest income increased by \$4.6 million primarily due to higher interest rates.

Equity in earnings of unconsolidated affiliate represents the proportionate share of net income of our equity method investee.

Other, net increased by \$8.8 million principally due to higher foreign exchange gains of \$9.1 million and higher income due to revaluations of contingent consideration payable of \$0.6 million offset by losses of \$0.9 million on foreign exchange forward contracts.

Provision for Income Taxes.

The provision for income taxes and effective tax rate for the years ended December 31, 2022 and 2021 were as follows:

	Year Ended December 31,			
	2022	2021	\$ Change	% Change
	(\$ in thousands)			
Provision for income taxes	\$ 88,064	\$ 76,035	\$ 12,029	15.8 %
Effective tax rate	26.0 %	22.8 %		

The provision for income taxes reflected \$0.5 million and \$11.7 million of excess tax benefits related to share-based compensation awards that vested or were exercised during the years ended December 31, 2022 and 2021, respectively. For the year ended December 31, 2022, the provision for income taxes included \$3.2 million of expense related to a settlement with New York State to resolve the 2010 to 2014 audits. We recorded a provision for unrecognized tax benefits of \$0.2 million and a benefit from unrecognized tax benefits of \$1.2 million for the years ended December 31, 2022 and 2021, respectively. Our consolidated effective tax rate can vary from period to period depending on the geographic mix of our earnings, changes in tax legislation and tax rates and the amount and timing of excess tax benefits related to share-based payments, among other factors.

Liquidity and Capital Resources

During the year ended December 31, 2022, we have met our funding requirements through cash on hand, internally generated funds and short-term borrowings. Cash and cash equivalents and investments totaled \$514.5 million as of December 31, 2022. Our investments generally consist of U.S. Treasury securities. We limit the amounts that can be invested in any single issuer and invest in short- to intermediate-term instruments whose fair values are less sensitive to interest rate changes.

In October 2021, we entered into a new three-year revolving credit facility (the “2021 Credit Agreement”) provided by a syndicate of lenders and JPMorgan Chase Bank, N.A., as administrative agent, that provides aggregate commitments totaling \$500.0 million, consisting of a revolving credit facility and a \$5.0 million letter of credit sub-limit for standby letters of credit. The 2021 Credit Agreement replaced the 2020 Credit Agreement and will mature on October 15, 2024, with our option to request up to two additional 364-day extensions at the discretion of each lender and subject to customary conditions. As of December 31, 2022, we had no borrowings or letters of credit outstanding and \$500.0 million in available borrowing capacity under the 2021 Credit Agreement. The 2021 Credit Agreement requires that we satisfy certain covenants, which include a leverage ratio. We were in compliance with all applicable covenants at December 31, 2022. See Note 13 to the Consolidated Financial Statements for a discussion of the 2021 Credit Agreement.

In connection with its self-clearing operations, our U.S. broker-dealer subsidiary entered into an agreement (the “Collateralized Agreement”) with its settlement bank to provide loans up to an aggregate of \$200.0 million on an uncommitted basis. Borrowings under the Collateralized Agreement are collateralized by securities pledged by the U.S. broker-dealer subsidiary to the settlement bank, subject to applicable haircuts and concentration limits. As of December 31, 2022, the U.S. broker-dealer subsidiary had no borrowings outstanding and \$200.0 million in available borrowing capacity under the Collateralized Agreement. See Note 13 to the Consolidated Financial Statements for a discussion of the Collateralized Agreement.

Under arrangements with their settlement banks, certain of our U.S. and U.K. operating subsidiaries may receive overnight financing in the form of bank overdrafts. As of December 31, 2022, we had no overdrafts payable outstanding.

As a result of our self-clearing and settlement activities, we are required to finance certain transactions, maintain deposits with various clearing organizations and clearing broker-dealers and maintain a special reserve bank account for the benefit of customers pursuant to Rule 15c3-3 of the Exchange Act. As of December 31, 2022, the aggregate amount of the positions financed, deposits and customer reserve balances associated with our self-clearing and settlement activities was \$221.7 million. These requirements can fluctuate based on trading activity, market volatility or other factors which may impact our liquidity or require us to use our capital resources.

Cash Flows for the Year Ended December 31, 2022 Compared to the Year Ended December 31, 2021

Our cash flows were as follows:

	Year Ended December 31,			
	2022	2021	\$ Change	% Change
	(\$ in thousands)			
Net cash provided by operating activities	\$ 289,231	\$ 282,091	\$ 7,140	2.5 %
Net cash (used in) investing activities	(86,272)	(67,694)	(18,578)	27.4
Net cash (used in) financing activities	(242,378)	(189,775)	(52,603)	27.7
Effect of exchange rate changes on cash and cash equivalents	(13,484)	(7,105)	(6,379)	89.8
Net (decrease) increase for the period	<u>\$ (52,903)</u>	<u>\$ 17,517</u>	<u>\$ (70,420)</u>	NM

NM - not meaningful

The \$7.1 million increase in net cash provided by operating activities was primarily due to a decrease in the change in net receivables from broker-dealers, clearing organizations and customers associated with our clearing activities of \$87.9 million and higher stock-based compensation expense of \$2.6 million, offset by higher net purchases of trading investments of \$44.0 million, an increase in the change in accounts receivable of \$30.7 million, lower net income of \$7.7 million and lower amortization of operating lease right-of-use assets of \$1.1 million.

The \$18.6 million increase in net cash used in investing activities was primarily attributable to an increase in cash used for an equity method investment of \$34.4 million and an increase in capital expenditures of \$1.3 million, offset by lower cash used for acquisitions of \$17.1 million.

The \$52.6 million increase in net cash used in financing activities was principally due to \$26.2 million in payments of contingent consideration related to acquisitions, an increase in repurchases of our common stock of \$24.4 million, an increase in cash dividends paid on common stock of \$6.2 million and a decrease in exercises of stock options of \$6.4 million, offset by a decrease in withholding tax payments on restricted stock vesting and stock option exercises of \$10.5 million.

The \$6.4 million change in the effect of exchange rate changes on cash and cash equivalents was driven by a higher cumulative translation adjustment due to the strengthening U.S. dollar.

Past trends of cash flows are not necessarily indicative of future cash flow levels. A decrease in cash flows may have a material adverse effect on our liquidity, business and financial condition.

Other Factors Influencing Liquidity and Capital Resources

We believe that our current resources are adequate to meet our liquidity needs and requirements, including commitments for capital expenditures, in the short-term (during the next 12 months). However, our future liquidity and capital requirements will depend on a number of factors, including liquidity requirements associated with our self-clearing operations and expenses associated with product development and expansion and new business opportunities that are intended to further diversify our revenue streams. We may also acquire or invest in technologies, business ventures or products that are complementary to our business. In the event we require any additional financing, it will take the form of equity or debt financing. Any additional equity offerings may result in dilution to our stockholders. Any debt financings, if available at all, may involve restrictive covenants with respect to dividends, issuances of additional capital and other financial and operational matters related to our business. In addition, in the long-term (beyond 12 months), we believe our liquidity needs and requirements will be affected by the factors discussed above.

One of our U.S. subsidiaries is registered as a broker-dealer and therefore is subject to the applicable rules and regulations of the SEC and FINRA. These rules contain minimum net capital requirements, as defined in the applicable regulations. Certain of our foreign subsidiaries are regulated by the FCA in the U.K. or other foreign regulators and must maintain financial resources, as defined in the applicable regulations, in excess of the applicable financial resources requirement. As of December 31, 2022, each of our subsidiaries that are subject to these regulations had net capital or financial resources in excess of their minimum requirements. As of December 31, 2022, our subsidiaries maintained aggregate net capital and financial resources that were \$518.2 million in excess of the required levels of \$27.1 million.

Each of our U.S. and foreign regulated subsidiaries are subject to local regulations which generally limit, or require the prior notification to or approval from such regulated entity's principal regular before, the repayment of borrowings from our affiliates, paying cash dividends, making loans to our affiliates or otherwise entering into transactions that result in a significant reduction in regulatory net capital or financial resources. As of December 31, 2022, the amount of unrestricted cash held by our non-U.S. subsidiaries was \$203.1 million.

We execute bond transactions between our institutional investor and broker-dealer clients on a matched principal basis by serving as counterparty to both the buyer and the seller in trades. Our U.S. broker-dealer subsidiary operates under a self-clearing model for the settlement of such transactions. Our subsidiaries also settle their transactions through third-party clearing brokers or settlement agents. Settlement typically occurs within one to two trading days after the trade date. Cash settlement of the transaction occurs upon receipt or delivery of the underlying instrument that was traded. Under both the self-clearing and the third-party clearing models, we may be exposed to credit risk in the event a counterparty does not fulfill its obligation to complete a transaction or if there is an error in executing a matched principal transaction. Pursuant to the terms of the securities clearing agreements, each third-party clearing broker has the right to charge us for any losses they suffer resulting from a counterparty's failure on any of our trades. We did not record any liabilities or losses with regard to counterparty failures for the years ended December 31, 2022 and 2021. Substantially all of our open securities failed-to-deliver and securities failed-to-receive transactions as of December 31, 2022 have subsequently settled at the contractual amounts.

In the normal course of business, we enter into contracts that contain a variety of representations, warranties and indemnification provisions. Our maximum exposure from any claims under these arrangements is unknown, as this would involve claims that have not yet occurred.

We have operating leases for corporate offices with initial lease terms ranging from one year to 15 years. We have total future contractual rent payments on these leases of \$112.7 million, with \$11.0 million due within the next 12 months and \$101.7 million due beyond 12 months.

We enter into one-month foreign currency forward contracts to economically hedge our exposure to variability in certain foreign currency transaction gains and losses. As of December 31, 2022, the notional value of our foreign currency forward contract outstanding was \$62.2 million and the fair value of the liability was \$1.7 million.

On April 9, 2021, we acquired MuniBrokers. The purchase price consisted of \$17.1 million in cash paid at closing and up to \$25.0 million in contingent consideration payable in cash within approximately two years of the closing. In May 2022, we made a payment of \$8.3 million to settle the first earn-out period consideration. As of December 31, 2022, the remaining outstanding contingent consideration payable was \$12.3 million.

In January 2021, our Board authorized a new share repurchase program for up to \$100.0 million that commenced in April 2021 and was exhausted in January 2022. In January 2022, our Board authorized a new share repurchase program for up to \$150.0 million that commenced in March 2022. Shares repurchased under the program will be held in treasury for future use. As of December 31, 2022, we had \$100.0 million of remaining capacity under the program.

See Item 5 of this Annual Report on Form 10-K for additional discussion of our repurchases of our common stock and our dividend policy.

Non-GAAP Financial Measures

In addition to reporting financial results in accordance with GAAP, we use certain non-GAAP financial measures: earnings before interest, taxes, depreciation and amortization (“EBITDA”), EBITDA margin and free cash flow. We define EBITDA margin as EBITDA divided by revenues. We define free cash flow as cash flow from operating activities excluding the net change in trading investments and net change in securities failed-to-deliver and securities failed-to-receive from broker-dealers, clearing organizations and customers, less expenditures for furniture, equipment and leasehold improvements and capitalized software development costs. We believe these non-GAAP financial measures, when taken into consideration with the corresponding GAAP financial measures, are important in understanding our operating results. EBITDA, EBITDA margin and free cash flow are not measures of financial performance or liquidity under GAAP and therefore should not be considered an alternative to net income or cash flow from operating activities as an indicator of operating performance or liquidity. We believe that EBITDA, EBITDA margin and free cash flow provide useful additional information concerning profitability of our operations and business trends and the cash flow available to pay dividends, repurchase stock and meet working capital requirements.

The table set forth below presents a reconciliation of our net income to EBITDA and net income margin to EBITDA margin, as defined, for the years ended December 31, 2022 and 2021:

	Year Ended December 31,	
	2022	2021
	(In thousands)	
Net income	\$ 250,224	\$ 257,888
Add back:		
Interest expense	700	842
Provision for income taxes	88,064	76,035
Depreciation and amortization	61,446	53,447
EBITDA	<u>\$ 400,434</u>	<u>\$ 388,212</u>
Net income margin ¹	34.8%	36.9%
Add back:		
Interest expense	0.1	0.1
Provision for income taxes	12.3	10.9
Depreciation and amortization	8.6	7.6
EBITDA margin ²	<u>55.7%</u>	<u>55.5%</u>

¹ Net income margin is derived by dividing net income by total revenues for the applicable period.

² EBITDA margin is derived by dividing EBITDA by total revenues for the applicable period.

The table set forth below presents a reconciliation of our net cash provided by operating activities to free cash flow, as defined, for the years ended December 31, 2022 and 2021:

	Year Ended December 31,	
	2022	2021
	(In thousands)	
Net cash provided by operating activities	\$ 289,231	\$ 282,091
Exclude: Net change in trading investments	49,527	5,574
Exclude: Net change in fail-to-deliver/receive from broker-dealers, clearing organizations and customers	(25,994)	59,651
Less: Purchases of furniture, equipment and leasehold improvements	(13,142)	(17,493)
Less: Capitalization of software development costs	(38,730)	(33,123)
Free cash flow	<u>\$ 260,892</u>	<u>\$ 296,700</u>

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

Market risk is the risk of the loss resulting from adverse changes in market rates and prices, such as interest rates and foreign currency exchange rates.

Market Risk

The global financial services business is, by its nature, risky and volatile and is directly affected by many national and international factors that are beyond our control. Any one of these factors may cause a substantial decline in the U.S. and global financial services markets, resulting in reduced trading volume and revenues. These events could have a material adverse effect on our business, financial condition and results of operations.

As of December 31, 2022, we had \$74.4 million of investments in U.S. Treasuries that were classified as trading securities. Adverse movements, such as a decrease in the value of these securities or a downturn or disruption in the markets for these securities, could result in a substantial loss. A 10% decrease in the market value of our U.S. Treasuries would result in a loss of approximately \$7.4 million. In addition, principal gains and losses resulting from these securities could on occasion have a disproportionate effect, positive or negative, on our financial condition and results of operations for any particular reporting period.

See also Part I, Item 1A.—“Risk Factors – Risks Related to Global Economic and Market Conditions – Global economic, political and market factors beyond our control could reduce demand for our services, and our profitability and business could suffer.”

Interest Rate Risk

Interest rate risk represents our exposure to interest rate changes with respect to our cash and cash equivalents, restricted cash and deposits. As of December 31, 2022, our cash and cash equivalents, restricted cash and deposits amounted to \$572.7 million. A hypothetical 100 basis point change in interest rates would increase or decrease our interest income by approximately \$5.7 million, assuming no change in the amount or composition of our cash and cash equivalents, restricted cash and deposits. In addition, fluctuations in interest rates could result in unrealized gains or losses on our U.S. Treasuries.

We do not maintain an inventory of bonds that are traded on our platform.

Foreign Currency Exchange Rate Risk

We conduct operations in several different countries outside of the U.S., most notably the U.K., and substantial portions of our revenues, expenses, assets and liabilities are generated and denominated in non-U.S. dollar currencies. Since our consolidated financial statements are presented in U.S. dollars, we must translate revenues, income and expenses, as well as assets and liabilities, into U.S. dollars at exchange rates in effect during or at the end of each reporting period. Accordingly, increases or decreases in the value of the U.S. dollar against the other currencies will affect our net operating revenues, operating expenses, operating income and the value of balance sheet items denominated in foreign currencies.

During the year ended December 31, 2022, approximately 14.5% of our revenue and 26.1% of our expenses were denominated in currencies other than the U.S. dollar, most notably the British Pound Sterling. Based on actual results over the past year, a hypothetical 10% increase or decrease in the U.S. dollar against all other currencies would have increased or decreased revenue by approximately \$10.5 million and operating expenses by approximately \$10.2 million.

Credit Risk

Through certain of our subsidiaries, we execute bond transactions between our institutional investor and broker-dealer clients on a matched principal basis by serving as counterparty to both the buyer and the seller in trades. Our U.S. broker-dealer subsidiary operates a self-clearing model for the settlement of such transactions. Our subsidiaries also settle their transactions through third-party clearing brokers or settlement agents. Settlement typically occurs within one to two trading days after the trade date. Cash settlement of the transaction occurs upon receipt or delivery of the underlying instrument that was traded.

We are exposed to credit and performance risks in our role as matched principal trading counterparty to our clients executing bond trades on our platform, including the risk that counterparties that owe us money or securities will not perform their obligations. These parties may default on their obligations to us due to bankruptcy, lack of liquidity, operational failure or other reasons. Adverse movements in the prices of securities that are the subject of these transactions can increase our risk. In connection with Open Trading or other anonymous protocols, we expect that the number of transactions in which we act as a matched principal will increase.

We have policies, procedures and automated controls in place to identify and manage our credit risk. There can be no assurance that these policies, procedures and automated controls will effectively mitigate our credit risk exposure. Some of our risk management procedures are reliant upon the evaluation of information regarding the fixed-income markets, our clients or other relevant matters that are publicly available or otherwise acquired from third party sources. Such information may not be accurate, complete, up-to-date or properly assessed and interpreted by us. If our risk management procedures fail, our business, financial condition and results of operations may be adversely affected. Furthermore, our insurance policies are unlikely to provide coverage for such risks.

Cash and cash equivalents include cash and money market instruments that are primarily maintained at three major global banks. Given this concentration, we are exposed to certain credit risk in relation to our deposits at these banks.

Derivative Risk

Our limited derivative risk stems from our activities in the foreign currency forward contract market. We use this market to economically hedge our foreign exchange gains and losses on the Consolidated Statements of Operations that arise from our U.S. dollar versus British Pound Sterling exposure from the activities of our U.K. subsidiaries. As of December 31, 2022, the fair value of the notional amount of our foreign currency forward contract was \$60.5 million. We do not hold derivative instruments for purposes other than economically hedging foreign currency risk.

Item 8. *Financial Statements and Supplementary Data.*

MARKETAXESS HOLDINGS INC.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Management’s Report on Internal Control Over Financial Reporting	58
Audited Consolidated Financial Statements	
Report of Independent Registered Public Accounting Firm.....	59
Consolidated Statements of Financial Condition — As of December 31, 2022 and 2021.....	61
Consolidated Statements of Operations — For the years ended December 31, 2022, 2021 and 2020	62
Consolidated Statements of Comprehensive Income — For the years ended December 31, 2022, 2021 and 2020.....	63
Consolidated Statements of Changes in Stockholders’ Equity — For the years ended December 31, 2022, 2021 and 2020	64
Consolidated Statements of Cash Flows — For the years ended December 31, 2022, 2021 and 2020	65
Notes to Consolidated Financial Statements.....	66

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Management of MarketAxess Holdings Inc. is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934. The Company's internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles. The Company's internal control over financial reporting includes those policies and procedures that:

- (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- (ii) 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
- (iii) 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.

Management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2022. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control — Integrated Framework (2013)*.

Based on its assessment and those criteria, management concluded that the Company maintained effective internal control over financial reporting as of December 31, 2022.

The effectiveness of the Company's internal control over financial reporting as of December 31, 2022 has been audited by PricewaterhouseCoopers LLP (PCAOB ID 238), an independent registered public accounting firm, as stated in their report which appears herein.

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of MarketAxess Holdings Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated statements of financial condition of MarketAxess Holdings Inc. and its subsidiaries (the “Company”) as of December 31, 2022 and 2021, and the related consolidated statements of operations, of comprehensive income, of changes in stockholders’ equity and of cash flows for each of the three years in the period ended December 31, 2022, including the related notes (collectively referred to as the “consolidated financial statements”). We also have audited 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 (COSO).

In our opinion, the consolidated financial statements referred to above 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 three years in the period ended December 31, 2022 in conformity with accounting principles generally accepted in the United States of America. Also 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 COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, 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 Report on Internal Control Over Financial Reporting. Our responsibility is to express opinions on the Company’s consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (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 audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements 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. 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 audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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 (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) 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 (iii) 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.

Critical Audit Matters

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 (i) relates to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters 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.

Revenue Recognition - Open Trading Commissions

As described in Note 2 to the consolidated financial statements, the Company executes trades between and among institutional investor and broker-dealer clients on a matched principal basis by serving as counterparty to both the buyer and the seller (“Open Trading”). Open Trading variable transaction fees, which represent commissions for matched principal trades, were \$175.4 million for the year ended December 31, 2022. Variable transaction fees are generally calculated as a percentage of the notional dollar volume of bonds traded on the platform and vary based on the type, size, yield, maturity of the bond traded, and individual client incentives. For Open Trading trades, the Company earns its commission through the difference in price between the two trades. As disclosed by management, commissions are determined based on the fee schedule associated with the instrument being traded.

The principal considerations for our determination that performing procedures relating to revenue recognition for Open Trading commissions is a critical audit matter are the significant audit effort in performing procedures and evaluating evidence related to this revenue type, which is calculated based on the instrument being traded, volume of the instrument being traded, and individual client incentives.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the completeness and accuracy of Open Trading commission. These procedures also included, among others, testing a sample of Open Trading transactions by (i) agreeing the details of the trade to underlying documentation, (ii) agreeing fees charged to the fee schedule based on the trade details, and as applicable, any individual client incentives, and (iii) recalculating the Open Trading commission variable transaction fee.

/s/ PricewaterhouseCoopers LLP

New York, New York

February 22, 2023

We have served as the Company’s auditor since 2000.

MARKETAXESS HOLDINGS INC.
CONSOLIDATED STATEMENTS OF FINANCIAL CONDITION

	As of	
	December 31, 2022	December 31, 2021
	(In thousands, except share and per share amounts)	
ASSETS		
Cash and cash equivalents	\$ 430,746	\$ 506,735
Cash segregated under federal regulations	50,947	50,159
Investments, at fair value	83,792	36,078
Accounts receivable, net of allowance of \$590 and \$140 as of December 31, 2022 and 2021, respectively	78,450	63,881
Receivables from broker-dealers, clearing organizations and customers	476,335	408,346
Goodwill	154,789	154,789
Intangible assets, net of accumulated amortization	98,065	116,377
Furniture, equipment, leasehold improvements and capitalized software, net of accumulated depreciation and amortization	100,256	96,061
Operating lease right-of-use assets	66,106	70,960
Prepaid expenses and other assets	68,289	27,066
Total assets	\$ 1,607,775	\$ 1,530,452
LIABILITIES AND STOCKHOLDERS' EQUITY		
Liabilities		
Accrued employee compensation	\$ 56,302	\$ 59,719
Payables to broker-dealers, clearing organizations and customers	303,993	229,325
Income and other tax liabilities	28,448	40,456
Accounts payable, accrued expenses and other liabilities	55,263	71,218
Operating lease liabilities	82,676	88,425
Total liabilities	526,682	489,143
Commitments and Contingencies (Note 15)		
Stockholders' equity		
Preferred stock, \$0.001 par value, 4,855,000 shares authorized, no shares issued and outstanding as of December 31, 2022 and 2021	—	—
Series A Preferred Stock, \$0.001 par value, 110,000 shares authorized, no shares issued and outstanding as of December 31, 2022 and 2021	—	—
Common stock voting, \$0.003 par value, 110,000,000 shares authorized, 40,918,660 shares and 40,911,506 shares issued and 37,648,148 shares and 37,918,956 shares outstanding as of December 31, 2022 and 2021, respectively	123	123
Common stock non-voting, \$0.003 par value, 10,000,000 shares authorized, no shares issued and outstanding as of December 31, 2022 and 2021	—	—
Additional paid-in capital	345,468	330,262
Treasury stock - Common stock voting, at cost, 3,270,512 shares and 2,992,550 shares as of December 31, 2022 and 2021, respectively	(328,326)	(232,712)
Retained earnings	1,101,525	956,966
Accumulated other comprehensive loss	(37,697)	(13,330)
Total stockholders' equity	1,081,093	1,041,309
Total liabilities and stockholders' equity	\$ 1,607,775	\$ 1,530,452

The accompanying notes are an integral part of these consolidated financial statements.

MARKETAXESS HOLDINGS INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

	Year Ended December 31,		
	2022	2021	2020
	(In thousands, except per share amounts)		
Revenues			
Commissions	\$ 641,183	\$ 621,008	\$ 634,445
Information services	39,314	38,175	34,341
Post-trade services	36,877	38,922	19,460
Other	926	846	879
Total revenues	<u>718,300</u>	<u>698,951</u>	<u>689,125</u>
Expenses			
Employee compensation and benefits	182,104	170,916	156,885
Depreciation and amortization	61,446	53,447	35,996
Technology and communications	52,964	42,474	34,092
Professional and consulting fees	33,949	41,925	32,304
Occupancy	14,121	13,320	13,425
Marketing and advertising	9,977	9,059	7,940
Clearing costs	17,663	16,074	21,058
General and administrative	19,200	14,501	12,697
Total expenses	<u>391,424</u>	<u>361,716</u>	<u>314,397</u>
Operating income	<u>326,876</u>	<u>337,235</u>	<u>374,728</u>
Other income (expense)			
Interest income	5,040	401	2,446
Interest expense	(700)	(842)	(1,142)
Equity in earnings of unconsolidated affiliate	1,126	—	—
Other, net	5,946	(2,871)	(1,673)
Total other income (expense)	<u>11,412</u>	<u>(3,312)</u>	<u>(369)</u>
Income before income taxes	<u>338,288</u>	<u>333,923</u>	<u>374,359</u>
Provision for income taxes	88,064	76,035	74,982
Net income	<u>\$ 250,224</u>	<u>\$ 257,888</u>	<u>\$ 299,377</u>
Net income per common share			
Basic	\$ 6.68	\$ 6.88	\$ 8.01
Diluted	\$ 6.65	\$ 6.77	\$ 7.85
Cash dividends declared per common share	<u>\$ 2.80</u>	<u>\$ 2.64</u>	<u>\$ 2.40</u>
Weighted average shares outstanding			
Basic	37,468	37,508	37,359
Diluted	37,643	38,097	38,144

The accompanying notes are an integral part of these consolidated financial statements.

MARKETAXESS HOLDINGS INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	Year Ended December 31,		
	2022	2021	2020
	(In thousands)		
Net income	\$ 250,224	\$ 257,888	\$ 299,377
Net cumulative translation adjustment and foreign currency exchange hedge, net of tax of \$0, \$(721), and \$(1,468), respectively	(24,367)	(8,680)	6,164
Net unrealized gain (loss) on securities available-for-sale, net of tax of \$0, \$0 and \$(172), respectively	—	—	(544)
Comprehensive income	<u>\$ 225,857</u>	<u>\$ 249,208</u>	<u>\$ 304,997</u>

The accompanying notes are an integral part of these consolidated financial statements.

MARKETAXESS HOLDINGS INC.
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY

	<u>Common Stock Voting</u>	<u>Additional Paid-In Capital</u>	<u>Treasury Stock - Common Stock Voting</u>	<u>Retained Earnings</u>	<u>Accumulated Other Comprehensive Loss</u>	<u>Total Stockholders' Equity</u>
	(In thousands, except per share amounts)					
Balance at December 31, 2019	\$ 122	\$ 342,541	\$ (153,388)	\$ 591,086	\$ (10,270)	\$ 770,091
Net income	—	—	—	299,377	—	299,377
Cumulative translation adjustment and foreign currency exchange hedge, net of tax	—	—	—	—	6,164	6,164
Unrealized net (loss) on securities available-for-sale, net of tax	—	—	—	—	(544)	(544)
Stock-based compensation	—	25,613	—	—	—	25,613
Exercise of stock options	1	4,006	—	—	—	4,007
Withholding tax payments on restricted stock vesting and stock option exercises	—	(42,418)	—	—	—	(42,418)
Repurchases of common stock	—	—	(16,135)	—	—	(16,135)
Cash dividend on common stock (\$2.40 per share)	—	—	—	(91,094)	—	(91,094)
Balance at December 31, 2020	123	329,742	(169,523)	799,369	(4,650)	955,061
Net income	—	—	—	257,888	—	257,888
Cumulative translation adjustment and foreign currency exchange hedge, net of tax	—	—	—	—	(8,680)	(8,680)
Stock-based compensation	—	27,314	—	—	—	27,314
Exercise of stock options	—	7,096	—	—	—	7,096
Withholding tax payments on restricted stock vesting and stock option exercises	—	(33,890)	—	—	—	(33,890)
Repurchases of common stock	—	—	(63,189)	—	—	(63,189)
Cash dividend on common stock (\$2.64 per share)	—	—	—	(100,291)	—	(100,291)
Balance at December 31, 2021	123	330,262	(232,712)	956,966	(13,330)	1,041,309
Net income	—	—	—	250,224	—	250,224
Cumulative translation adjustment	—	—	—	—	(24,367)	(24,367)
Stock-based compensation	—	29,864	—	—	—	29,864
Exercise of stock options	—	672	—	—	—	672
Withholding tax payments on restricted stock vesting and stock option exercises	—	(23,404)	—	—	—	(23,404)
Repurchases of common stock	—	—	(87,540)	—	—	(87,540)
Treasury stock reclassification	—	8,074	(8,074)	—	—	—
Cash dividend on common stock (\$2.80 per share)	—	—	—	(105,665)	—	(105,665)
Balance at December 31, 2022	<u>\$ 123</u>	<u>\$ 345,468</u>	<u>\$ (328,326)</u>	<u>\$ 1,101,525</u>	<u>\$ (37,697)</u>	<u>\$ 1,081,093</u>

The accompanying notes are an integral part of these consolidated financial statements.

MARKETAXESS HOLDINGS INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31,		
	2022	2021	2020
	(In thousands)		
Cash flows from operating activities			
Net income	\$ 250,224	\$ 257,888	\$ 299,377
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	61,446	53,447	35,996
Amortization of operating lease right-of-use assets	5,708	6,799	6,842
Stock-based compensation expense	29,864	27,314	25,613
Deferred taxes	(6,547)	3,118	10,099
Foreign currency transaction gains	(8,783)	—	—
Other	555	(466)	(550)
Changes in operating assets and liabilities:			
(Increase) decrease in accounts receivable	(15,136)	15,598	(18,015)
(Increase) in receivables from broker-dealers, clearing organizations and customers	(47,631)	(156,909)	(182,871)
(Increase) decrease in prepaid expenses and other assets	(4,249)	2,214	(1,977)
(Increase) decrease in trading investments	(49,527)	(5,574)	67,952
Decrease (increase) in mutual funds held in rabbi trust	1,813	(2,306)	(2,671)
(Decrease) increase in accrued employee compensation	(3,417)	(2,607)	14,961
Increase in payables to broker-dealers, clearing organizations and customers	74,668	95,999	133,326
(Decrease) increase in income and other tax liabilities	(4,768)	(5,638)	16,189
Increase in accounts payable, accrued expenses and other liabilities	11,384	215	6,006
(Decrease) in operating lease liabilities	(6,373)	(7,001)	(5,788)
Net cash provided by operating activities	289,231	282,091	404,489
Cash flows from investing activities			
Acquisitions, net of cash and cash equivalents acquired	—	(17,078)	(23,297)
Acquisition of equity method investment	(34,400)	—	—
Available-for-sale investments			
Proceeds from maturities and sales	—	—	170,657
Purchases	—	—	(32,865)
Purchases of furniture, equipment and leasehold improvements	(13,142)	(17,493)	(15,010)
Capitalization of software development costs	(38,730)	(33,123)	(30,618)
Net cash (used in) provided by investing activities	(86,272)	(67,694)	68,867
Cash flows from financing activities			
Cash dividend on common stock	(105,942)	(99,792)	(90,566)
Exercise of stock options	672	7,096	4,007
Withholding tax payments on restricted stock vesting and stock option exercises	(23,404)	(33,890)	(42,418)
Repurchases of common stock	(87,540)	(63,189)	(16,135)
Payment of contingent consideration	(26,164)	—	—
Proceeds from short-term borrowings	100,000	70,348	578,356
Repayments of short-term borrowings	(100,000)	(70,348)	(578,356)
Net cash (used in) financing activities	(242,378)	(189,775)	(145,112)
Effect of exchange rate changes on cash and cash equivalents	(13,484)	(7,105)	5,553
Cash and cash equivalents including restricted cash			
Net (decrease) increase for the period	(52,903)	17,517	333,797
Beginning of period	625,567	608,050	274,253
End of period	\$ 572,664	\$ 625,567	\$ 608,050
Supplemental cash flow information:			
Cash paid for income taxes	\$ 88,677	\$ 70,003	\$ 45,046
Cash paid for interest	652	830	1,142
Non-cash investing and financing activity:			
Exercise of stock options - cashless	\$ 3,845	\$ 2,750	\$ 10,866
Right-of-use assets obtained in exchange for operating lease liabilities	1,880	1,972	727
Contingent consideration payable recognized in connection with acquisitions	—	27,947	14,665

The accompanying notes are an integral part of these consolidated financial statements.

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Organization and Principal Business Activity

MarketAxess Holdings Inc. (the “Company” or “MarketAxess”) was incorporated in the State of Delaware on April 11, 2000. Through its subsidiaries, MarketAxess operates leading electronic trading platforms delivering expanded liquidity opportunities, improved execution quality and significant cost savings across global fixed-income markets. Over 2,000 institutional investor and broker-dealer firms are active users of MarketAxess’ patented trading technology, accessing global liquidity on its platforms in U.S. investment-grade bonds, U.S. high-yield bonds, emerging market debt, Eurobonds, municipal bonds, U.S. government bonds and other fixed-income securities. Through its Open Trading[®] protocols, MarketAxess executes bond trades between and among institutional investor and broker-dealer clients in the leading all-to-all anonymous trading environment for corporate bonds. MarketAxess also offers a number of trading-related products and services, including: Composite+[™] pricing and other market data products to assist clients with trading decisions; auto-execution and other execution services for clients requiring specialized workflow solutions; connectivity solutions that facilitate straight-through processing; and technology services to optimize trading environments. The Company also provides a range of pre- and post-trade services, including trade matching, trade publication, regulatory transaction reporting and market and reference data across a range of fixed-income and other products.

2. Significant Accounting Policies

Basis of Presentation

The consolidated financial statements include the accounts of the Company and its subsidiaries. All intercompany transactions and balances have been eliminated. Certain reclassifications have been made to the prior periods’ consolidated financial statements in order to conform to the current period presentation. Such reclassifications are immaterial, individually and in the aggregate, to both current and all previously issued financial statements taken as a whole and have no effect on previously reported net income.

Cash and Cash Equivalents

The Company defines cash equivalents as short-term interest-bearing investments with maturities at the time of purchase of three months or less.

Investments

The Company determines the appropriate classification of securities at the time of purchase which are recorded in the Consolidated Statements of Financial Condition on the trade date. Securities are classified as available-for-sale or trading. Available-for-sale investments are carried at fair value with the unrealized gains or losses reported in accumulated other comprehensive loss in the Consolidated Statements of Financial Condition. Trading investments include U.S. Treasuries and are carried at fair value, with realized and unrealized gains or losses included in other, net in the Consolidated Statements of Operations.

Fair Value Financial Instruments

Fair value is defined as “the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.” A three-tiered hierarchy for determining fair value has been established that prioritizes inputs to valuation techniques used in fair value calculations. The three levels of inputs are defined as Level 1 (unadjusted quoted prices for identical assets or liabilities in active markets), Level 2 (inputs that are observable in the marketplace other than those inputs classified in Level 1) and Level 3 (inputs that are unobservable in the marketplace). The Company’s financial assets and liabilities measured at fair value on a recurring basis consist of its money market funds, trading securities, foreign currency forward contracts and contingent consideration payables associated with acquisitions. All other financial instruments are short-term in nature and the carrying amounts reported on the Consolidated Statements of Financial Condition approximate fair value.

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Receivables from and Payables to Broker-dealers, Clearing Organizations and Customers

Receivables from broker-dealers, clearing organizations and customers include amounts receivable for securities not delivered by the Company to the purchaser by the settlement date (“securities failed-to-deliver”) and cash deposits held at clearing organizations and clearing brokers to facilitate the settlement and clearance of matched principal transactions. Payables to broker-dealers, clearing organizations and customers include amounts payable for securities not received by the Company from a seller by the settlement date (“securities failed-to-receive”). Securities failed-to-deliver and securities failed-to-receive for transactions executed on a matched principal basis where the Company serves as a counterparty to both the buyer and the seller are recorded on a settlement date basis. The Company presents its securities failed-to-deliver and securities failed-to-receive balances on a net-by-counterparty basis within receivables from and payables to broker-dealers, clearing organizations and customers. The difference between the Company’s trade-date receivables and payables for unsettled matched principal transactions reflects commissions earned and is recorded within accounts receivable, net on a trade date basis.

Allowance for Credit Losses

All accounts receivable have contractual maturities of less than one year and are derived from trading-related fees and commissions and revenues from products and services. The Company continually monitors collections and payments from its customers and maintains an allowance for doubtful accounts. The allowance for credit losses is based on an estimate of the amount of potential credit losses in existing accounts receivable, as determined from a review of aging schedules, past due balances, historical collection experience and other specific collection issues that have been identified. Account balances are grouped for evaluation based on various risk characteristics, including billing type, legal entity, and geographic region. Additions to the allowance for credit losses are charged to bad debt expense, which is included in general and administrative expense in the Company’s Consolidated Statements of Operations. Balances that are determined to be uncollectable are written off against the allowance for credit losses.

The allowance for credit losses was \$0.6 million and \$0.1 million as of December 31, 2022 and 2021, respectively. The provision for bad debts was \$0.6 million, \$0.2 million and \$0.5 million for the years ended December 31, 2022, 2021 and 2020, respectively. Write-offs and other charges against the allowance for credit losses were \$0.1 million for each of the years ended December 31, 2022, 2021 and 2020.

Depreciation and Amortization

Fixed assets are carried at cost less accumulated depreciation. The Company uses the straight-line method of depreciation over three to seven years. The Company amortizes leasehold improvements on a straight-line basis over the lesser of the life of the improvement or the remaining term of the lease.

Software Development Costs

The Company capitalizes certain costs associated with the development of internal use software, including, among other items, employee compensation and related benefits and third-party consulting costs at the point at which the conceptual formulation, design and testing of possible software project alternatives have been completed. Once the product is ready for its intended use, such costs are amortized on a straight-line basis over three years. The Company reviews the amounts capitalized for impairment whenever events or changes in circumstances indicate that the carrying amounts of the assets may not be recoverable.

Cloud Computing Costs

The Company capitalizes certain costs associated with cloud computing arrangements, including, among other items, vendor software development costs billed to us that are part of the application development stage. These costs are recorded as a prepaid asset on the balance sheet and are amortized over the period of the hosting service contract, which ranges from one to five years. The Company reviews the amounts capitalized for impairment whenever events or changes in circumstances indicate that the carrying amounts of the assets may not be recoverable.

Foreign Currency Translation and Forward Contracts

Assets and liabilities denominated in foreign currencies are translated using exchange rates at the end of the period; revenues and expenses are translated at average monthly rates. Gains and losses on foreign currency translation are a component of accumulated other comprehensive loss in the Consolidated Statements of Financial Condition. Transaction gains and losses are recorded in other, net in the Consolidated Statements of Operations.

The Company enters into foreign currency forward contracts to economically hedge its foreign currency transaction gains and losses. Realized and unrealized gains and losses on these forward contracts are included in other, net in the Consolidated Statements of

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Operations. The Company records the fair value of the forward contract asset in prepaid expenses and other assets or the fair value of the forward contract liability in accounts payable, accrued expenses and other liabilities in the Consolidated Statements of Financial Condition.

Revenue Recognition

The Company's classification of revenues in the Consolidated Statements of Operations represents revenues from contracts with customers disaggregated by type of revenue. The Company has four revenue streams as described below.

Commission Revenue – The Company charges its broker-dealer clients variable transaction fees for trades executed on its platforms and, under certain plans, distribution fees or monthly minimum fees to use the platforms for a particular product area. Variable transaction fees are recognized on a trade date basis, are generally calculated as a percentage of the notional dollar volume of bonds traded on the platforms and vary based on the type, size, yield and maturity of the bond traded, as well as individual client incentives. Bonds that are more actively traded or that have shorter maturities generally generate lower commissions, while bonds that are less actively traded or that have longer maturities generally command higher commissions. Under the Company's disclosed trading transaction fee plans, variable transaction fees, distribution fees and unused monthly fee commitments are invoiced and recorded on a monthly basis.

For Open Trading trades that the Company executes between and among institutional investor and broker-dealer clients on a matched principal basis by serving as counterparty to both the buyer and the seller, the Company earns its commission through the difference in price between the two trades. The commission is collected upon settlement of the trade, which typically occurs within one to two trading days after the trade date. For the majority of the Company's U.S. Treasury matched principal trades, commissions are invoiced and recorded on a monthly basis. The following table presents commission revenue by fee type:

	Year Ended December 31,		
	2022	2021	2020
	(In thousands)		
Commission revenue by fee type			
Variable transaction fees			
Disclosed trading	\$ 321,603	\$ 333,712	\$ 343,427
Open Trading - matched principal trading	175,440	155,465	170,537
U.S. government bonds - matched principal trading	16,978	12,400	12,372
Total variable transaction fees	514,021	501,577	526,337
Distribution fees and unused minimum fees	127,162	119,431	108,108
Total commissions	\$ 641,183	\$ 621,008	\$ 634,445

Information services – Information services includes data licensed to the Company's broker-dealer clients, institutional investor clients and data-only subscribers; professional and consulting services; technology software licenses; and maintenance and support services. The nature and timing of each performance obligation may vary as these contracts are either subscription-based services transferred over time, and may be net of volume-based discounts, or one-time services that are transferred at a point in time. Revenues for services transferred over time are recognized ratably over the contract period as the Company's performance obligation is met whereas revenues for services transferred at a point in time are recognized in the period the services are provided. Customers are generally billed monthly, quarterly, or annually; revenues billed in advance are deferred and recognized ratably over the contract period. The following table presents information services revenue by timing of recognition:

	Year Ended December 31,		
	2022	2021	2020
	(In thousands)		
Information services revenue by timing of recognition			
Services transferred over time	\$ 38,452	\$ 37,341	\$ 32,425
Services transferred at a point in time	862	834	1,916
Total information services revenues	\$ 39,314	\$ 38,175	\$ 34,341

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Post-trade services – Post-trade services revenue is generated from regulatory transaction reporting, trade publication and trade matching services. Customers are generally billed monthly in arrears and revenue is recognized in the period transactions are processed. Revenues billed in advance are deferred and recognized ratably over the contract period. The Company also generates one-time implementation fees for onboarding clients which are invoiced and recognized in the period the implementation is completed. The following table presents post-trade services revenue by timing of recognition:

	Year Ended December 31,		
	2022	2021	2020
	(In thousands)		
Post-trade services revenue by timing of recognition			
Services transferred over time	\$ 36,835	\$ 38,850	\$ 19,158
Services transferred at a point in time	42	72	302
Total post-trade services revenues	\$ 36,877	\$ 38,922	\$ 19,460

Other revenues – Other revenues primarily includes revenue from telecommunications line charges to broker-dealer clients.

Contract liabilities consist of deferred revenues that the Company records when cash payments are received or due in advance of services to be performed. The revenue recognized from contract liabilities and the remaining balance is shown below:

	December 31, 2021	Payments received in advance of services to be performed	Revenue recognized for services performed during the period (In thousands)	Foreign Currency Translation	December 31, 2022
Information services	\$ 3,528	\$ 10,821	\$ (11,228)	\$ —	\$ 3,121
Post-trade services	720	16,099	(15,876)	(74)	869
Total deferred revenue	<u>\$ 4,248</u>	<u>\$ 26,920</u>	<u>\$ (27,104)</u>	<u>\$ (74)</u>	<u>\$ 3,990</u>

The majority of the Company's contracts are short-term in nature with durations of less than one year. For contracts with original durations extending beyond one year, the aggregate amount of the transaction price allocated to remaining performance obligations was \$51.7 million as of December 31, 2022. The Company expects to recognize revenue associated with the remaining performance obligations over the next 55 months.

Stock-Based Compensation

The Company measures and recognizes compensation expense for all share-based payment awards based on their estimated fair values measured as of the grant date. These costs are recognized as an expense in the Consolidated Statements of Operations over the requisite service period, which is typically the vesting period, with an offsetting increase to additional paid-in capital. Forfeitures are recognized as they occur.

Income Taxes

Income taxes are accounted for using the asset and liability method. Deferred income taxes reflect the net tax effects of temporary differences between the financial reporting and tax bases of assets and liabilities and are measured using the enacted tax rates and laws that will be in effect when such differences are expected to reverse. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. A valuation allowance is recognized against deferred tax assets if it is more likely than not that such assets will not be realized in future years. Tax benefits for uncertain tax positions are recognized when it is more likely than not that the positions will be sustained upon examination based on their technical merits. The Company recognizes interest and penalties related to unrecognized tax benefits in the provision for income taxes in the Consolidated Statements of Operations. All tax effects related to share-based payments are recorded in the provision for income taxes in the periods during which the awards are exercised or vest.

Business Combinations, Goodwill and Intangible Assets

Business combinations are accounted for under the purchase method of accounting. The total cost of an acquisition is allocated to the underlying net assets based on their respective estimated fair values. The excess of the purchase price over the estimated fair values

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

of the net assets acquired is recorded as goodwill. Determining the fair value of certain assets acquired and liabilities assumed requires judgment and often involves the use of significant estimates and assumptions, including assumptions with respect to future cash flows, discount rates, growth rates, customer attrition rates and asset lives.

The Company operates as a single reporting unit. Following an acquisition, goodwill no longer retains its identification with a particular acquisition, but instead becomes identifiable with the entire reporting unit. As a result, all of the fair value of the Company is available to support the value of goodwill. An impairment review of goodwill is performed on an annual basis, at year-end, or more frequently if circumstances change. Intangible assets with definite lives, including purchased technologies, customer relationships and other intangible assets, are amortized over their estimated useful lives which range from one to 15 years using either a straight-line or accelerated amortization method based on the pattern of economic benefit the Company expects to realize from such assets. Intangible assets are assessed for impairment when events or circumstances indicate the existence of a possible impairment.

Equity Investments and Consolidation

The Company evaluates equity investments for potential consolidation under the voting-interest or variable-interest models. The Company consolidates investees over which the Company determines it has control under the voting interest model, generally greater than 50% ownership, or for which the Company is the primary beneficiary under the variable-interest model. The Company uses the equity method of accounting when it exercises significant influence over the investee, but does not have operating control, generally between 20% and 50% ownership. Under the equity method of accounting, original investments are recorded at cost in prepaid expenses and other assets on the Consolidated Statements of Financial Condition and adjusted by the Company's proportionate share of the investees' undistributed earnings or losses. Equity investments are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the investment may not be recoverable.

Earnings Per Share

Basic earnings per share is computed by dividing the net income attributable to common stock by the weighted-average number of shares of common stock outstanding during the period. For purposes of computing diluted earnings per share, the weighted-average shares outstanding of common stock reflects the dilutive effect that could occur if convertible securities or other contracts to issue common stock were converted into or exercised for common stock.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure 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 from those estimates.

3. Regulatory Capital Requirements

One of the Company's U.S. subsidiaries is registered as a broker-dealer and therefore is subject to the applicable rules and regulations of the SEC and the Financial Industry Regulatory Authority ("FINRA"). These rules contain minimum net capital requirements, as defined in the applicable regulations. Certain of the Company's foreign subsidiaries are regulated by the Financial Conduct Authority ("FCA") in the U.K. or other foreign regulators and must maintain financial resources, as defined in the applicable regulations, in excess of the applicable financial resources requirement. As of December 31, 2022, each of the Company's subsidiaries that are subject to these regulations had net capital or financial resources in excess of their minimum requirements. As of December 31, 2022, the Company's subsidiaries maintained aggregate net capital and financial resources that were \$518.2 million in excess of the required levels of \$27.1 million.

The Company's U.S. broker-dealer subsidiary is required to segregate funds in a special reserve bank account for the benefit of customers pursuant to Rule 15c3-3 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). As of December 31, 2022, the U.S. broker-dealer subsidiary had a balance of \$50.9 million in its special reserve bank account. This U.S. broker-dealer subsidiary also maintained net capital that was \$314.1 million in excess of the required level of \$3.7 million.

Each of the Company's U.S. and foreign regulated subsidiaries are subject to local regulations which generally limit, or require the prior notification to or approval from such regulated entity's principal regulator before, the repayment of borrowings from the Company or affiliates, paying cash dividends, making loans to the Company or affiliates or otherwise entering into transactions that result in a significant reduction in regulatory net capital or financial resources.

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

4. Fair Value Measurements

The following table summarizes the valuation of the Company's assets and liabilities measured at fair value as categorized based on the hierarchy described in Note 2:

	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>Total</u>
	<u>(In thousands)</u>			
<u>As of December 31, 2022</u>				
Assets				
Money market funds	\$ 59,173	\$ —	\$ —	\$ 59,173
Trading securities				
U.S. Treasuries	—	74,409	—	74,409
Mutual funds held in rabbi trust	—	9,383	—	9,383
Total assets	<u>\$ 59,173</u>	<u>\$ 83,792</u>	<u>\$ —</u>	<u>\$ 142,965</u>
Liabilities				
Contingent consideration payable	\$ —	\$ —	\$ 12,340	\$ 12,340
Foreign currency forward position	—	1,688	—	1,688
Total liabilities	<u>\$ —</u>	<u>\$ 1,688</u>	<u>\$ 12,340</u>	<u>\$ 14,028</u>
<u>As of December 31, 2021</u>				
Assets				
Money market funds	\$ 14,206	\$ —	\$ —	\$ 14,206
Trading securities				
U.S. Treasuries	—	24,883	—	24,883
Mutual funds held in rabbi trust	—	11,195	—	11,195
Total assets	<u>\$ 14,206</u>	<u>\$ 36,078</u>	<u>\$ —</u>	<u>\$ 50,284</u>
Liabilities				
Contingent consideration payable	\$ —	\$ —	\$ 41,090	\$ 41,090

Money market funds are included in cash and cash equivalents on the Consolidated Statements of Financial Condition. Securities classified within Level 2 were valued using a market approach utilizing prices and other relevant information generated by market transactions involving comparable assets. The foreign currency forward contracts are classified within Level 2 as the valuation inputs are based on quoted market prices. The mutual funds held in a rabbi trust represent investments associated with the Company's deferred cash incentive plan.

Liabilities classified within Level 3 reflect contingent consideration payable recognized in connection with acquisitions. Significant unobservable inputs used in the valuation of contingent consideration payable include estimates of client retention, electronic trading volume and variable fees over periods of 18 to 24 months from the acquisition dates. The following table summarizes the change in the Company's Level 3 liabilities for the year ended December 31, 2022:

	<u>December 31,</u>		<u>Unrealized</u>	<u>Realized</u>	<u>Foreign</u>	<u>December 31,</u>
	<u>2021</u>	<u>Payments</u>	<u>(Gain)/Loss</u>	<u>(Gain)/Loss</u>	<u>Currency</u>	<u>2022</u>
	(In thousands)					
Contingent consideration payable	<u>\$ 41,090</u>	<u>\$ (26,164)</u>	<u>\$ 532</u>	<u>\$ (1,769)</u>	<u>\$ (1,349)</u>	<u>\$ 12,340</u>

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

The table below presents the range and average significant unobservable inputs used in the valuation of the Company's Level 3 liabilities:

	<u>Valuation Technique</u>	<u>Unobservable Inputs</u>	<u>Range</u>	<u>Average</u>
			<u>(\$ in thousands)</u>	
<u>As of December 31, 2022</u>				
Contingent consideration payable	Discounted cash flows	Present value factor	0.99	0.99
		April 2022-March 2023 variable fee	\$3,556 - \$5,658	\$4,607
		Percentage of electronic trading volume	86.0% - 96.6%	91.3%
<u>As of December 31, 2021</u>				
Contingent consideration payable	Discounted cash flows	Present value factor	0.95 - 1	0.98
		Customer retention rate	84.0%	84.0%
		April 2021-March 2022 variable fee	\$2,703 - \$3,086	\$2,895
		Percentage of electronic trading volume	86.0% - 96.6%	91.3%

The table below presents the carrying value, fair value and fair value hierarchy category of the Company's financial assets and liabilities that are not measured at fair value on the Consolidated Statements of Financial Condition. The carrying values of the Company's financial assets and liabilities not measured at fair value categorized in the fair value hierarchy as Level 1 and Level 2 approximate fair value due to the short-term nature of the underlying assets and liabilities.

	<u>Carrying Value</u>	<u>Fair Value</u>	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>Total</u>
			<u>(In thousands)</u>			
<u>As of December 31, 2022</u>						
Financial assets not measured at fair value:						
Cash and cash equivalents	\$ 371,573	\$ 371,573	\$ 371,573	\$ —	\$ —	\$ 371,573
Cash segregated under federal regulations	50,947	50,947	50,947	—	—	50,947
Accounts receivable, net of allowance	78,450	78,450	—	78,450	—	78,450
Receivables from broker-dealers, clearing organizations and customers	476,335	476,335	88,923	387,412	—	476,335
Total	<u>\$ 977,305</u>	<u>\$ 977,305</u>	<u>\$ 511,443</u>	<u>\$ 465,862</u>	<u>\$ —</u>	<u>\$ 977,305</u>
Financial liabilities not measured at fair value:						
Payables to broker-dealers, clearing organizations and customers	<u>\$ 303,993</u>	<u>\$ 303,993</u>	<u>\$ —</u>	<u>\$ 303,993</u>	<u>\$ —</u>	<u>\$ 303,993</u>
<u>As of December 31, 2021</u>						
Financial assets not measured at fair value:						
Cash and cash equivalents	\$ 506,735	\$ 506,735	\$ 506,735	\$ —	\$ —	\$ 506,735
Cash segregated under federal regulations	50,159	50,159	50,159	—	—	50,159
Accounts receivable, net of allowance	63,881	63,881	—	63,881	—	63,881
Receivables from broker-dealers, clearing organizations and customers	408,346	408,346	68,565	339,781	—	408,346
Total	<u>\$ 1,029,121</u>	<u>\$ 1,029,121</u>	<u>\$ 625,459</u>	<u>\$ 403,662</u>	<u>\$ —</u>	<u>\$ 1,029,121</u>
Financial liabilities not measured at fair value:						
Payables to broker-dealers, clearing organizations and customers	<u>\$ 229,325</u>	<u>\$ 229,325</u>	<u>\$ —</u>	<u>\$ 229,325</u>	<u>\$ —</u>	<u>\$ 229,325</u>

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

During the years ended December 31, 2022 and 2021, there were no transfers between Level 1, Level 2 and Level 3 securities.

The Company enters into foreign currency forward contracts as an economic hedge against foreign currency transaction gains and losses in the Consolidated Statements of Operations. These forward contracts are for one-month periods and are used to limit exposure to foreign currency exchange rate fluctuations. The Company records the fair value of the asset in prepaid expenses and other assets or the fair value of the liability in accounts payable, accrued expenses and other liabilities in the Consolidated Statements of Financial Condition. The following table summarizes the Company's foreign currency forward position:

	As of December 31,	
	2022	2021
	(In thousands)	
Notional value	\$ 62,160	\$ —
Fair value of notional	60,472	—
Fair value of the liability	<u>\$ 1,688</u>	<u>\$ —</u>

Realized and unrealized gains and losses on foreign currency forward contracts are included in other, net in the Consolidated Statements of Operations. The Company recorded a realized gain of \$0.8 million and an unrealized loss of \$1.7 million, respectively, for the year ended December 31, 2022. The Company maintained a collateral deposit of \$1.9 million with its counterparty bank as of December 31, 2022, which is included within prepaid expenses and other assets on the Consolidated Statements of Financial Condition.

The following table summarizes the Company's investments:

	<u>Amortized cost</u>	<u>Gross unrealized gains</u>	<u>Gross unrealized losses</u>	<u>Fair value</u>
	(In thousands)			
<u>As of December 31, 2022</u>				
Trading securities				
U.S. Treasuries	\$ 74,943	\$ —	\$ (534)	\$ 74,409
Mutual funds held in rabbi trust	11,474	—	(2,091)	9,383
Total investments	<u>\$ 86,417</u>	<u>\$ —</u>	<u>\$ (2,625)</u>	<u>\$ 83,792</u>
<u>As of December 31, 2021</u>				
Trading securities				
U.S. Treasuries	\$ 24,994	\$ —	\$ (111)	\$ 24,883
Mutual funds held in rabbi trust	9,941	1,254	—	11,195
Total investments	<u>\$ 34,935</u>	<u>\$ 1,254</u>	<u>\$ (111)</u>	<u>\$ 36,078</u>

The following table summarizes the fair value of the investments based upon the contractual maturities:

	As of December 31,	
	2022	2021
	(In thousands)	
Less than one year	\$ 34,001	\$ 11,195
Due in 1 - 5 years	49,791	24,883
Total	<u>\$ 83,792</u>	<u>\$ 36,078</u>

There were no proceeds from the sales and maturities of investments during the year ended December 31, 2022. Proceeds from sales and maturities of investments during the years ended December 31, 2021 and 2020 were \$19.4 million and \$261.6 million, respectively. Net unrealized losses on trading securities were \$2.6 million, \$0.3 million, \$0.4 million for the years ended December 31, 2022, 2021 and 2020, respectively. The Company did not incur any realized gains or losses on trading securities for the year ended December 31, 2022. Net realized gains were \$0.1 million and \$1.7 million for the years ended December 31, 2021 and 2020, respectively.

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

5. Receivables from and Payables to Broker-dealers, Clearing Organizations and Customers

Receivables from and payables to broker-dealers, clearing organizations and customers consisted of the following:

	As of December 31,	
	2022	2021
	(In thousands)	
Receivables from broker-dealers, clearing organizations and customers:		
Securities failed-to-deliver - broker-dealers and clearing organizations	\$ 144,523	\$ 152,766
Securities failed-to-deliver - customers	235,056	182,052
Deposits with clearing organizations and broker-dealers	88,923	68,565
Other	7,833	4,963
Total	<u>\$ 476,335</u>	<u>\$ 408,346</u>
Payables to broker-dealers, clearing organizations and customers:		
Securities failed-to-receive - broker-dealers and clearing organizations	\$ 224,816	\$ 166,010
Securities failed-to-receive - customers	71,828	59,879
Other	7,349	3,436
Total	<u>\$ 303,993</u>	<u>\$ 229,325</u>

6. Acquisitions and Equity Investments

In May 2022, the Company invested \$34.4 million to acquire a minority ownership stake in RFQ-hub Holdings LLC, an entity formed with a consortium of market participants to support the growth of RFQ-hub, a bilateral multi-asset request for quote platform. The Company possesses significant influence over RFQ-hub Holdings LLC and is accounting for its investment under the equity method of accounting. As of December 31, 2022, the Company's investment is recorded at carrying value of \$35.5 million within prepaid expenses and other assets on the Consolidated Statements of Financial Condition. The Company's proportionate share of RFQ-hub Holdings LLC's net earnings was \$1.1 million for the year ended December 31, 2022, and is recorded within equity in earnings of unconsolidated affiliate on the Consolidated Statements of Operations.

On April 9, 2021, the Company acquired MuniBrokers LLC ("MuniBrokers"), a central electronic venue serving municipal bond brokers and dealers. The purchase price consisted of \$17.1 million in cash paid at closing and up to \$25.0 million of contingent consideration payable within approximately two years of the acquisition date. The Company accounted for the transaction as a business combination and utilized an independent third-party to assist in determining the fair value of the acquired intangible assets. The accounting purchase price was \$39.6 million, comprised of \$17.1 million of cash and \$22.5 million of contingent consideration payable, which was included within accounts payable, accrued expenses, and other liabilities on the Consolidated Statements of Financial Condition. The Company recorded \$32.0 million of amortizable intangible assets and \$7.4 million of goodwill as of the acquisition date. The acquired intangible assets consist of customer relationships and technology and have useful lives ranging from 1 to 15 years. In 2022, the Company recognized a decrease of \$1.6 million to the contingent consideration payable due to the finalization of the first earn-out period consideration, which was recorded as a gain in other, net on the Consolidated Statements of Operations. In May 2022, the Company made a payment of \$8.3 million to settle the first earn-out period consideration. As of December 31, 2022, the remaining outstanding contingent consideration payable was \$12.3 million.

On November 30, 2020, the Company acquired Regulatory Services GmbH, the pan-European regulatory reporting business of Deutsche Börse Group ("Regulatory Reporting Hub"). The purchase price consisted of \$22.5 million in cash paid at closing and up to \$24.6 million in contingent consideration payable in cash within 18 months of the closing. The Company accounted for the transaction as a purchase of assets and recorded \$37.4 million in amortizable intangible assets as of the acquisition date. In April 2022, the Company made a final payment of \$17.9 million to settle the contingent consideration payable.

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

7. Goodwill and Intangible Assets

Goodwill and intangible assets with indefinite lives were \$154.8 million as of each of December 31, 2022 and 2021, respectively. Intangible assets that are subject to amortization, including the related accumulated amortization, are comprised of the following:

	December 31, 2022			December 31, 2021		
	Cost	Accumulated amortization	Net carrying amount	Cost	Accumulated amortization	Net carrying amount
	(In thousands)					
Customer relationships	\$ 129,991	\$ (34,310)	\$ 95,681	\$ 132,197	\$ (19,813)	\$ 112,384
Technology and other intangibles	11,430	(9,046)	2,384	11,430	(7,437)	3,993
Total	<u>\$ 141,421</u>	<u>\$ (43,356)</u>	<u>\$ 98,065</u>	<u>\$ 143,627</u>	<u>\$ (27,250)</u>	<u>\$ 116,377</u>

Amortization expense associated with identifiable intangible assets was \$16.4 million, \$13.4 million and \$3.9 million for the years ended December 31, 2022, 2021 and 2020, respectively. Annual estimated total amortization expense is \$17.3 million, \$14.9 million, \$12.0 million, \$10.3 million and \$9.0 million for the years ended December 31, 2023 through 2027, respectively.

8. Capitalized Software, Furniture, Equipment and Leasehold Improvements

Capitalized software development costs, furniture, equipment and leasehold improvements, net of accumulated depreciation and amortization, are comprised of the following:

	As of December 31,	
	2022	2021
	(In thousands)	
Software development costs	\$ 218,848	\$ 183,998
Computer hardware and related software	37,614	45,986
Office hardware	8,455	8,866
Furniture and fixtures	6,952	7,120
Leasehold improvements	30,660	31,021
	<u>302,529</u>	<u>276,991</u>
Accumulated depreciation and amortization	(202,273)	(180,930)
Total	<u>\$ 100,256</u>	<u>\$ 96,061</u>

During the years ended December 31, 2022 and 2021, software development costs totaling \$38.7 million and \$33.1 million, respectively, were capitalized. Non-capitalized software costs and routine maintenance costs are expensed as incurred and are included in employee compensation and benefits and professional and consulting fees in the Consolidated Statements of Operations.

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

9. Income Taxes

The provision for income taxes consists of the following:

	Year Ended December 31,		
	2022	2021	2020
	(In thousands)		
Current:			
Federal	\$ 52,865	\$ 36,661	\$ 30,215
State and local	20,716	17,238	19,130
Foreign	21,030	19,018	15,538
Total current provision	94,611	72,917	64,883
Deferred:			
Federal	(5,830)	2,249	7,474
State and local	(1,350)	778	1,439
Foreign	633	91	1,186
Total deferred provision	(6,547)	3,118	10,099
Provision for income taxes	\$ 88,064	\$ 76,035	\$ 74,982

Pre-tax income from U.S. operations was \$236.4 million, \$234.6 million and \$288.3 million for the years ended December 31, 2022, 2021 and 2020, respectively. Pre-tax income from foreign operations was \$101.9 million, \$99.3 million and \$86.1 million for the years ended December 31, 2022, 2021 and 2020, respectively.

The difference between the U.S. federal statutory tax rate of 21% and the Company's effective tax rate is as follows:

	Year Ended December 31,		
	2022	2021	2020
U.S. federal statutory tax rate	21.0 %	21.0 %	21.0 %
State and local taxes - net of federal benefit	4.6	4.4	4.4
Credits and deductions related to research activities	(0.4)	(0.4)	(0.3)
Foreign rate differential benefit	(0.1)	(0.2)	(0.4)
Excess tax benefit from stock-based compensation	(0.1)	(2.9)	(5.4)
Other, net	1.0	0.9	0.7
Effective tax rate	26.0 %	22.8 %	20.0 %

The following is a summary of the Company's net deferred tax assets:

	As of December 31,	
	2022	2021
	(In thousands)	
Deferred tax assets:		
Stock compensation expense	\$ 3,451	\$ 2,683
Operating lease liabilities	17,842	18,688
Deferred Compensation	2,425	2,876
Other	1,774	128
Total deferred tax assets	25,492	24,375
Valuation allowance	—	—
Net deferred tax assets	25,492	24,375
Deferred tax liabilities:		
Depreciation	(9,956)	(9,847)
Capitalized software development costs	(3,923)	(9,417)
Goodwill and intangible assets	(4,829)	(4,311)
Operating lease right-of-use assets	(14,176)	(14,940)
Deferred tax (liability) asset, net	\$ (7,392)	\$ (14,140)

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

The Company or one of its subsidiaries files U.S. federal, state and foreign income tax returns. During the year ended December 31, 2022, the Company's provision for income taxes included \$3.2 million of expense related to a settlement with New York State to resolve the 2010 to 2014 audits. The Company is currently under a New York State income tax examination for tax years 2015 through 2017 and a New York City income tax examination for the tax years 2016 through 2018. At this time, the Company cannot estimate when the examinations will conclude or the impact such examinations will have on the Company's Consolidated Financial Statements, if any. Generally, other than the New York City and New York State audits, the Company is no longer subject to tax examinations by tax authorities for years prior to 2019.

A reconciliation of the unrecognized tax benefits is as follows:

	Year Ended December 31,		
	2022	2021	2020
	(In thousands)		
Balance at beginning of year	\$ 15,089	\$ 16,317	\$ 6,831
Increases based on tax positions related to the current period	—	—	—
Increases based on tax positions related to prior periods	160	—	9,486
(Decreases) based on tax positions related to prior periods	—	(1,228)	—
(Decreases) related to cash settlements with taxing authorities	(5,414)	—	—
Balance at end of year	<u>\$ 9,835</u>	<u>\$ 15,089</u>	<u>\$ 16,317</u>

As of December 31, 2022, the Company recorded \$9.8 million of net unrecognized tax benefits which, if recognized, would affect the Company's effective tax rate. Due to the uncertainty related to the timing and potential outcome of the audits, the Company cannot reasonably estimate the amount of the unrecognized tax benefit that could be adjusted in the next 12 months. During the years ended December 31, 2022, 2021 and 2020, the Company recognized gross expenses of \$5.8 million, \$3.3 million and \$3.7 million, respectively, in penalties and interest. The Company had \$7.9 million and \$8.3 million accrued for the payment of interest and penalties at December 31, 2022 and 2021, respectively.

The Company will recognize any U.S. income tax expense the Company may incur on global intangible low-taxed income as income tax expense in the period in which the tax is incurred.

10. Stockholders' Equity

Common Stock

As of December 31, 2022 and 2021, the Company had 110,000,000 authorized shares of voting common stock and 10,000,000 authorized shares of non-voting common stock. Voting common stock entitles the holder to one vote per share of common stock held.

The following is a summary of the changes in the Company's outstanding shares of voting common stock:

	Year Ended December 31,		
	2022	2021	2020
	(In thousands)		
Outstanding shares of voting common stock at the beginning of year	37,919	38,005	37,936
Exercise of stock options	29	92	177
Issuance of restricted stock, net of cancellations	66	48	56
Shares withheld for withholding tax payments	(86)	(75)	(125)
Repurchases	(280)	(151)	(39)
Outstanding shares of voting common stock at the end of year	<u>37,648</u>	<u>37,919</u>	<u>38,005</u>

In January 2019, the Board of Directors authorized a new two-year share repurchase program for up to \$100.0 million, which commenced in April 2019 and expired in March 2021. In January 2021, the Board of Directors authorized a new share repurchase program for up to \$100.0 million that commenced in April 2021 and was exhausted in January 2022. In January 2022, the Board of Directors authorized a new share repurchase program for up to \$150.0 million. Shares repurchased under each program will be held in treasury for future use.

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Dividends

During 2022, 2021 and 2020, the Company paid quarterly cash dividends of \$0.70 per share, \$0.66 per share and \$0.60 per share, respectively. Any future declaration and payment of dividends will be at the sole discretion of the Company's Board of Directors. The Board of Directors may take into account such matters as general business conditions, the Company's financial results and condition, capital requirements, contractual obligations, and legal and regulatory restrictions on the payment of dividends to the Company's stockholders or by the Company's subsidiaries to their respective parent entities, and any such other factors as the Board of Directors may deem relevant.

11. Stock-Based Compensation Plans

The Company maintains the 2020 Plan which provides for the grant of stock options, stock appreciation rights, restricted stock, restricted stock units, performance shares, performance units, or other stock-based awards as incentives to encourage employees, consultants and non-employee directors to participate in the long-term success of the Company. As of December 31, 2022, there were 2,476,930 shares available for grant under the 2020 Plan.

Total stock-based compensation expense was as follows:

	Year Ended December 31,		
	2022	2021	2020
	(In thousands)		
Employees:			
Restricted stock and performance shares	\$ 24,593	\$ 23,041	\$ 21,310
Stock options	3,583	2,961	3,100
	<u>28,176</u>	<u>26,002</u>	<u>24,410</u>
Non-employee directors:			
Restricted stock	1,688	1,312	1,203
Total stock-based compensation	<u>\$ 29,864</u>	<u>\$ 27,314</u>	<u>\$ 25,613</u>

The Company records stock-based compensation expense for employees in employee compensation and benefits and for non-employee directors in general and administrative expenses in the Consolidated Statements of Operations.

Stock Options

The exercise price of each option granted is equal to the market price of the Company's common stock on the date of grant. Generally, option grants have provided for vesting over a three or five-year period. Options generally expire in six or ten years from the date of grant. The fair value of each option award is estimated on the date of grant using the Black-Scholes option-pricing model. The determination of fair value of share-based payment awards on the date of grant using an option-pricing model is affected by the Company's stock price as well as assumptions regarding a number of highly complex and subjective variables, including the expected stock price volatility over the term of the awards, the risk-free interest rate, the expected dividend yield rate and the expected term. Expected volatilities are based on historical volatility of the Company's stock. The risk-free interest rate is based on U.S. Treasury securities with a maturity value approximating the expected term of the option. The dividend yield rate is based on the expected annual dividends to be paid divided by the expected stock price. The expected term represents the period of time that options granted are expected to be outstanding based on actual and projected employee stock option exercise behavior.

The weighted-average fair value for options granted during 2022, 2021 and 2020 was \$101.38, \$137.66 and \$91.43, respectively. The following table represents the assumptions used for the Black-Scholes option-pricing model to determine the per share weighted-average fair value for options granted, excluding the two awards based on the Monte Carlo model discussed below:

	Year Ended December 31,		
	2022	2021	2020
Expected life (years)	5.0	5.0	5.0
Risk-free interest rate	1.5%	0.4%	1.6%
Expected volatility	32.6%	31.2%	26.8%
Expected dividend yield	0.7%	0.4%	0.6%

In addition to the option grants above, 76,868 stock options were granted to the Company's President and Chief Operating Officer in January 2019 with an aggregate grant date fair value of \$2.9 million, as determined by an independent third party using a Monte Carlo simulation model. The exercise price is \$272.88 for 35,679 of the stock options and \$294.71 for the remaining 41,189 stock options, which is equal to 125% and 135%, respectively, of the fair market value of the Company's common stock on the grant date. Subject to

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

the grantee's continued service with the Company, the options will vest and become exercisable on January 22, 2024. The options expire on July 22, 2024. Key assumptions used for the Monte Carlo model included a risk-free interest rate of 2.6%, volatility of 25.8% and a dividend yield of 0.8%.

In November 2018, 148,524 stock options were granted to the Company's Chief Executive Officer with a grant date fair value of \$5.5 million, as determined by an independent third party using a Monte Carlo simulation model. The exercise price is \$257.78 for 69,113 of the stock options and \$278.40 for the remaining 79,411 stock options, which is equal to 125% and 135%, respectively, of the fair market value of the Company's stock on the grant date. Subject to the grantee's continued service with the Company, the options will vest and become exercisable on November 8, 2023. The options expire on May 8, 2024. Key assumptions used for the Monte Carlo model included a risk-free interest rate of 3.1%, volatility of 25.9% and a dividend yield of 0.8%.

The following table reports stock option activity during the three years ended December 31, 2022 and the intrinsic value as of December 31, 2022:

	Number of Shares	Weighted- Average Exercise Price (\$)	Remaining Contractual Term	Intrinsic Value (\$) (In thousands)
Outstanding at December 31, 2019	550,591	175.16		
Granted	13,900	368.10		
Canceled	(218)	307.52		
Exercised	(176,901)	84.07		
Outstanding at December 31, 2020	387,372	223.60		
Granted	17,897	517.88		
Canceled	(616)	394.77		
Exercised	(91,900)	107.05		
Outstanding at December 31, 2021	312,753	274.35		
Granted	23,904	352.15		
Canceled	(1,646)	421.08		
Exercised	(28,758)	157.08		3,597
Outstanding at December 31, 2022	306,253	290.65	1.9	3,971
Exercisable at December 31, 2022	42,119	276.35	1.9	2,259

The intrinsic value is the amount by which the closing price of the Company's common stock on December 31, 2022 of \$278.89 or the price on the day of exercise exceeds the exercise price of the stock options multiplied by the number of shares. As of December 31, 2022, there was \$4.1 million of total unrecognized compensation cost related to non-vested stock options. That cost is expected to be recognized over a weighted-average period of 1.0 year.

Service-Based Restricted Stock and Restricted Stock Unit Awards

Our annual compensation program includes share-based compensation awards as a component of certain employees' total compensation. These awards are generally subject to annual vesting requirements over a three-year period beginning at the date of grant, which occurs in the first quarter of each year. Accordingly, the expense is generally amortized over the stated vesting period. In addition, we grant share-based compensation awards in conjunction with certain new hires and for retention purposes. These awards generally vest over a three-year period and expense is recognized over the requisite service period.

Performance Equity Awards

The Company grants performance equity awards to certain executives and senior managers of the firm as a component of their total compensation and in conjunction with new hires and for retention purposes. Annual performance equity awards generally vest over a three-year period and contain both performance- and service-based elements. The Company has also granted awards with a five-year vesting period with performance- and service-based elements.

In January 2020 and January 2021, annual performance equity awards were granted with three-year performance periods, whereby the final amount that vests will be determined based on the level of achievement by the Company of certain predetermined metrics, including pre-tax adjusted operating margin and market share for the following three fiscal years, including the year of grant. The final awarded pay-out for the awards granted in 2020 was certified at 98.7% in January 2023. The final awarded pay-out for the awards

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

granted in 2021 will range from zero to 200%. Subject to the grantee's continued service, any performance equity awarded to a participant will vest on the three-year anniversary of the grant date. Compensation expense for the three-year performance shares is measured at the grant date and expensed over the requisite service period with performance target achievement assessed at the end of each reporting period.

In August 2021, the Chief Financial Officer received a performance equity award of 1,070 target shares in connection with his promotion to Chief Financial Officer. The award is substantially similar to the annual bonus performance equity awards granted in January 2021, except that the performance achievement will be determined using 2022 and 2023 fiscal years only. The award will fully vest on August 1, 2024 after certification of the performance criteria, subject to continued employment by the Chief Financial Officer through such date.

In January 2022, annual performance equity awards were granted with a three-year performance period, whereby the final amount that vests will be determined based on the level of achievement by the Company of certain predetermined metrics, including pre-tax adjusted operating margin, U.S. credit market share, and revenue growth excluding U.S. credit for the following three fiscal years, including the year of grant. The final awarded payout for the awards granted in 2022 will range from zero to 200%. Subject to the grantee's continued service, any performance equity awarded to a participant will vest on the three-year anniversary of the grant date. Compensation expense for the three-year performance shares is measured at the grant date and expensed over the requisite service period with performance target achievement assessed at the end of each reporting period.

In March 2022, the Chief Information Officer received a one-time sign-on equity award consisting, in part, of a performance stock unit award with a target of 3,986 shares. The award is substantially similar to the annual bonus performance equity awards granted in January 2022. The award will fully vest on March 1, 2025 after certification of the performance criteria, subject to continued employment by the Chief Information Officer through such date.

The following table reports the Company's performance payout estimates for three-year performance period awards at December 31, 2022 as well as the target and maximum share payouts for each award date granted:

Award Date	2022 Estimate	Target	Maximum
January 15, 2020	11,915	12,298	18,447
January 15, 2021	8,776	12,185	24,370
August 1, 2021	969	1,070	2,140
January 31, 2022	15,701	18,155	36,310
March 1, 2022	3,447	3,986	7,972

In addition to the grants above, 18,914 performance shares were granted to the Company's President and Chief Operating Officer in January 2019 with an aggregate fair value of \$2.9 million as determined by an independent third party using a Monte Carlo simulation model. The performance share award provides that the number of shares earned will be based on the Company's achievement of certain share price levels during the five-year performance period. The performance level is \$272.88 for 8,969 of the performance shares and \$294.71 for the remaining 9,945 performance shares, which is equal to 125% and 135%, respectively, of the fair market value of the Company's common stock on the grant date. Each of the performance levels have been achieved. Subject to the grantee's continued service with the Company, earned shares will vest on January 22, 2024. Key assumptions used for the Monte Carlo simulation included a risk-free interest rate of 2.6%, volatility of 25.9% and a dividend yield of 0.8%.

In November 2018, 37,742 performance shares were granted to the Company's Chief Executive Officer with a grant date fair value of \$5.5 million as determined by an independent third party using a Monte Carlo simulation model. The performance share award provides that the number of shares earned will be based on the Company's achievement of certain share price levels during the five-year performance period. The performance level is \$257.78 for 17,942 of the performance shares and \$278.40 for the remaining 19,800 performance shares, which is equal to 125% and 135%, respectively, of the fair market value of the Company's stock on the grant date. Each of the performance levels have been achieved. Subject to the grantee's continued service with the Company, earned shares will vest on November 8, 2023. Key assumptions used for the Monte Carlo model included a risk-free interest rate of 3.1%, volatility of 26.1% and a dividend yield of 0.8%.

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

The following table reports restricted stock and performance share activity during the three years ended December 31, 2022:

	<u>Number of Restricted Shares</u>	<u>Weighted-Average Grant Date Fair Value</u>
Outstanding at December 31, 2019	346,032	\$ 154.27
Granted	38,907	
Performance share pay-out	19,401	
Canceled	(3,480)	
Vested	(170,213)	
Outstanding at December 31, 2020	230,647	\$ 224.63
Granted	47,142	
Performance share pay-out	—	
Canceled	(3,911)	
Vested	(111,268)	
Outstanding at December 31, 2021	162,610	\$ 316.56
Granted	72,861	
Performance share pay-out	—	
Canceled	(8,513)	
Vested	(64,602)	
Outstanding at December 31, 2022	<u>162,356</u>	\$ 321.04

As of December 31, 2022, there was \$33.5 million of total unrecognized compensation expense related to non-vested restricted stock and performance shares. That cost is expected to be recognized over a weighted-average period of 1.4 years.

Employee Stock Purchase Plans

The Company previously maintained the MarketAxess Holdings Inc. 2015 Employee Stock Purchase Plan (the "Prior ESPP"), a non-qualified employee stock purchase plan for non-executive employees. Under the Prior ESPP, participants were granted the right to purchase shares of the Company's common stock based on the fair market value on the last day of the six-month offering period. On the purchase date, the Company granted to the participants a number of restricted stock units equal to 20% of the aggregate shares purchased by the participant. These matching restricted stock units vested over a one-year period. The Company issued 483, 806 and 729 matching restricted stock units in connection with the Prior ESPP for the years ended December 31, 2022, 2021 and 2020, respectively. In January 2022, the Company's Compensation & Talent Committee terminated the Prior ESPP with an effective date of February 28, 2022.

In June 2022, the Company's stockholders approved the MarketAxess Holdings Inc. 2022 Employee Stock Purchase Plan (the "ESPP") pursuant to which a total of 121,221 shares of the Company's Common Stock will be made available for purchase by employees. The ESPP is intended to qualify as an "employee stock purchase plan" meeting the requirements of Section 423 of the Internal Revenue Code. The ESPP was adopted by the Company's Board of Directors in April 2022 and approved by the Company's stockholders in June 2022. The ESPP has a series of six-month offering periods, with a new offering period beginning on the first trading day on or after February 16 and August 16 of each year. Subject to certain limitations, employees may contribute up to \$2,000 of such employee's total eligible compensation per month towards the purchase of common stock via payroll deductions. Purchase dates occur on the first trading day on or after February 15 and August 15 of each year and shares are purchased at a 15% discount off the lesser of: (i) the fair market value per share on the first day of each offering period; and (ii) the fair market value per share on the purchase date, but in no event less than par value. The first offering period under the ESPP began on August 16, 2022.

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

12. Earnings Per Share

The following table sets forth basic and diluted weighted average shares outstanding used to compute earnings per share:

	Year Ended December 31,		
	2022	2021	2020
	(In thousands, except per share amounts)		
Basic weighted average shares outstanding	37,468	37,508	37,359
Dilutive effect of stock options and restricted stock	175	589	785
Diluted weighted average shares outstanding	37,643	38,097	38,144
Basic earnings per share	\$ 6.68	\$ 6.88	\$ 8.01
Diluted earnings per share	\$ 6.65	\$ 6.77	\$ 7.85

Stock options and restricted stock totaling 310,447 shares, 41,240 shares and 21,127 shares for the years ended December 31, 2022, 2021 and 2020, respectively, were excluded from the computation of diluted earnings per share because their effect would have been antidilutive. The computation of diluted shares can vary among periods due, in part, to the change in the average price of the Company's common stock.

13. Credit Agreements and Short-term Financing

Prior Revolving Credit Agreements

In October 2015, the Company entered into an amended and restated credit agreement (the "2015 Credit Agreement") that provided for revolving loans and letters of credit up to an aggregate of \$100.0 million. The 2015 Credit Agreement matured on November 13, 2020 and the Company entered into a new one-year credit agreement (the "2020 Credit Agreement") with a syndicate of lenders and JPMorgan Chase Bank, N.A., as administrative agent, that provided aggregate commitments totaling \$500.0 million, consisting of a revolving credit facility and a \$5.0 million letter of credit sub-limit for standby letters of credit.

Borrowings under the 2020 Credit Agreement bore interest at a rate per annum equal to the base rate or adjusted LIBOR plus an applicable margin that varies with the Company's consolidated total leverage ratio. The 2020 Credit Agreement required that the Company satisfy certain covenants, which include leverage ratios and minimum earnings before interest, tax, and depreciation and amortization ("EBITDA") requirements. The Company did not incur any interest expense under the 2020 Credit Agreement for the year ended December 31, 2021. The Company incurred \$0.8 million of interest expense under the 2015 Credit Agreement for the year ended December 31, 2020.

2021 Credit Agreement

On October 15, 2021, the Company replaced the 2020 Credit Agreement with a new three-year revolving credit facility (the "2021 Credit Agreement") provided by a syndicate of lenders and JPMorgan Chase Bank, N.A., as administrative agent, which provides aggregate commitments totaling \$500.0 million, consisting of a revolving credit facility and a \$5.0 million letter of credit sub-limit for standby letters of credit. The 2021 Credit Agreement will mature on October 15, 2024, with the Company's option to request up to two additional 364-day extensions at the discretion of each lender and subject to customary conditions. Subject to satisfaction of certain specified conditions, the Company is permitted to upsize the 2021 Credit Agreement by up to \$250.0 million in total. As of December 31, 2022, the Company had no letters of credit outstanding and \$500.0 million in available borrowing capacity under the 2021 Credit Agreement.

Borrowings under the 2021 Credit Agreement will bear interest at a rate per annum equal to the base rate or adjusted LIBOR plus an applicable margin that varies with the Company's consolidated total leverage ratio. The 2021 Credit Agreement requires that the Company satisfy certain covenants, which include a leverage ratio. The Company incurred \$0.3 million of interest expense under the 2021 Credit Agreement for the year ended December 31, 2022. The Company did not incur any interest expense under the 2021 Credit Agreement for the year ended December 31, 2021.

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Collateralized Agreement

In connection with its self-clearing operations, the Company's U.S. broker-dealer subsidiary entered into an agreement (the "Collateralized Agreement") with its settlement bank to provide loans to the subsidiary in amounts up to an aggregate of \$200.0 million on an uncommitted basis. Borrowings under the Collateralized Agreement are collateralized by securities pledged by the Company's broker-dealer subsidiary to the settlement bank, subject to applicable haircuts and concentration limits. Borrowings under the Collateralized Agreement will bear interest at a base rate per annum equal to the higher of the upper range of the Federal Funds Rate, 0.25% or one-month Secured Overnight Financing Rate ("SOFR"), plus 1.00%. The Company did not incur any interest expense on borrowings under the Collateralized Agreement during the year ended December 31, 2022. The Company incurred \$0.1 million of interest expense on borrowings under the Collateralized Agreement for each of the years ended December 31, 2021 and 2020. As of December 31, 2022 the Company had no borrowings outstanding and \$200.0 million in available borrowing capacity under the Collateralized Agreement.

Short-term Financing

Under arrangements with their settlement banks, certain of the Company's U.S. and U.K. operating subsidiaries may receive overnight financing in the form of bank overdrafts. The Company incurred interest expense on such overnight financing of \$0.4 million, \$0.8 million and \$0.3 million during the years ended December 31, 2022, 2021 and 2020, respectively. As of December 31, 2022, the Company had no overdrafts payable outstanding.

14. Leases

The Company has operating leases for corporate offices with initial lease terms ranging from one-year to 15 years. Certain leases contain options to extend the initial term at the Company's discretion. The Company accounts for the option to extend when it is reasonably certain of being exercised. The Company's lease agreements do not contain any material residual value guarantees, restrictions or covenants.

The following table presents the components of lease expense for the years ended December 31, 2022, 2021 and 2020:

Lease cost:	Classification	Year Ended December 31,		
		2022	2021	2020
		(In thousands)		
Operating lease cost	Occupancy	\$ 13,015	\$ 13,202	\$ 13,455
Operating lease cost for subleased/assigned properties	Other, net	469	2,054	2,404
Variable lease costs	Occupancy	96	13	26
Sublease income for subleased/assigned properties	Other, net	(405)	(2,079)	(2,420)
Net lease cost		<u>\$ 13,175</u>	<u>\$ 13,190</u>	<u>\$ 13,465</u>

The Company determines whether an arrangement is, or includes, a lease at contract inception. Operating lease right-of-use assets and liabilities are recognized at commencement date and are initially measured based on the present value of lease payments over the defined lease term. As the Company's leases do not provide an implicit rate, the Company used its incremental borrowing rate based on the information available at the adoption date in determining the present value of lease payments.

The weighted average remaining lease term and weighted average discount rate are as follows:

Lease Term and Discount Rate	As of December 31,	
	2022	2021
Weighted average remaining lease term (in years)	10.6	11.5
Weighted average discount rate	5.9%	5.9%

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

The following table presents the maturity of lease liabilities as of December 31, 2022:

	(In thousands)
2023	\$ 11,001
2024	11,481
2025	11,289
2026	10,790
2027	8,464
2028 and thereafter	59,630
Total lease payments	112,655
Less: imputed interest	29,979
Present value of lease liabilities	\$ 82,676

15. Commitments and Contingencies

Legal

In the normal course of business, the Company and its subsidiaries included in the consolidated financial statements may be involved in various lawsuits, proceedings and regulatory examinations. The Company assesses its liabilities and contingencies in connection with outstanding legal proceedings, if any, utilizing the latest information available. For matters where it is probable that the Company will incur a material loss and the amount can be reasonably estimated, the Company will establish an accrual for the loss. Once established, the accrual will be adjusted to reflect any relevant developments. When a loss contingency is not both probable and estimable, the Company does not establish an accrual.

Based on currently available information, the outcome of the Company's outstanding matters is not expected to have a material adverse impact on the Company's financial position. It is not presently possible to determine the ultimate exposure to these matters and there is no assurance that the resolution of the outstanding matters will not significantly exceed any reserves accrued by the Company.

Other

The Company, through certain of its subsidiaries, executes bond transactions between its institutional investor and broker-dealer clients on a matched principal basis by serving as counterparty to both the buyer and the seller in trades. The Company's U.S. broker-dealer subsidiary operates under a self-clearing model for the settlement of such transactions. The Company's subsidiaries also settle their transactions through third-party clearing brokers or settlement agents. Settlement typically occurs within one to two trading days after the trade date. Cash settlement of the transaction occurs upon receipt or delivery of the underlying instrument that was traded. Under both the self-clearing and the third-party clearing models, the Company may be exposed to credit risk in the event a counterparty does not fulfill its obligation to complete a transaction or if there is an error in executing a matched principal transaction. Pursuant to the terms of the securities clearing agreements, each third-party clearing broker has the right to charge the Company for any losses they suffer resulting from a counterparty's failure on any of the Company's trades. The Company did not record any liabilities or losses with regard to counterparty failures for the three-year period ended December 31, 2022.

In the normal course of business, the Company enters into contracts that contain a variety of representations, warranties and indemnification provisions. The Company's maximum exposure under these arrangements is unknown, as this would involve future claims that may be made against the Company that have not yet occurred. However, based on experience, the Company expects the risk of loss to be remote.

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

16. Segment and Geographic Information

The Company operates electronic platforms for the trading of fixed-income securities and provides related data, analytics, compliance tools and post-trade services. The Company considers its operations to constitute a single business segment because of the highly integrated nature of these products and services, the financial markets in which the Company competes and the Company's worldwide business activities. The Company believes that results by geographic region or client sector are not necessarily meaningful in understanding its business.

For the years ended December 31, 2022, 2021 and 2020, the U.K. was the only individual foreign country in which the Company had a subsidiary that accounted for 10% or more of the total revenues or total long-lived assets. Revenues and long-lived assets are attributed to a geographic area based on the location of the particular subsidiary. Long-lived assets are defined as furniture, equipment, leasehold improvements and capitalized software. Revenues for the three years ended December 31, 2022, 2021 and 2020 and long-lived assets as of December 31, 2022 and 2021 were as follows:

	Year Ended December 31,		
	2022	2021	2020
	(In thousands)		
Revenues			
Americas	\$ 581,935	\$ 568,918	\$ 583,164
Europe	119,112	110,068	89,751
Asia	17,253	19,965	16,210
Total	<u>\$ 718,300</u>	<u>\$ 698,951</u>	<u>\$ 689,125</u>

	As of December 31,	
	2022	2021
	(In thousands)	
Long-lived assets, as defined		
Americas	\$ 82,008	\$ 75,328
Europe	17,723	20,547
Asia	525	186
Total	<u>\$ 100,256</u>	<u>\$ 96,061</u>

17. Retirement and Deferred Compensation Plans

The Company, through its U.S. and U.K. subsidiaries, offers its employees the opportunity to invest in defined contribution plans. For the years ended December 31, 2022, 2021 and 2020, the Company contributed \$6.1 million, \$5.8 million and \$4.0 million, respectively, to the plans.

The Company offers a non-qualified deferred cash incentive plan to certain officers and other employees. Under the plan, eligible employees may defer up to 100% of their annual cash incentive pay. The Company has elected to fund its deferred compensation obligations through a rabbi trust. The rabbi trust is subject to creditor claims in the event of insolvency, but such assets are not available for general corporate purposes. Assets held in the rabbi trust are invested in mutual funds, as selected by the participants, which are designated as trading securities and carried at fair value. As of December 31, 2022 and 2021, the fair value of the mutual fund investments and deferred compensation obligations were \$9.4 million and \$11.2 million, respectively. Changes in the fair value of securities held in the rabbi trust and offsetting increases or decreases in the deferred compensation obligation are recognized in other, net in the Company's Consolidated Statements of Operations.

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

18. Cash and Cash Equivalents and Restricted Cash

The following table provides a reconciliation of cash and cash equivalents together with restricted or segregated cash as reported within the Consolidated Statements of Financial Condition to the sum of the same such amounts shown in the Consolidated Statements of Cash Flows:

		As of December 31,		
	Statement of Financial Condition Location	2022	2021	2020
		(In thousands)		
Cash and cash equivalents	Cash and cash equivalents	\$ 430,746	\$ 506,735	\$ 460,858
Cash segregated for regulatory purposes	Cash segregated under federal regulations	50,947	50,159	50,059
Deposits with clearing organizations and broker-dealers	Receivables from broker-dealers, clearing organizations and customers	88,923	68,565	97,043
Other deposits	Prepaid expenses and other assets	2,048	108	90
Total		<u>\$ 572,664</u>	<u>\$ 625,567</u>	<u>\$ 608,050</u>

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

19. Parent Company Information

The following tables present Parent Company-only financial information that should be read in conjunction with the consolidated financial statements of the Company.

MarketAxess Holdings Inc.
(Parent Company Only)
Condensed Statements of Financial Condition

	As of	
	December 31, 2022	December 31, 2021
	(In thousands)	
ASSETS		
Cash and cash equivalents	\$ 43,909	\$ 61,820
Investments, at fair value	5,343	6,327
Accounts receivable	769	—
Receivable from subsidiaries	8,962	3,488
Intangible assets, net of accumulated amortization	23	25
Furniture, equipment, leasehold improvements and capitalized software, net of accumulated depreciation and amortization	19,557	21,596
Operating lease right-of-use assets	57,402	60,753
Investments in subsidiaries	985,222	982,029
Prepaid expenses and other assets	41,511	4,810
Income and other tax receivable	11,474	1,763
Total assets	\$ 1,174,172	\$ 1,142,611
LIABILITIES AND STOCKHOLDERS' EQUITY		
Liabilities		
Accrued employee compensation	\$ 9,693	\$ 11,065
Income and other tax liabilities	12	5,026
Accounts payable, accrued expenses and other liabilities	11,087	9,233
Operating lease liabilities	72,287	75,978
Total liabilities	93,079	101,302
Stockholders' equity		
Preferred stock	—	—
Series A Preferred Stock	—	—
Common stock voting	123	123
Common stock non-voting	—	—
Additional paid-in capital	345,468	330,262
Treasury stock	(328,326)	(232,712)
Retained earnings	1,101,525	956,966
Accumulated other comprehensive loss	(37,697)	(13,330)
Total stockholders' equity	1,081,093	1,041,309
Total liabilities and stockholders' equity	\$ 1,174,172	\$ 1,142,611

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

MarketAxess Holdings Inc.
(Parent Company Only)
Condensed Statements of Operations and Comprehensive Income

	Year Ended December 31,		
	2022	2021	2020
	(In thousands)		
Dividends from subsidiaries	\$ 257,200	\$ 173,000	\$ 30,000
Expenses			
Employee compensation and benefits	17,655	17,887	19,710
Depreciation and amortization	2,136	2,123	2,068
Professional and consulting fees	5,528	7,081	7,332
General and administrative	3,081	3,620	2,723
Total expenses	28,400	30,711	31,833
Operating income (loss)	228,800	142,289	(1,833)
Other income (expense)			
Interest income	272	132	2,799
Interest expense	(271)	—	(805)
Equity in earnings of unconsolidated affiliate	1,126	—	—
Other, net	(2,633)	(2,950)	(318)
Total other income (expense)	(1,506)	(2,818)	1,676
Income (loss) before income taxes and equity in undistributed earnings of subsidiaries	227,294	139,471	(157)
Benefit from income taxes	(7,710)	(6,472)	(23,444)
Income before equity in undistributed income of subsidiaries	235,004	145,943	23,287
Equity in undistributed income of subsidiaries	15,220	111,945	276,090
Net income	250,224	257,888	299,377
Other comprehensive income (loss), net	(24,367)	(8,680)	5,620
Comprehensive income	\$ 225,857	\$ 249,208	\$ 304,997

MARKETAXESS HOLDINGS INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

MarketAxess Holdings Inc.
(Parent Company Only)
Condensed Statements of Cash Flows

	Year Ended December 31,		
	2022	2021	2020
	(In thousands)		
Cash flows from operating activities			
Net income	\$ 250,224	\$ 257,888	\$ 299,377
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	2,136	2,123	2,068
Amortization of operating lease right-of-use assets	3,347	4,484	4,117
Stock-based compensation expense	12,554	12,706	10,834
Deferred taxes	(5,076)	1,712	3,644
Equity in undistributed income of subsidiaries	(15,220)	(111,945)	(276,090)
Other	441	—	(671)
Changes in operating assets and liabilities:			
(Increase) decrease in accounts receivable	(769)	178	(115)
Decrease (increase) in receivable from subsidiaries	7,931	47,371	(25,049)
(Increase) in prepaid expenses and other assets	(1,175)	(219)	(1,085)
Decrease (increase) in mutual funds held in rabbi trust	984	(1,516)	(1,328)
(Increase) decrease in income and other tax receivables	(9,711)	7,265	(1,240)
(Decrease) increase in accrued employee compensation	(1,372)	824	3,698
Increase (decrease) in income and other tax liabilities	62	(143)	6,676
Increase (decrease) in accounts payable, accrued expenses and other liabilities	443	(607)	(442)
(Decrease) in operating lease liabilities	(3,689)	(4,673)	(4,055)
Net cash provided by operating activities	241,110	215,449	20,339
Cash flows from investing activities			
Acquisition of business, net of cash and cash equivalents acquired	—	(17,079)	—
Acquisition of equity method investment	(34,400)	—	—
Investments in subsidiaries	(8,326)	—	—
Available-for-sale investments			
Proceeds from maturities and sales	—	—	170,657
Purchases	—	—	(32,865)
Purchases of furniture, equipment and leasehold improvements	(96)	(198)	(337)
Net cash (used in) provided by investing activities	(42,822)	(17,277)	137,455
Cash flows from financing activities			
Cash dividend on common stock	(105,942)	(99,791)	(90,566)
Exercise of stock options	672	7,096	4,007
Withholding tax payments on restricted stock vesting and stock option exercises	(23,404)	(33,890)	(42,418)
Repurchases of common stock	(87,540)	(63,189)	(16,135)
Proceeds from short-term borrowings	100,000	—	348,000
Repayments of short-term borrowings	(100,000)	—	(348,000)
Net cash (used in) financing activities	(216,214)	(189,774)	(145,112)
Effect of exchange rate changes on investments	15	(2,324)	(5,176)
Cash and cash equivalents including restricted cash			
Net increase (decrease) for the period	(17,911)	6,073	7,506
Beginning of period	61,820	55,747	48,241
End of period	\$ 43,909	\$ 61,820	\$ 55,747
Supplemental cash flow information:			
Cash paid for income taxes	\$ 65,764	\$ 41,103	\$ 32,674
Cash paid for interest	271	—	805
Non-cash investing and financing activity:			
Exercise of stock options - cashless	3,845	2,750	10,866

Item 9. *Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.*

None.

Item 9A. *Controls and Procedures.*

Our management, including the Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our “disclosure controls and procedures,” as that term is defined in Rule 13a-15(e) and Rule 15d-15(e) promulgated under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), as of December 31, 2022. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that the disclosure controls and procedures are effective to ensure that information required to be disclosed by MarketAxess in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission’s rules and forms, and to ensure that information is accumulated and communicated to our management, including the Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

There were no changes in our internal control over financial reporting (as defined in Rule 13a-15(f) and Rule 15d-15(f) under the Exchange Act) during the quarter ended December 31, 2022 identified in connection with the evaluation thereof by our management, including the Chief Executive Officer and Chief Financial Officer, that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management’s annual report on internal control over financial reporting and the report of our independent registered public accounting firm appears in Part II, Item 8. *Financial Statements and Supplementary Data* of this Annual Report on Form 10-K.

Item 9B. *Other Information.*

None.

Item 9C. *Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.*

Not applicable.

PART III

Item 10. *Directors, Executive Officers and Corporate Governance.*

The information required by this item is incorporated herein by reference to the sections entitled “Proposal 1 — Election of Directors,” “Corporate Governance and Board Matters,” and “Executive Officers” in our definitive Proxy Statement (the “Proxy Statement”) for the Annual Meeting of Stockholders to be held in the second quarter of 2023. We intend to file the Proxy Statement within 120 days after the end of our fiscal year (i.e., on or before April 30, 2023). Our Code of Conduct applicable to directors and all employees, including senior financial officers, and our Code of Ethics of the Chief Executive Officer and Senior Financial Officers, including the Chief Financial Officer (the “Code of Ethics”), are available on our website at www.marketaxess.com. If we make any amendments to or waivers from our Code of Ethics that are required to be disclosed pursuant to the Exchange Act, we will make such disclosures on our website.

Item 11. *Executive Compensation.*

The information required by this item is incorporated herein by reference to the sections entitled “Compensation Discussion and Analysis,” “Report of the Compensation and Talent Committee of the Board of Directors,” “Executive Compensation” and “Corporate Governance and Board Matters – Director compensation” in our Proxy Statement.

Item 12. *Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.*

The information required by this item with respect to the security ownership of certain beneficial owners and management is incorporated herein by reference to the section entitled “Security Ownership of Certain Beneficial Owners and Management” in our Proxy Statement.

Equity Compensation Plan Information

The following table provides certain information regarding common stock authorized for issuance under our incentive plan as of December 31, 2022:

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights (a)	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights (b)	Number of Securities Remaining Available for Future Issuance under Equity Compensation Plans (Excluding Securities Reflected in Column (a)) (c)
Equity compensation plans approved by stockholders	306,253	\$ 290.65	2,476,930

Item 13. *Certain Relationships and Related Transactions, and Director Independence.*

The information required by this item is incorporated herein by reference to the section entitled “Certain Relationships and Related Party Transactions” in our Proxy Statement.

Item 14. *Principal Accounting Fees and Services.*

The information required by this item is incorporated herein by reference to the section entitled “Proposal 2 – Ratification of Selection of Independent Registered Public Accounting Firm – Audit and other fees” in our Proxy Statement.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

(a) Financial Statements and Schedules

The financial statements are set forth under Item 8 of this Annual Report on Form 10-K. Financial statement schedules have been omitted since they are either not required, not applicable, or the information is otherwise included.

(b) Exhibit Listing

Number	Description
3.1(a)	Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.2 to Amendment No.2 to the registrant's Registration Statement on Form S-1 dated May 7, 2004 (Registration No. 333-112718))
3.1(b)	Form of Certificate of Designation of Series A Preferred Stock of MarketAxess Holdings Inc. (incorporated by reference to Exhibit 3.1 to the registrant's Registration Statement on Form 8-A dated June 3, 2008)
3.2(a)	Amended and Restated Bylaws (incorporated by reference to Exhibit 3.4 to Amendment No.2 to the registrant's Registration Statement on Form S-1 dated May 7, 2004 (Registration No. 333-112718))
3.2(b)	Amendment No. 1 to the Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to the registrant's Current Report on Form 8-K dated January 25, 2013)
4.1	Specimen Common Stock certificate (incorporated by reference to Exhibit 4.1 to Amendment No. 2 to the registrant's Registration Statement on Form S-1 dated May 7, 2004 (Registration No. 333-112718))
4.2(a)	See Exhibits 3.1 for provisions defining the rights of holders of common stock and non-voting common stock of the registrant
4.2(b)	See Exhibits 3.2 for provisions defining the rights of holders of common stock and non-voting common stock of the registrant
4.3	Description of registrant's securities (incorporated by reference to Exhibit 4.3 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2019)
10.1	MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 99.1 to the registrant's Registration Statement on Form S-8 filed on June 10, 2020)#
10.2	MarketAxess Holdings Inc. 2012 Incentive Plan as Amended and Restated Effective June 7, 2016 (incorporated by reference to Appendix A to the registrant's Proxy Statement for its Annual Meeting for Stockholders held on June 7, 2016, filed on April 25, 2016)#
10.3	Amendment Number One to the MarketAxess Holdings Inc. 2012 Incentive Plan as Amended and Restated Effective June 7, 2016 (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K dated April 21, 2017)#
10.4	Amendment to the MarketAxess Holdings Inc. 2012 Incentive Plan (Amended and Restated Effective June 7, 2016), as amended (incorporated by reference to Appendix A to the registrant's Proxy Statement for its Annual Meeting of Stockholders held on June 7, 2018, filed April 25, 2018)#
10.5	MarketAxess Holdings Inc. 2004 Annual Performance Incentive Plan (incorporated by reference to Exhibit 10.11 to Amendment No. 2 to the registrant's Registration Statement on Form S-1 dated May 7, 2004 (Registration No. 333-112718))#
10.6	MarketAxess Holdings Inc. 2015 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.4 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2020)#

EXHIBIT LISTING (CONTINUED)

- 10.7 MarketAxess Holdings Inc. 2022 Employee Stock Purchase Plan (incorporated by reference to Exhibit 99.1 to the registrant's Registration Statement on Form S-8 filed on June 8, 2022)#
- 10.8 MarketAxess Holdings Inc. 2009 Employee Performance Incentive Plan, as amended (incorporated by reference to Exhibit 10.5 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2021)#
- 10.9 MarketAxess Holdings Inc. Nonqualified Deferred Compensation Plan (incorporated by reference to Exhibit 10.6 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2021)#
- 10.10 Form of Indemnification Agreement for Directors (incorporated by reference to Exhibit 10.2 to the registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2017)#
- 10.11 Form of Restricted Stock Agreement for Employees other than Richard M. McVey pursuant to the MarketAxess Holdings Inc. 2012 Incentive Plan (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K dated January 15, 2008)#
- 10.12 Form of Restricted Stock Unit Agreement for executive officers other than Richard M. McVey pursuant to the MarketAxess Holdings Inc. 2012 Incentive Plan (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K dated January 22, 2016)#
- 10.13 Form of Restricted Stock Unit Agreement (annual vesting) for Christopher R. Concannon pursuant to the MarketAxess Holdings Inc. 2012 Incentive Plan (incorporated by reference to Exhibit 10.4 to the registrant's Current Report on Form 8-K dated January 4, 2019)#
- 10.14 Form of Restricted Stock Unit Agreement (cliff vesting) for Christopher R. Concannon pursuant to the MarketAxess Holdings Inc. 2012 Incentive Plan (incorporated by reference to Exhibit 10.5 to the registrant's Current Report on Form 8-K dated January 4, 2019)#
- 10.15 Guidelines for Restricted Stock Units granted under the MarketAxess Holdings Inc. 2012 Incentive Plan (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K dated January 19, 2011)#
- 10.16 Form of Performance Share Award Agreement for Christopher R. Concannon pursuant to the MarketAxess Holdings Inc. 2012 Incentive Plan (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K dated January 4, 2019)#
- 10.17 Form of Incentive Stock Option Agreement for Christopher R. Concannon pursuant to the MarketAxess Holdings Inc. 2012 Incentive Plan (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K dated January 4, 2019)#
- 10.18 Employment Letter Agreement, dated as of January 15, 2015, by and between MarketAxess Holdings Inc. and Richard M. McVey (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K dated January 15, 2015)#
- 10.19 Amendment to Richard M. McVey Employment Agreement, dated as of January 12, 2017, by and between MarketAxess Holdings Inc. and Richard M. McVey (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K dated January 6, 2017)#
- 10.20 Second Amendment to Richard M. McVey Employment Agreement, dated as of November 6, 2018, by and between MarketAxess Holdings Inc. and Richard M. McVey (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K dated November 6, 2018)#
- 10.21 Employment Letter Agreement dated as of January 6, 2023, by and between Richard M. McVey and MarketAxess Holdings Inc. (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K dated January 9, 2023)#

EXHIBIT LISTING (CONTINUED)

- 10.22 Incentive Stock Option Agreement, dated as of November 8, 2018, by and between MarketAxess Holdings Inc. and Richard M. McVey (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K dated November 6, 2018)#
- 10.23 Incentive Stock Option Agreement, dated as of November 8, 2018, by and between MarketAxess Holdings Inc. and Richard M. McVey (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K dated November 6, 2018)#
- 10.24 Performance Award Agreement, dated as of November 8, 2018, by and between MarketAxess Holdings Inc. and Richard M. McVey (incorporated by reference to Exhibit 10.4 to the registrant's Current Report on Form 8-K dated November 6, 2018)#
- 10.25 Performance Award Agreement, dated as of November 8, 2018, by and between MarketAxess Holdings Inc. and Richard M. McVey (incorporated by reference to Exhibit 10.5 to the registrant's Current Report on Form 8-K November 6, 2018)#
- 10.26 Contract of Employment, dated March 15, 2017, between MarketAxess Europe Limited and Christophe Roupie (incorporated by reference to Exhibit 10.4 to the registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017)#
- 10.27 Employment Letter Agreement, dated as of January 7, 2019, by and between MarketAxess Holdings Inc. and Christopher R. Concannon (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K dated January 4, 2019)#
- 10.28 Employment Letter Agreement dated as of January 6, 2023, by and between Christopher R. Concannon and MarketAxess Holdings Inc. (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K dated January 9, 2023)#
- 10.29 Form of Restricted Stock Unit Award Agreement for Christopher R. Concannon pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan. (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K dated January 9, 2023)#
- 10.30 Form of Performance Stock Unit Agreement for Christopher R. Concannon pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan. (incorporated by reference to Exhibit 10.4 to the registrant's Current Report on Form 8-K dated January 9, 2023)#
- 10.31 Form of 2021 Restricted Stock Unit Agreement (Deferred) for U.S. based Executive Officers pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.13 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2020)#
- 10.32 Form of 2021 Restricted Stock Unit Agreement (Non-Deferred) for U.S. based Executive Officers pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.14 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2020)#
- 10.33 Guidelines for Restricted Stock Units granted under the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.15 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2020)#
- 10.34 Form of 2021 Performance Stock Unit Agreement for U.S. based Executive Officers pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.16 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2020)#
- 10.35 Form of 2021 Incentive Stock Option Agreement for U.S. based Executive Officers pursuant to the MarketAxess Holdings Inc. 2020 Incentive Plan (incorporated by reference to Exhibit 10.17 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2020)#

EXHIBIT LISTING (CONTINUED)

- 10.36 Form of 2021 Restricted Stock Agreement for U.K. based Executive Officers pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.18 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2020)#
- 10.37 Form of 2021 Restricted Stock Agreement (Performance) for U.K. based Executive Officers pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.19 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2020)#
- 10.38 Form of 2021 Restricted Stock Agreement for Directors pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.20 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2020)#
- 10.39 Form of Restricted Stock Unit Agreement for Directors pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.21 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2020)#
- 10.40 Form of 2022 and 2023 Restricted Stock Unit Agreement (Deferred) for U.S. based Executive Officers pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 to the registrant's Quarterly Report on Form 10-Q dated April 27, 2022)#
- 10.41 Form of 2022 and 2023 Restricted Stock Unit Agreement (Non-Deferred) for U.S. based Executive Officers pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.4 to the registrant's Quarterly Report on Form 10-Q dated April 27, 2022)#
- 10.42 Form of 2022 and 2023 Performance Stock Unit Agreement for Mr. McVey pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.2 to the registrant's Quarterly Report on Form 10-Q dated April 27, 2022)#
- 10.43 Form of 2022 and 2023 Performance Stock Unit Agreement for U.S. based Executive Officers other than Mr. McVey pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.5 to the registrant's Quarterly Report on Form 10-Q dated April 27, 2022)#
- 10.44 Form of 2022 and 2023 Incentive Stock Option Agreement for Mr. McVey pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.3 to the registrant's Quarterly Report on Form 10-Q dated April 27, 2022)#
- 10.45 Form of 2022 and 2023 Incentive Stock Option Agreement for U.S. based Executive Officers other than Mr. McVey pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.6 to the registrant's Quarterly Report on Form 10-Q dated April 27, 2022)#
- 10.46 Form of 2022 and 2023 Restricted Stock Unit Agreement for U.K. based Executive Officers pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.7 to the registrant's Quarterly Report on Form 10-Q dated April 27, 2022)#
- 10.47 Form of 2022 and 2023 Performance Stock Unit Agreement for U.K. based Executive Officers pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.8 to the registrant's Quarterly Report on Form 10-Q dated April 27, 2022)#
- 10.48 Form of Restricted Stock Unit (Buyout) for Naineshkumar Panchal pursuant to the MarketAxess Holdings Inc. 2020 Equity Incentive Plan (incorporated by reference to Exhibit 10.9 to the registrant's Quarterly Report on Form 10-Q dated April 27, 2022)#
- 10.50 Severance Protection Agreement, dated as of July 31, 2020, by and between MarketAxess Holdings Inc. and Scott Pintoff (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K dated July 31, 2020)#

EXHIBIT LISTING (CONTINUED)

10.51	Severance Protection Agreement, dated as of July 31, 2020, by and between MarketAxess Holdings Inc. and Kevin McPherson (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K dated July 31, 2020)#
10.52*	Severance Protection Agreement, dated as of March 1, 2022, by and between MarketAxess Holdings Inc. and Naineshkumar Shantilal Panchal#
10.53*	Proprietary Information and Non-Competition Agreement, dated as of March 1, 2022, by and between MarketAxess Holdings Inc. and Naineshkumar Shantilal Panchal#
10.54	MarketAxess Europe Limited Severance Protection Agreement, dated as of July 31, 2020, by and between MarketAxess Europe and Christophe Roupie (incorporated by reference to Exhibit 10.5 to the registrant's Current Report on Form 8-K dated July 31, 2020)#
10.55	Form of Amendment of Severance Protection Agreement for U.S. based Executive Officers, except Messrs. Gerosa and Panchal (incorporated by reference to Exhibit 10.27 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2020)#
10.56	Form of Amendment of Severance Protection Agreement for U.K. based Executive Officers (incorporated by reference to Exhibit 10.28 to the registrant's Annual report on Form 10-K for the year ended December 31, 2020)#
10.57	Severance Protection Agreement, dated as of August 12, 2021, by and between MarketAxess Holdings Inc. and Christopher N. Gerosa (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K dated August 12, 2021)#
10.58	Offer Letter, dated November 24, 2021, by and between MarketAxess Holdings Inc. and Naineshkumar Shantilal Panchal (incorporated by reference to Exhibit 10.32 to the registrant's Annual Report on Form 10-K for the year ended December 31, 2021)#†
10.59	Credit Agreement, dated as of October 15, 2021, among MarketAxess Holdings Inc., a Delaware corporation, the lenders party thereto and JPMorgan Chase Bank, N.A., as administrative agent (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K dated October 15, 2021)
21.1*	Subsidiaries of the Registrant
23.1*	Consent of PricewaterhouseCoopers LLP
31.1*	Certification by Chief Executive Officer pursuant to Exchange Act Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2*	Certification by Chief Financial Officer pursuant to Exchange Act Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1*	Certification by Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2*	Certification by Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document

EXHIBIT LISTING (CONTINUED)

- 101.PRE Inline XBRL Taxonomy Extension Presentation Linkbase Document
- 101.DEF Inline XBRL Taxonomy Extension Definition Linkbase Document
- 104 The cover page from the Company's Annual Report on Form 10-K for the year ended December 31, 2022 has been formatted in Inline XBRL and is included in Exhibits 101.

* Filed herewith.

† Certain confidential information, identified by bracketed asterisks "[*****]" has been omitted from this exhibit pursuant to Item 601(b)(10) of Regulation S-K because it is both (i) not material and (ii) is the type that the registrant treats as private or confidential.

Management contract or compensatory plan or arrangement.

Item 16. *Form 10-K Summary*

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

MARKETAXESS HOLDINGS INC.

By: /s/ RICHARD M. MCVEY
Richard M. McVey
Chief Executive Officer

Date: February 22, 2023

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed by the following persons on behalf of the registrant and in the capacities and on the dates indicated:

Signature	Title(s)	Date
<u>/s/ RICHARD M. MCVEY</u> Richard M. McVey	Chief Executive Officer and Chairman of the Board of Directors (principal executive officer)	February 22, 2023
<u>/s/ CHRISTOPHER N. GEROSA</u> Christopher N. Gerosa	Chief Financial Officer (principal financial and accounting officer)	February 22, 2023
<u>/s/ CHRISTOPHER R. CONCANNON</u> Christopher R. Concannon	Director, President and Chief Operating Officer	February 22, 2023
<u>/s/ NANCY ALTOBELLO</u> Nancy Altobello	Director	February 22, 2023
<u>/s/ STEVEN L. BEGLEITER</u> Steven L. Begleiter	Director	February 22, 2023
<u>/s/ STEPHEN P. CASPER</u> Stephen P. Casper	Director	February 22, 2023
<u>/s/ JANE CHWICK</u> Jane Chwick	Director	February 22, 2023
<u>/s/ WILLIAM CRUGER</u> William Cruger	Director	February 22, 2023
<u>/s/ KOURTNEY GIBSON</u> Kourtney Gibson	Director	February 22, 2023
<u>/s/ JUSTIN GMELICH</u> Justin Gmelich	Director	February 22, 2023
<u>/s/ RICHARD G. KETCHUM</u> Richard G. Ketchum	Director	February 22, 2023
<u>/s/XIAOJIA CHARLES LI</u> Xiaojia Charles Li	Director	February 22, 2023
<u>/s/ EMILY PORTNEY</u> Emily Portney	Director	February 22, 2023
<u>/s/ RICHARD PRAGER</u> Richard Prager	Director	February 22, 2023



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